有关敝公司产品的注意事项

请务必在使用敝公司产品之前阅读。

⚠ 注 意

产品目录中的记载内容

本产品目录中所记载的内容为2023年3月的内容。因产品改良等原因，可能会不经预告而变更其记载内容，或是停止供应本产品目录中所记载的产品。所以，请务必在使用前先确认最新的产品信息。

未按照本产品目录中所记载的内容或交货规格说明书使用敝公司产品的，即便其致使用设备发生损害、不良情况等时，敝公司也不承担任何责任，敬请知悉。

签署交货规格说明书

就本产品目录中所记载产品的产品规格等相关内容，敝公司备有交货规格说明书，详情请向敝公司咨询。在使用敝公司产品前请务必就交货规格说明书之内容确认并批准之。

实装前的事前评估

使用敝公司产品时，请务必事先安装到使用设备之后，在实际使用的环境下进行评估和确认。

用途的限定

1. 可以使用的设备

本产品目录中所记载的产品预设为使用于一般民用电子设备［音像设备、办公自动化设备、家电产品、办公设备、信息通讯设备（手机、电脑等）］以及面向本产品目录或是交货规格说明书中另行注明的设备或是敝公司另行承诺的设备的通用性，标准性用途。另外，面向下述设备的应用，敝公司也备有预设的产品系列，请参考本产品目录或是交货规格说明书的内容，使用相对应的产品。

用途	产品系列		品质等级(注释3)
	对象设备(注释1)	规格号（型号标记(注释2)）	
车载	汽车用电子设备（控制系 / 安全系）	A	1
	汽车用电子设备（车身系 / 情报系）	C	2
工业	通信基础设备·工业设备	B	2
医疗	医疗设备（国际（GHTF）第三类）	M	2
	医疗设备（国际（GHTF）第一类、第二类）	L	3
民用	一般电子设备	S	3
	移动设备专用(注释4)	E	4

注释1：基于敝公司所认知的该类设备对于电子元器件所需的一般要求规格，对于该产品系列进行的应用推荐。在讨论将各个产品系列使用在对象设备以外的设备上时，请务必事先向敝公司咨询。

注释2：在产品型号中左起第2位标注有上表中所记载的“规格号”。对于相关的详细内容，请参照有关各产品型号标示法的说明资料。

注释3：在各产品系列中，都设定了从上至下1至4的“品质等级”。另外，在未得到敝公司的事前书面承诺之前，请勿将敝公司的产品使用于相对于该产品的品质等级被设定为上位品质等级的设备。

注释4：本产品系列仅可应用于一般民用电子设备中的移动设备（智能手机、平板电脑、智能手表、掌上游戏机等）。由于其设计、规格和使用环境与面向“一般电子设备”的产品系列（规格号：S）不同，有关本产品系列的详细信息请参照交货规格说明书。另外，面向“一般电子设备”的产品系列（规格号：S）也可以应用于移动设备。

▶由于篇幅有限，本产品目录中只记载了有代表性的产品规格，若考虑使用敝公司产品时，请确认交货规格说明书中的详细规格。另外，有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等)，请参阅敝公司网站(http://www.ty-top.com/)。

2. 需要另行确认的设备

若考虑将本产品目录中所记载的产品使用于当产品发生故障、品质不良，或是由此引起的运转失常而可能会危及生命、身体或是财产，以及有可能给社会造成深刻影响的以下设备（不包括本产品目录或是交货规格说明书中另行注明可以使用设备）等时，请务必事先向敝公司咨询。

(1) 运输用设备（汽车驱动控制设备、火车控制设备、船舶控制设备等）
(2) 交通信号设备
(3) 防灾 / 保安设备
(4) 医疗设备（国际（GHTF）第三类）
(5) 高公共性信息通讯设备 / 信息处理设备（电话交换机、电话 / 无线 / 广播电视基站等）
(6) 其他与上述设备有同等品质与可靠性要求的设备

3. 禁止使用的设备

请勿将敝公司产品使用于对安全性和可靠性有着极高要求的以下设备。

(1) 航天设备（人工卫星、火箭等）
(2) 航空设备(注释1)
(3) 医疗设备（国际（GHTF）第四类）、植体（体内植入型）医疗设备(注释2)
(4) 发电控制设备（面向核能 / 水力 / 火力发电厂等的设备）
(5) 海底设备（海底中继设备、海中的作业设备等）
(6) 军事设备
(7) 其他与上述设备有同等品质与可靠性要求的设备

注释1：仅限于对航空设备的安全运行不产生直接干扰的设备［机内娱乐设备、机内照明设备、电动座椅、餐饮设备等］，在满足敝公司另行指定的相关条件时，亦可将敝公司产品用于以上用途。在贵公司考虑将敝公司的产品用于以上用途时，请务必事先向敝公司咨询相关的信息。

注释2：包括注入人体内的部分和与此相连接的体外部分。

4. 责任的限制

未经敝公司的事先书面同意，把本产品目录中所记载的产品使用于非敝公司预设用途的设备、前述需要向敝公司咨询的设备或敝公司禁止使用的设备，从而给客户或第三方造成损害的，敝公司不承担任何责任，敬请知悉。

安全设计

需将敝公司的产品使用于对安全性和可靠性要求较高的设备、电路上时，请进行充分的安全性评估和可靠性评估。另外，请通过设置保护电路、保护装置的系统，设置冗余电路不会被单一故障影响安全性的系统等失效导向安全（fail-safe）设计，确保充分的安全性。

有关知识产权

本产品目录中所记载的信息是用于说明相关产品的典型操作以及相关应用。此类信息的使用不代表对于敝公司以及第三方的知识产权以及其他权利的使用许可或是不侵权保证。

保证范围

敝公司产品的保证范围仅限于符合交货规格说明书中所记载的产品规格且已经交付的敝公司产品本身，由敝公司产品的故障或不良情况所诱发的损害，敝公司不承担任何责任，敬请知悉。但是，仅限于敝公司的产品作为通用性，标准性用途使用于本产品目录或是交货规格说明书中另行注明的设备，且以书面形式另行签署了交易基本合同书，品质保证协定书等时，敝公司将根据该合同等的条件提供保证。

正规销售渠道

本产品目录中所记载的内容适用于从敝公司营业所、销售子公司、销售代理店（即“正规销售渠道”）购买的敝公司产品，并不适用于从其他渠道购买的敝公司产品，敬请知悉。

出口时的注意事项

本产品目录中所记载的部分产品在出口时须事先确认《外汇和对外贸易法》以及美国在出口管理方面的相关法规，并办理相关手续。如有不明之处，请向敝公司咨询。

▶由于篇幅有限，本产品目录中只记载了有代表性的产品规格，若考虑使用敝公司产品时，请确认交货规格说明书中的详细规格。
另外，有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等)，请参阅敝公司网站(http://www.ty-top.com/)。

医疗设备用途使用指引

敝公司对于医疗设备国际（GHTF）第一类、第二类、第三类，都准备了相应的产品系列（左起第二位的产品型号的记号为“M”或是“L”）。因此，有意在医疗设备中采用敝公司产品时，请务必事先确认医疗设备的国际分类，并使用相应的产品系列。
另外，敝公司并没有准备意图使用于被分类为医疗设备国际（GHTF）第四类的所有设备，以及被分类为医疗设备国际（GHTF）第三类的植体（体内植入型）医疗设备（骨导式助听器、人工网膜系统、或是连接人体之体外装置等），因此请不要将敝公司的产品使用于上述任何设备中。如有不明之处，请与敝公司取得联系。

对于人体的风险		低 → 高			
日本	依照医药品医疗机器等法之分类(GHTF)	**第一类** 一般医疗设备 (GHTF Class A)	**第二类** 管制医疗设备 (GHTF Class B)	**第三类** 高度管制医疗设备 (GHTF Class C)	**第四类** 高度管制医疗设备 (GHTF Class D)
		认于发生不良情况时，对于人体产生风险的程度极低者。	认于发生不良情况时，对于人体产生风险的程度较低者。	认于发生不良情况时，对于人体产生风险的程度较高者。	对患者的侵入性高，于发生不良情况时，可能直接危及生命危险者。
		【代表实例】 ・体外诊断用仪器 ・喷雾器 ・血液气体分析器 ・脉波计 ・呼吸传感器 ・电动手术台 ・手术用照明装置 ・胆固醇分析仪 ・血型分析仪　　等	【代表实例】 ・电子体温计 ・电子血压计 ・电子内视镜 ・补聴器 ・心电仪 ・核磁共振成像(MRI) ・超音波诊断装置 ・成像诊断装置 ・X射线诊断装置 ・中央监护仪 ・血氧仪　　等	【代表实例】 ・透析机器 ・放射线治疗机器 ・输液泵 ・人工呼吸器 ・血糖监测系统 ・自动体外心脏除颤器(AED) ・皮肤激光扫描仪 ・手术电刀 ・胰岛素泵　　等	【代表实例】 ・植入式心脏起搏器 ・摄像软式血管镜 ・植入式输液泵 ・心脏用手术电刀 ・附心导管之检查装置 ・除颤器　　等
美国	FDA分类	**Class Ⅰ** General Controls	**Class Ⅱ** General Controls and Special Controls	**Class Ⅲ** General Controls and Premarket Approval	
		以医疗设备发生缺陷或故障之情况下，对病患或使用者也不会产生重大伤害或危害为前提之医疗机器。	可预设当医疗设备发生缺陷或故障时，对病患或使用者可能会造成伤害或产生危害之医疗机器。	可预设当医疗设备发生缺陷或故障时，对病患或使用者可能会产生严重伤害，致残或是致死之医疗机器。	
中国	医疗器械监督管理条例中的分类	**第一类**	**第二类**	**第三类**	
		风险程度低，实行常规管理可以保证其安全、有效的医疗器械。	具有中度风险，需要严格控制管理以保证其安全、有效的医疗器械。	具有较高风险，需要采取特别措施严格控制管理以保证其安全、有效的医疗器械。	
产品系列的对应状况		**面向医疗设备（国际（GHTF）第一类、第二类）的产品系列** （左起第二位的产品型号的记号：“L”）		**面向医疗设备（国际（GHTF）第三类）的产品系列** （左起第二位的产品型号的记号：“M”） ※注释	未对应

※注释：即使被分类为国际分类（GHTF）第三类，植体等部分的医疗设备也仍未对应。

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另外，有关各产品的详细信息(特性图、可靠性信息、使用时的注意事项等)，请参阅敝公司网站(http://www.ty-top.com/)。

医疗设备（国际（GHTF）第一类、第二类）用途 多层陶瓷电容器

回流焊

■型号标示法

M	L	A	S	U	3	1	L	B	B	5	1	0	6	K	T	N	A	0	1
①				②	③		④	⑤	⑥		⑦			⑧	⑨	⑩			

①系列

代码 (1)(2)(3)(4)	
MLAS	医疗设备（国际（GHTF）第一类、第二类）用途 多层陶瓷电容器（高介电常数） 医疗设备（国际（GHTF）第一类、第二类）用途 多层陶瓷电容器（温度补偿用） 医疗设备（国际（GHTF）第一类、第二类）用途 中高耐压多层陶瓷电容器
MLAY	医疗设备（国际（GHTF）第一类、第二类）用途 低失真设计/声音/良好偏置多层陶瓷电容器
MLRL	医疗设备（国际（GHTF）第一类、第二类）用途 LW 反转/低 ESL 多层陶瓷电容器(LWDC™)

(1) 产品群

代码	
M	多层陶瓷电容器

(2) 范畴

代码	推荐设备	品质等级
L	医疗设备（国际（GHTF）第一类、第二类）	3

(3) 类型

代码	
A	2 端子
R	LW 反转

(4) 特效 / 特性

代码	
S	标准/一般
Y	低失真设计/声音/良好偏置
L	低 ESL

②额定电压

代码	额定电压 [VDC]
P	2.5
A	4
J	6.3
L	10
E	16
T	25
G	35
U	50
H	100
Q	250
S	630
X	2000

③外型尺寸

代码	L×W [mm]	JIS(mm)	EIA(inch)
04	0.4 × 0.2	0402	01005
06	0.6 × 0.3	0603	0201
1L	1.0 × 0.5	1005	0402
10	1.0 × 0.5	1005	0402
	0.52× 1.0 ※	0510	0204
16	1.6 × 0.8	1608	0603
	0.8 × 1.6 ※	0816	0306
21	2.0 × 1.25	2012	0805
	1.25× 2.0 ※	1220	0508
31	3.2 × 1.6	3216	1206
32	3.2 × 2.5	3225	1210
45	4.5 × 3.2	4532	1812

注： ※LW 反转型（MLRL）

④产品厚度

代码	产品厚度 [mm]
H	0.13 (1.5 max ※)
E	0.18 (1.1 max ※)
2	0.2
3	0.3
K	0.45
5	0.5
8	0.8
9	0.85
Q	1.15
G	1.25
L	1.6
N	1.9 (0.088 ※)
Y	2.0 max
M	2.5

注： ※LW 反转型（MLRL）

⑤产品尺寸公差

代码	外型尺寸记号	L [mm]	W [mm]	T [mm]	产品厚度代码
A	06	0.6±0.05	0.3±0.05	0.3±0.05	3
	10	1.0±0.10	0.5±0.10	0.5±0.10	5
	16	1.6+0.15/−0.05	0.8+0.15/−0.05	0.8+0.15/−0.05	8
	21	2.0+0.15/−0.05	1.25+0.15/−0.05	1.25+0.15/−0.05	G
	31	3.2±0.20	1.6±0.20	1.6±0.20	L
	32	3.2±0.30	2.5±0.30	2.5±0.30	M
	45	4.5±0.40	3.2±0.30	2.0+0/−0.30	Y
B	06	0.6±0.09	0.3±0.09	0.3±0.09	3
	10	1.0+0.15/−0.05	0.5+0.15/−0.05	0.5+0.15/−0.05	5
	16	1.6+0.20/−0	0.8+0.20/−0	0.8+0.20/−0	8
	21	2.0+0.20/−0	1.25+0.20/−0	1.25+0.20/−0	G
	31	3.2±0.30	1.6±0.30	1.6±0.30	L
	32	3.2±0.30	2.5±0.20	1.9+0.1/−0.20	Y
C	10	1.0+0.20/−0	0.5+0.20/−0	0.5+0.20/−0	5
E	06	0.6+0.25/−0	0.3+0.25/−0	0.3+0.25/−0	3
H	31	3.2±0.15	1.6±0.15	0.85±0.10	9
				1.15±0.10	Q
J	16	1.6+0.20/−0	0.8+0.20/−0	0.45±0.05	K
	21	2.0+0.15/−0.05	1.25+0.15/−0.05	0.85±0.10	9
	32	3.2±0.30	2.5±0.20	0.85±0.10	9
				1.15±0.10	Q
L	21	2.0+0.20/−0	1.25+0.20/−0	0.85±0.10	9
	31	3.2±0.20	1.6±0.20	0.85±0.10	9
S	04	0.4±0.02	0.2±0.02	0.2±0.02	2
	06	0.6±0.03	0.3±0.03	0.3±0.03	3
	10	1.0±0.05	0.5±0.05	0.5±0.05	5
		0.52±0.05 ※	1.0±0.05	0.3±0.05	3
	16	1.6±0.10	0.8±0.10	0.8±0.10	8
		0.8±0.10 ※	1.6±0.10	0.5±0.05	5
	21	2.0±0.10	1.25±0.10	0.85±0.10	9
				1.25±0.10	G
		1.25±0.15 ※	2.0±0.15	0.85±0.10	9
	31	3.2±0.15	1.6±0.15	1.6±0.20	L
	32	3.2±0.30	2.5±0.20	2.5±0.20	M
				1.9±0.20	N
	45	4.5±0.40	3.2±0.30	2.5±0.20	M
T	16	1.6±0.10	0.8±0.10	0.45±0.05	K
X	1L	1.0±0.05	0.5±0.05	0.13±0.02	H
				0.18±0.02	E
				0.2±0.02	2
Y	1L	1.0±0.05	0.5±0.05	0.3±0.03	3

注： ※LW 反转型（MLRL）

⑥温度特性

■高介电常数【SD：低失真设计/声音/良好偏置多层陶瓷电容器除外】

代码	适用标准		温度范围［℃］	基准温度［℃］	静电容量变化率	静电容量允许偏差	允许偏差代码
B5	JIS	B	−25～＋ 85	20	±10%	±10%	K
						±20%	M
	EIA	X5R	−55～＋ 85	25	±15%	±10%	K
						±20%	M
B7	EIA	X7R	−55～＋125	25	±15%	±10%	K
						±20%	M
C6	EIA	X6S	−55～＋105	25	±22%	±10%	K
						±20%	M
C7	EIA	X7S	−55～＋125	25	±22%	±10%	K
						±20%	M
LD(※)	EIA	X5R	−55～＋ 85	25	±15%	±10%	K
						±20%	M

注： ※LD：低失真设计/声音/良好偏置多层陶瓷电容器

■温度补偿用

代码	适用标准		温度范围［℃］	基准温度［℃］	静电容量变化率	静电容量允许偏差	允许偏差代码
CG	JIS	CG	−55～＋125	20	0±30ppm/℃	±0.05pF	A
						±0.1pF	B
						±0.25pF	C
	EIA	C0G		25		±0.5pF	D
						±5%	J
CH	JIS	CH	−55～＋125	20	0±60ppm/℃	±0.1pF	B
						±0.25pF	C
	EIA	C0H		25		±0.5pF	D
						±5%	J
CJ	JIS	CJ	−55～＋125	20	0±120ppm/℃	±0.05pF	A
						±0.1pF	B
	EIA	C0J		25		±0.25pF	C
CK	JIS	CK	−55～＋125	20	0±250ppm/℃	±0.05pF	A
						±0.1pF	B
	EIA	C0K		25		±0.25pF	C

⑥系列名称

・低失真设计/声音/良好偏置多层陶瓷电容器

代码	系列名称
SD	标准品

・中高耐压多层陶瓷电容器

代码	系列名称
SD	标准品

⑦静电容量

代码（例）	静电容量
0R5	0.5pF
010	1pF
100	10pF
101	100pF
102	1,000pF
103	0.01μF
104	0.1μF
105	1μF
106	10μF
107	100μF

注： R＝小数点

⑧静电容量允许偏差

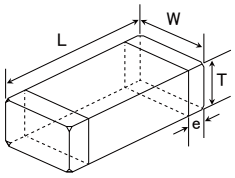
代码	静电容量允许偏差
A	±0.05pF
B	±0.1pF
C	±0.25pF
D	±0.5pF
G	±2%
J	±5%
K	±10%
M	±20%

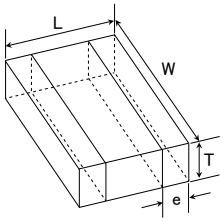
⑨包装

代码	包装规格
F	φ178mm 卷盘带装 （2mm 间隔）
T	φ178mm 卷盘带装 （4mm 间隔）
P	φ178mm 卷盘带装 （4mm 间隔，1000 个/卷盘）3225 规格（厚度代码 M）
R	φ178mm 压模带 1005 规格（2mm 间隔） 1608 规格（4mm 间隔）
W	φ178mm 压模带（1mm 间隔） 0402 规格

⑩管理记号

■标准产品尺寸





※LW 反转型

Type	JIS (mm)	EIA (inch)	标准产品尺寸 [mm]				
			L	W	T	*1	e
MLAS□04	0402	01005	0.4±0.02	0.2±0.02	0.2±0.02	2	0.1±0.03
MLAS□06	0603	0201	0.6±0.03	0.3±0.03	0.3±0.03	3	0.15±0.05
MLAS□1L	1005	0402	1.0±0.05	0.5±0.05	0.13±0.02	H	0.25±0.10
					0.18±0.02	E	
					0.2±0.02	2	
					0.3±0.03	3	
MLAS□10	1005	0402	1.0±0.05	0.5±0.05	0.5±0.05	5	0.25±0.10
MLAY□1L	1005	0402	1.0±0.05	0.5±0.05	0.3±0.03	3	0.25±0.10
MLAY□10	1005	0402	1.0±0.05	0.5±0.05	0.5±0.05	5	0.25±0.10
MLRL□10 ※	0510	0204	0.52±0.05	1.0±0.05	0.3±0.05	3	0.18±0.08
MLAS□16	1608	0603	1.6±0.10	0.8±0.10	0.45±0.05	K	0.35±0.25
					0.8±0.10	8	
MLAY□16	1608	0603	1.6±0.10	0.8±0.10	0.8±0.10	8	0.35±0.25
MLRL□16 ※	0816	0306	0.8±0.10	1.6±0.10	0.5±0.05	5	0.25±0.15
MLAS□21 MLAY□21	2012	0805	2.0±0.10	1.25±0.10	0.85±0.10	9	0.5±0.25
					1.25±0.10	G	
MLRL□21 ※	1220	0508	1.25±0.15	2.0±0.15	0.85±0.10	9	0.3±0.2
MLAS□31	3216	1206	3.2±0.15	1.6±0.15	0.85±0.10	9	0.5+0.35/−0.25
					1.15±0.10	Q	
					1.6±0.20	L	
MLAY□31	3216	1206	3.2±0.15	1.6±0.15	1.15±0.10	Q	0.5+0.35/−0.25
					1.6±0.20	L	
MLAS□32	3225	1210	3.2±0.30	2.5±0.20	0.85±0.10	9	0.6±0.3
					1.15±0.10	Q	
					1.9±0.20	N	
					1.9+0.1/−0.20	Y	
					2.5±0.20	M	
MLAY□32	3225	1210	3.2±0.30	2.5±0.20	1.9±0.20	N	0.6±0.3
					2.5±0.20	M	
MLAS□45	4532	1812	4.5±0.40	3.2±0.30	2.0+0/−0.30	Y	0.6±0.4
					2.5±0.20	M	0.9±0.6

注： ※LW 反转型（MLRL）、*1 产品厚度代码

■标准包装

外型			产品厚度		标准数量 [pcs]	
代码	JIS(mm)	EIA(inch)	[mm]	代码	纸带	压模带
04	0402	01005	0.2	2	—	40000
06	0603	0201	0.3	3	15000	—
1L	1005	0402	0.13	H	—	20000
			0.18	E	—	15000
			0.2	2	20000	—
			0.3	3	15000	—
10	1005	0402	0.5	5	10000	—
	0510 ※	0204 ※	0.3	3		
16	1608	0603	0.45	K	4000	—
			0.8	8		
	0816 ※	0306 ※	0.5	5	—	4000
21	2012	0805	0.85	9	4000	—
			1.25	G	—	3000
	1220 ※	0508 ※	0.85	9	4000	—
31	3216	1206	0.85	9	4000	—
			1.15	Q	—	3000
			1.6	L	—	2000
32	3225	1210	0.85	9	—	2000
			1.15	Q		
			1.9	N		
			2.0 max	Y		
			2.5	M	—	1000
45	4532	1812	2.0 max	Y	—	1000
			2.5	M	—	500

注： ※LW 反转型（MLRL）

■PART NUMBER

・All the Multilayer Ceramic Capacitors of the catalog lineup are RoHS Compliant.
・Capacitance tolerance code is applied to □ of part number.
・All the Multilayer Ceramic Capacitors in the catalog lineup are applicable for reflow-soldering. Please contact us for flow compatible products.

Note)
*1 We may provide X7R/X7S for some items according to the individual specification.
*2 The exchange of individual specification is necessary depending on the application and circuit condition. Please contact TAIYO YUDEN sales channels.
*3 The size standard should look at Dimension, Thickness, Dimension tolerance, and STANDARD EXTERNAL DIMENSIONS.

Multilayer Ceramic Capacitors (High dielectric type) for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●0402TYPE

【Temperature Characteristic B5(BJ): B(－25～＋85℃)/X5R(－55～＋85℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SB5101□WNA01	EMK042 BJ101□C-W	16		X5R	100 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5151□WNA01	EMK042 BJ151□C-W	16		X5R	150 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5221□WNA01	EMK042 BJ221□C-W	16		X5R	220 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5331□WNA01	EMK042 BJ331□C-W	16		X5R	330 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5471□WNA01	EMK042 BJ471□C-W	16		X5R	470 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5681□WNA01	EMK042 BJ681□C-W	16		X5R	680 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5102□WNA01	EMK042 BJ102□C-W	16	B	X5R	1000 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB5152□WNA01	EMK042 BJ152□C-W	16		X5R	1500 p	±10, ±20	10	150	0.2±0.02	
MLASE042SB5222□WNA01	EMK042 BJ222□C-W	16		X5R	2200 p	±10, ±20	10	150	0.2±0.02	
MLASE042SB5332□WNA01	EMK042 BJ332□C-W	16		X5R	3300 p	±10, ±20	10	150	0.2±0.02	
MLASE042SB5472□WNA01	EMK042 BJ472□C-W	16		X5R	4700 p	±10, ±20	10	150	0.2±0.02	
MLASE042SB5682□WNA01	EMK042 BJ682□C-W	16		X5R	6800 p	±10, ±20	10	150	0.2±0.02	
MLASE042SB5103□WNA01	EMK042 BJ103□C-W	16		X5R	0.01 μ	±10, ±20	10	150	0.2±0.02	
MLASL042SB5101□WNA01	LMK042 BJ101□C-W	10		X5R*1	100 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5151□WNA01	LMK042 BJ151□C-W	10		X5R*1	150 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5221□WNA01	LMK042 BJ221□C-W	10		X5R*1	220 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5331□WNA01	LMK042 BJ331□C-W	10		X5R*1	330 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5471□WNA01	LMK042 BJ471□C-W	10		X5R*1	470 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5681□WNA01	LMK042 BJ681□C-W	10		X5R*1	680 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5102□WNA01	LMK042 BJ102□C-W	10	B	X5R*1	1000 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB5152□WNA01	LMK042 BJ152□C-W	10		X5R	1500 p	±10, ±20	10	150	0.2±0.02	
MLASL042SB5222□WNA01	LMK042 BJ222□C-W	10		X5R	2200 p	±10, ±20	10	150	0.2±0.02	
MLASL042SB5332□WNA01	LMK042 BJ332□C-W	10		X5R	3300 p	±10, ±20	10	150	0.2±0.02	
MLASL042SB5472□WNA01	LMK042 BJ472□C-W	10		X5R	4700 p	±10, ±20	10	150	0.2±0.02	
MLASL042SB5682□WNA01	LMK042 BJ682□C-W	10		X5R	6800 p	±10, ±20	10	150	0.2±0.02	
MLASL042SB5103□WNA01	LMK042 BJ103□C-W	10		X5R	0.01 μ	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5152□WNA01	JMK042 BJ152□C-W	6.3		X5R*1	1500 p	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5222□WNA01	JMK042 BJ222□C-W	6.3		X5R*1	2200 p	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5332□WNA01	JMK042 BJ332□C-W	6.3		X5R*1	3300 p	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5472□WNA01	JMK042 BJ472□C-W	6.3		X5R*1	4700 p	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5682□WNA01	JMK042 BJ682□C-W	6.3		X5R*1	6800 p	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5103□WNA01	JMK042 BJ103□C-W	6.3		X5R*1	0.01 μ	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5223□WNA01	JMK042 BJ223□C-W	6.3		X5R	0.022 μ	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5473□WNA01	JMK042 BJ473□C-W	6.3		X5R	0.047 μ	±10, ±20	10	150	0.2±0.02	
MLASJ042SB5104□WNA01	JMK042 BJ104□C-W	6.3		X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	
MLASA042SB5473□WNA01	AMK042 BJ473□C-W	4		X5R	0.047 μ	±10, ±20	10	150	0.2±0.02	
MLASA042SB5104□WNA01	AMK042 BJ104□C-W	4		X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	

【Temperature Characteristic B7 : X7R(－55～＋125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SB7101□WNA01	EMK042 B7101□C-W	16		X7R	100 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7151□WNA01	EMK042 B7151□C-W	16		X7R	150 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7221□WNA01	EMK042 B7221□C-W	16		X7R	220 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7331□WNA01	EMK042 B7331□C-W	16		X7R	330 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7471□WNA01	EMK042 B7471□C-W	16		X7R	470 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7681□WNA01	EMK042 B7681□C-W	16		X7R	680 p	±10, ±20	5	200	0.2±0.02	
MLASE042SB7102□WNA01	EMK042 B7102□C-W	16		X7R	1000 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7101□WNA01	LMK042 B7101□C-W	10		X7R	100 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7151□WNA01	LMK042 B7151□C-W	10		X7R	150 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7221□WNA01	LMK042 B7221□C-W	10		X7R	220 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7331□WNA01	LMK042 B7331□C-W	10		X7R	330 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7471□WNA01	LMK042 B7471□C-W	10		X7R	470 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7681□WNA01	LMK042 B7681□C-W	10		X7R	680 p	±10, ±20	5	200	0.2±0.02	
MLASL042SB7102□WNA01	LMK042 B7102□C-W	10		X7R	1000 p	±10, ±20	5	200	0.2±0.02	

■PART NUMBER

●0603TYPE

【Temperature Characteristic B5(BJ): B(−25～+85℃)/X5R(−55～+85℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU063SB5101□FNA01	UMK063 BJ101□P-F	50	B	X5R*1	100 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5151□FNA01	UMK063 BJ151□P-F	50	B	X5R*1	150 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5221□FNA01	UMK063 BJ221□P-F	50	B	X5R*1	220 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5331□FNA01	UMK063 BJ331□P-F	50	B	X5R*1	330 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5471□FNA01	UMK063 BJ471□P-F	50	B	X5R*1	470 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5681□FNA01	UMK063 BJ681□P-F	50	B	X5R*1	680 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5102□FNA01	UMK063 BJ102□P-F	50	B	X5R*1	1000 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB5152□FNA01	UMK063 BJ152□P-F	50	B	X5R	1500 p	±10, ±20	5	200	0.3±0.03	
MLASU063SB5222□FNA01	UMK063 BJ222□P-F	50	B	X5R	2200 p	±10, ±20	5	200	0.3±0.03	
MLASU063SB5332□FNA01	UMK063 BJ332□P-F	50	B	X5R	3300 p	±10, ±20	5	200	0.3±0.03	
MLASU063SB5472□FNA01	UMK063 BJ472□P-F	50	B	X5R	4700 p	±10, ±20	5	200	0.3±0.03	
MLASU063SB5682□FNA01	UMK063 BJ682□P-F	50	B	X5R	6800 p	±10, ±20	5	200	0.3±0.03	
MLASU063SB5103□FNA01	UMK063 BJ103□P-F	50	B	X5R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MLASG063SB5104□FNA01	GMK063 BJ104□P-F	35		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLAST063SB5152□FNA01	TMK063 BJ152□P-F	25	B	X5R	1500 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB5222□FNA01	TMK063 BJ222□P-F	25	B	X5R	2200 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB5332□FNA01	TMK063 BJ332□P-F	25	B	X5R	3300 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB5472□FNA01	TMK063 BJ472□P-F	25	B	X5R	4700 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB5682□FNA01	TMK063 BJ682□P-F	25	B	X5R	6800 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB5103□FNA01	TMK063 BJ103□P-F	25	B	X5R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MLAST063SB5223□FNA01	TMK063 BJ223□P-F	25	B	X5R	0.022 μ	±10, ±20	7.5	200	0.3±0.03	
MLAST063AB5104□FNA01	TMK063ABJ104□P-F	25		X5R	0.1 μ	±10, ±20	10	150	0.3±0.05	
MLASE063SB5152□FNA01	EMK063 BJ152□P-F	16	B	X5R*1	1500 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB5222□FNA01	EMK063 BJ222□P-F	16	B	X5R*1	2200 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB5332□FNA01	EMK063 BJ332□P-F	16	B	X5R*1	3300 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB5472□FNA01	EMK063 BJ472□P-F	16	B	X5R*1	4700 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB5682□FNA01	EMK063 BJ682□P-F	16	B	X5R*1	6800 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB5103□FNA01	EMK063 BJ103□P-F	16	B	X5R*1	0.01 μ	±10, ±20	5	200	0.3±0.03	
MLASE063SB5153□FNA01	EMK063 BJ153□P-F	16		X5R	0.015 μ	±10, ±20	7.5	200	0.3±0.03	
MLASE063SB5223□FNA01	EMK063 BJ223□P-F	16	B	X5R	0.022 μ	±10, ±20	7.5	200	0.3±0.03	
MLASE063SB5333□FNA01	EMK063 BJ333□P-F	16		X5R	0.033 μ	±10, ±20	7.5	150	0.3±0.03	
MLASE063SB5473□FNA01	EMK063 BJ473□P-F	16		X5R	0.047 μ	±10, ±20	7.5	150	0.3±0.03	
MLASE063SB5683□FNA01	EMK063 BJ683□P-F	16		X5R	0.068 μ	±10, ±20	10	150	0.3±0.03	
MLASE063SB5104□FNA01	EMK063 BJ104□P-F	16		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASE063SB5224□FNA01	EMK063 BJ224□P-F	16		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLASE063BB5474□FNB33	EMK063BBJ474□PLF	16		X5R	0.47 μ	±10, ±20	10	150	0.3±0.09	
MLASL063SB5223□FNA01	LMK063 BJ223□P-F	10	B	X5R	0.022 μ	±10, ±20	7.5	150	0.3±0.03	
MLASL063SB5333□FNA01	LMK063 BJ333□P-F	10		X5R	0.033 μ	±10, ±20	7.5	150	0.3±0.03	
MLASL063SB5473□FNA01	LMK063 BJ473□P-F	10		X5R	0.047 μ	±10, ±20	7.5	150	0.3±0.03	
MLASL063SB5683□FNA01	LMK063 BJ683□P-F	10		X5R	0.068 μ	±10, ±20	10	150	0.3±0.03	
MLASL063SB5104□FNA01	LMK063 BJ104□P-F	10		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASL063SB5224□FNA01	LMK063 BJ224□P-F	10		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLASL063BB5474□FNB33	LMK063BBJ474□PLF	10		X5R	0.47 μ	±10, ±20	10	150	0.3±0.09	
MLASL063BB5105MFNB33	LMK063BBJ105MPLF	10		X5R	1 μ	±20	10	150	0.3±0.09	
MLASJ063SB5104□FNA01	JMK063 BJ104□P-F	6.3		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASJ063SB5224□FNA01	JMK063 BJ224□P-F	6.3		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLASJ063SB5334MFNA01	JMK063 BJ334MP-F	6.3		X5R	0.33 μ	±20	10	150	0.3±0.03	
MLASJ063SB5474□FNA01	JMK063 BJ474□P-F	6.3		X5R	0.47 μ	±10, ±20	10	150	0.3±0.03	
MLASJ063AB5105□FNA01	JMK063ABJ105□P-F	6.3		X5R	1 μ	±10, ±20	10	150	0.3±0.05	
MLASP063EB5475MFNA01	PMK063EBJ475MP-F	2.5		X5R	4.7 μ	±20	10	150	0.3+0.25/−0	

【Temperature Characteristic C6 : X6S(−55～+105℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST063SC6104□FNA01	TMK063 C6104□P-F	25		X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASE063AC6104□FNA01	EMK063AC6104□P-F	16		X6S	0.1 μ	±10, ±20	10	150	0.3±0.05	
MLASL063SC6104□FNA01	LMK063 C6104□P-F	10		X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASL063SC6224□FNA01	LMK063 C6224□P-F	10		X6S	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLASL063BC6474□FNB33	LMK063BC6474□PLF	10		X6S	0.47 μ	±10, ±20	10	150	0.3±0.09	
MLASJ063SC6104□FNA01	JMK063 C6104□P-F	6.3		X6S	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLASJ063SC6224□FNA01	JMK063 C6224□P-F	6.3		X6S	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLASJ063BC6474□FNA01	JMK063BC6474□P-F	6.3		X6S	0.47 μ	±10, ±20	10	150	0.3±0.09	
MLASJ063BC6105MFNA01	JMK063BC6105MP-F	6.3		X6S	1 μ	±20	10	150	0.3±0.09	
MLASA063SC6474□FNA01	AMK063 C6474□P-F	4		X6S	0.47 μ	±10, ±20	10	150	0.3±0.03	
MLASA063AC6105□FNA01	AMK063AC6105□P-F	4		X6S	1 μ	±10, ±20	10	150	0.3±0.05	

■PART NUMBER

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU063SB7101□FNA01	UMK063 B7101□P-F	50		X7R	100 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7151□FNA01	UMK063 B7151□P-F	50		X7R	150 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7221□FNA01	UMK063 B7221□P-F	50		X7R	220 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7331□FNA01	UMK063 B7331□P-F	50		X7R	330 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7471□FNA01	UMK063 B7471□P-F	50		X7R	470 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7681□FNA01	UMK063 B7681□P-F	50		X7R	680 p	±10, ±20	3.5	200	0.3±0.03	
MLASU063SB7102□FNA01	UMK063 B7102□P-F	50		X7R	1000 p	±10, ±20	3.5	200	0.3±0.03	
MLAST063SB7152□FNA01	TMK063 B7152□P-F	25		X7R	1500 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB7222□FNA01	TMK063 B7222□P-F	25		X7R	2200 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB7332□FNA01	TMK063 B7332□P-F	25		X7R	3300 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB7472□FNA01	TMK063 B7472□P-F	25		X7R	4700 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB7682□FNA01	TMK063 B7682□P-F	25		X7R	6800 p	±10, ±20	5	200	0.3±0.03	
MLAST063SB7103□FNA01	TMK063 B7103□P-F	25		X7R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MLASE063SB7152□FNA01	EMK063 B7152□P-F	16		X7R	1500 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB7222□FNA01	EMK063 B7222□P-F	16		X7R	2200 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB7332□FNA01	EMK063 B7332□P-F	16		X7R	3300 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB7472□FNA01	EMK063 B7472□P-F	16		X7R	4700 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB7682□FNA01	EMK063 B7682□P-F	16		X7R	6800 p	±10, ±20	5	200	0.3±0.03	
MLASE063SB7103□FNA01	EMK063 B7103□P-F	16		X7R	0.01 μ	±10, ±20	5	200	0.3±0.03	
MLASE063SB7223□FNA01	EMK063 B7223□P-F	16		X7R	0.022 μ	±10, ±20	7.5	150	0.3±0.03	

●1005TYPE

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU105SB5223□FNA01	UMK105 BJ223□V-F	50		X5R	0.022 μ	±10, ±20	5	200	0.5±0.05	
MLASU105SB5473□FNA01	UMK105 BJ473□V-F	50		X5R	0.047 μ	±10, ±20	5	200	0.5±0.05	
MLASU105SB5104□FNA01	UMK105 BJ104□V-F	50		X5R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MLASU105SB5224□FNA01	UMK105 BJ224□V-F	50		X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MLASU105AB5474□FNA01	UMK105ABJ474□V-F	50		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	
MLASU105CB5105□FNA01	UMK105CBJ105□V-F	50		X5R	1 μ	±10, ±20	10	150	0.5+0.20/−0	
MLASG105SB5104□FNA01	GMK105 BJ104□V-F	35	B	X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MLASG105AB5105□FNA01	GMK105ABJ105□V-F	35		X5R	1 μ	±10, ±20	10	150	0.5±0.10	
MLAST105SB5153□FNA01	TMK105 BJ153□V-F	25	B	X5R*1	0.015 μ	±10, ±20	3.5	200	0.5±0.05	
MLAST105SB5223□FNA01	TMK105 BJ223□V-F	25	B	X5R*1	0.022 μ	±10, ±20	3.5	200	0.5±0.05	
MLAST105SB5333□FNA01	TMK105 BJ333□V-F	25	B	X5R*1	0.033 μ	±10, ±20	3.5	150	0.5±0.05	
MLAST105SB5473□FNA01	TMK105 BJ473□V-F	25	B	X5R*1	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MLAST105SB5104□FNA01	TMK105 BJ104□V-F	25	B	X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MLAST105SB5224□FNA01	TMK105 BJ224□V-F	25		X5R	0.22 μ	±10, ±20	10	200	0.5±0.05	
MLAST105AB5474□FNA01	TMK105ABJ474□V-F	25		X5R	0.47 μ	±10, ±20	10	200	0.5±0.10	
MLAST105SB5105□FNA01	TMK105 BJ105□V-F	25		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MLAST105CB5225□FNA01	TMK105CBJ225□V-F	25		X5R	2.2 μ	±10, ±20	10	150	0.5+0.20/−0	
MLASE105SB5224□FNA01	EMK105 BJ224□V-F	16	B	X5R	0.22 μ	±10, ±20	5	150	0.5±0.05	
MLASE105AB5474□FNA01	EMK105ABJ474□V-F	16		X5R	0.47 μ	±10, ±20	10	200	0.5±0.10	
MLASE105SB5105□FNA01	EMK105 BJ105□V-F	16		X5R	1 μ	±10, ±20	10	150	0.5±0.05	
MLASE105AB5225□FNA01	EMK105ABJ225□V-F	16		X5R	2.2 μ	±10, ±20	10	150	0.5±0.10	
MLASL105SB5225□FNA01	LMK105 BJ225□V-F	10		X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MLASL105BB5475MFNB33	LMK105BBJ475MVLF	10		X5R	4.7 μ	±20	10	150	0.5+0.15/−0.05	
MLASJ105SB5225□FNA01	JMK105 BJ225□V-F	6.3		X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	
MLASJ105BB5475MFNA01	JMK105BBJ475MV-F	6.3		X5R	4.7 μ	±20	10	150	0.5+0.15/−0.05	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU1L3YB5104□FNA01	UMK105 BJ104□P-F	50		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLAST1L3YB5103□FNA01	TMK105 BJ103□P-F	25	B	X5R	0.01 μ	±10, ±20	5	150	0.3±0.03	
MLAST1L3YB5104□FNA01	TMK105 BJ104□P-F	25		X5R	0.1 μ	±10, ±20	10	150	0.3±0.03	
MLAST1L3YB5224□FNA01	TMK105 BJ224□P-F	25		X5R	0.22 μ	±10, ±20	10	150	0.3±0.03	
MLAST1L3YB5474□FNA01	TMK105 BJ474□P-F	25		X5R	0.47 μ	±10, ±20	10	150	0.3±0.03	
MLASE1L3YB5474□FNA01	EMK105 BJ474□P-F	16		X5R	0.47 μ	±10, ±20	10	150	0.3±0.03	
MLASL1L3YB5105□FNB33	LMK105 BJ105□PLF	10		X5R	1 μ	±10, ±20	10	150	0.3±0.03	
MLASJ1L3YB5105□FNA01	JMK105 BJ105□P-F	6.3		X5R	1 μ	±10, ±20	10	150	0.3±0.03	
MLASA1L3YB5225MFNA01	AMK105 BJ225MP-F	4		X5R	2.2 μ	±20	10	150	0.3±0.03	

【Temperature Characteristic B5(BJ): X5R(−55～＋85℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASL1L2XB5104□FNA01	LMK105 BJ104□C-F	10		X5R	0.1 μ	±10, ±20	10	150	0.2±0.02	
MLASJ1L2XB5224□FNA01	JMK105 BJ224□C-F	6.3		X5R	0.22 μ	±10, ±20	10	150	0.2±0.02	
MLASJ1L2XB5474□FNA01	JMK105 BJ474□C-F	6.3		X5R	0.47 μ	±10, ±20	10	150	0.2±0.02	
MLASJ1L2XB5105MFNA01	JMK105 BJ105MC-F	6.3		X5R	1 μ	±20	10	150	0.2±0.02	

■PART NUMBER

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.18mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASL1LEXB5104□RNA01	LMK105 BJ104□E-R	10		X5R	0.1 μ	±10, ±20	10	150	0.18±0.02	
MLASJ1LEXB5224□RNA01	JMK105 BJ224□E-R	6.3		X5R	0.22 μ	±10, ±20	10	150	0.18±0.02	
MLASJ1LEXB5474□RNA01	JMK105 BJ474□E-R	6.3		X5R	0.47 μ	±10, ±20	10	150	0.18±0.02	
MLASA1LEXB5105MRNA01	AMK105 BJ105ME-R	4		X5R	1 μ	±20	10	150	0.18±0.02	

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.13mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASL1LHXB5104MRNA01	LMK105 BJ104MH-R	10		X5R	0.1 μ	±20	10	150	0.13±0.02	
MLASJ1LHXB5224MRNA01	JMK105 BJ224MH-R	6.3		X5R	0.22 μ	±20	10	150	0.13±0.02	
MLASA1LHXB5474MRNA01	AMK105 BJ474MH-R	4		X5R	0.47 μ	±20	10	150	0.13±0.02	

【Temperature Characteristic C6 : X6S(−55～+105℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASG105CC6105□FNA01	GMK105CC6105□V-F	35		X6S	1 μ	±10, ±20	10	150	0.5+0.20/−0	
MLAST105AC6105□FNA01	TMK105AC6105□V-F	25		X6S	1 μ	±10, ±20	10	150	0.5±0.10	
MLAST105CC6105MFNA01	TMK105CC6105MV-F	25		X6S	1 μ	±20	10	150	0.5+0.20/−0	
MLASE105SC6105□FNA01	EMK105 C6105□V-F	16		X6S	1 μ	±10, ±20	10	150	0.5±0.05	
MLASE105CC6225□FNA01	EMK105CC6225□V-F	16		X6S	2.2 μ	±10, ±20	10	150	0.5+0.20/−0	
MLASL105SC6105□FNA01	LMK105 C6105□V-F	10		X6S	1 μ	±10, ±20	10	200	0.5±0.05	
MLASL105AC6225□FNA01	LMK105AC6225□V-F	10		X6S	2.2 μ	±10, ±20	10	150	0.5±0.10	
MLASJ105SC6225□FNA01	JMK105 C6225□V-F	6.3		X6S	2.2 μ	±10, ±20	10	150	0.5±0.05	
MLASJ105BC6475MFNA01	JMK105BC6475MV-F	6.3		X6S	4.7 μ	±20	10	150	0.5+0.15/−0.05	
MLASA105BC6475MFNA01	AMK105BC6475MV-F	4		X6S	4.7 μ	±20	10	200	0.5+0.15/−0.05	

【Temperature Characteristic B7 : X7R(−55～+125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU105SB7152□FNA01	UMK105 B7152□V-F	50		X7R	1500 p	±10, ±20	2.5	200	0.5±0.05	
MLASU105SB7222□FNA01	UMK105 B7222□V-F	50		X7R	2200 p	±10, ±20	2.5	200	0.5±0.05	
MLASU105SB7332□FNA01	UMK105 B7332□V-F	50		X7R	3300 p	±10, ±20	2.5	200	0.5±0.05	
MLASU105SB7472□FNA01	UMK105 B7472□V-F	50		X7R	4700 p	±10, ±20	2.5	150	0.5±0.05	
MLASU105SB7682□FNA01	UMK105 B7682□V-F	50		X7R	6800 p	±10, ±20	2.5	150	0.5±0.05	
MLASU105SB7103□FNA01	UMK105 B7103□V-F	50		X7R	0.01 μ	±10, ±20	3.5	150	0.5±0.05	
MLASU105SB7223□FNB25	UMK105 B7223□V-FR	50		X7R	0.022 μ	±10, ±20	10	200	0.5±0.05	
MLASU105SB7473□FNB25	UMK105 B7473□V-FR	50		X7R	0.047 μ	±10, ±20	10	200	0.5±0.05	
MLASU105SB7104□FNB25	UMK105 B7104□V-FR	50		X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	
MLAST105SB7223□FNA01	TMK105 B7223□V-F	25		X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	
MLAST105SB7473□FNA01	TMK105 B7473□V-F	25		X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	
MLAST105SB7104□FNB25	TMK105 B7104□V-FR	25		X7R	0.1 μ	±10, ±20	10	200	0.5±0.05	
MLAST105SB7224□FNB25	TMK105 B7224□V-FR	25		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MLASE105SB7223□FNA01	EMK105 B7223□V-F	16		X7R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	
MLASE105SB7473□FNA01	EMK105 B7473□V-F	16		X7R	0.047 μ	±10, ±20	3.5	200	0.5±0.05	
MLASE105SB7104□FNA01	EMK105 B7104□V-F	16		X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	
MLASE105SB7224□FNB25	EMK105 B7224□V-FR	16		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MLASL105SB7224□FNB25	LMK105 B7224□V-FR	10		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	
MLASL105SB7474□FNA01	LMK105 B7474□V-F	10		X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	
MLASJ105SB7224□FNA01	JMK105 B7224□V-F	6.3		X7R	0.22 μ	±10, ±20	5	150	0.5±0.05	
MLASJ105SB7474□FNA01	JMK105 B7474□V-F	6.3		X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	

●1608TYPE

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU168AB5474□TNA01	UMK107ABJ474□A-T	50		X5R	0.47 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLASU168SB5105□TNA01	UMK107 BJ105□A-T	50		X5R	1 μ	±10, ±20	10	150	0.8±0.10	
MLASU168BB5225□TNA01	UMK107BBJ225□A-T	50		X5R	2.2 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASG168BB5475□TNA01	GMK107BBJ475□A-T	35		X5R	4.7 μ	±10, ±20	10	150	0.8+0.20/−0	
MLAST168AB5225□TNA01	TMK107ABJ225□A-T	25		X5R	2.2 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLAST168BB5475□TNA01	TMK107BBJ475□A-T	25		X5R	4.7 μ	±10, ±20	10	150	0.8+0.20/−0	
MLAST168BB5106MTNA01	TMK107BBJ106MA-T	25		X5R	10 μ	±20	10	150	0.8+0.20/−0	
MLASE168AB5475□TNA01	EMK107ABJ475□A-T	16		X5R	4.7 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLASE168BB5106MTNA01	EMK107BBJ106MA-T	16		X5R	10 μ	±20	10	150	0.8+0.20/−0	
MLASL168BB5106□TNB33	LMK107BBJ106□ALT	10		X5R	10 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASL168BB5226MTNA01	LMK107BBJ226MA-T	10		X5R	22 μ	±20	10	150	0.8+0.20/−0	
MLASJ168AB5106□TNA01	JMK107ABJ106□A-T	6.3		X5R	10 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLASJ168BB5226MTNA01	JMK107BBJ226MA-T	6.3		X5R	22 μ	±20	10	150	0.8+0.20/−0	
MLASA168BB5476MRCA01	AMK107BBJ476MA-RE	4		X5R	47 μ	±20	20	150	0.8+0.20/−0	

■PART NUMBER

【Temperature Characteristic B5(BJ): X5R(−55～＋85℃)】 0.45mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST16KTB5105□TNA01	TMK107 BJ105□K-T	25		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MLASE16KTB5105□TNA01	EMK107 BJ105□K-T	16		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MLASE16KJB5225□TNA01	EMK107BBJ225□K-T	16		X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MLASL16KTB5105□TNA01	LMK107 BJ105□K-T	10		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MLASL16KTB5225□TNA01	LMK107 BJ225□K-T	10		X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MLASL16KJB5475MTNB33	LMK107BBJ475MKLT	10		X5R	4.7 μ	±20	10	150	0.45±0.05	
MLASJ16KTB5105□TNA01	JMK107 BJ105□K-T	6.3		X5R	1 μ	±10, ±20	10	150	0.45±0.05	
MLASJ16KTB5225□TNA01	JMK107 BJ225□K-T	6.3		X5R	2.2 μ	±10, ±20	10	150	0.45±0.05	
MLASJ16KTB5475MTNA01	JMK107 BJ475MK-T	6.3		X5R	4.7 μ	±20	10	150	0.45±0.05	

【Temperature Characteristic C6 : X6S(−55～＋105℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST168BC6225□TNA01	TMK107BC6225□A-T	25		X6S	2.2 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASE168SC6105□TNA01	EMK107 C6105□A-T	16		X6S	1 μ	±10, ±20	5	150	0.8±0.10	
MLASE168BC6225□TNA01	EMK107BC6225□A-T	16		X6S	2.2 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASE168BC6475□TNA01	EMK107BC6475□A-T	16		X6S	4.7 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASE168BC6106MTNA01	EMK107BC6106MA-T	16		X6S	10 μ	±20	10	150	0.8+0.20/−0	
MLASL168SC6105□TNA01	LMK107 C6105□A-T	10		X6S	1 μ	±10, ±20	5	150	0.8±0.10	
MLASL168AC6475□TNA01	LMK107AC6475□A-T	10		X6S	4.7 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLASL168BC6106MTNA01	LMK107BC6106MA-T	10		X6S	10 μ	±20	10	150	0.8+0.20/−0	
MLASJ168SC6475□TNA01	JMK107 C6475□A-T	6.3		X6S	4.7 μ	±10, ±20	10	150	0.8±0.10	
MLASJ168BC6106MTNA01	JMK107BC6106MA-T	6.3		X6S	10 μ	±20	10	150	0.8+0.20/−0	
MLASA168BC6226MTNA01	AMK107BC6226MA-T	4		X6S	22 μ	±20	10	150	0.8+0.20/−0	
MLASA168BC6476MRCA01	AMK107BC6476MA-RE	4		X6S	47 μ	±20	20	150	0.8+0.20/−0	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU168SB7224□TNB25	UMK107 B7224□A-TR	50		X7R	0.22 μ	±10, ±20	10	150	0.8±0.10	
MLASU168SB7474□TNB25	UMK107 B7474□A-TR	50		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MLASU168AB7105□TNA01	UMK107AB7105□A-T	50		X7R	1 μ	±10, ±20	10	150	0.8+0.15/−0.05	
MLAST168SB7474□TNB25	TMK107 B7474□A-TR	25		X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	
MLAST168SB7105□TNA01	TMK107 B7105□A-T	25		X7R	1 μ	±10, ±20	10	150	0.8±0.10	
MLASE168SB7474□TNA01	EMK107 B7474□A-T	16		X7R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	
MLASE168SB7105□TNA01	EMK107 B7105□A-T	16		X7R	1 μ	±10, ±20	5	150	0.8±0.10	
MLASE168BB7225□TNA01	EMK107BB7225□A-T	16		X7R	2.2 μ	±10, ±20	10	150	0.8+0.20/−0	
MLASL168SB7225□TNB25	LMK107 B7225□A-TR	10		X7R	2.2 μ	±10, ±20	10	150	0.8±0.10	
MLASJ168SB7225□TNB25	JMK107 B7225□A-TR	6.3		X7R	2.2 μ	±10, ±20	10	200	0.8±0.10	
MLASJ168BB7475□TNA01	JMK107BB7475□A-T	6.3		X7R	4.7 μ	±10, ±20	10	150	0.8+0.20/−0	

●2012TYPE

【Temperature Characteristic B5(BJ): X5R(−55～＋85℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU21GBB5475□TNA01	UMK212BBJ475□G-T	50		X5R	4.7 μ	±10, ±20	10	150	1.25+0.20/−0	
MLASG21GBB5106□TNA01	GMK212BBJ106□G-T	35		X5R	10 μ	±10, ±20	10	150	1.25+0.20/−0	
MLAST21GAB5475□TNA01	TMK212ABJ475□G-T	25		X5R	4.7 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MLAST21GBB5106□TNA01	TMK212BBJ106□G-T	25		X5R	10 μ	±10, ±20	10	150	1.25+0.20/−0	
MLAST21GBB5226MTNC12	TMK212BBJ226MG-TT	25		X5R	22 μ	±20	10	150	1.25+0.20/−0	
MLASE21GAB5106□TNA01	EMK212ABJ106□G-T	16		X5R	10 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MLASE21GBB5226MTNA01	EMK212BBJ226MG-T	16		X5R	22 μ	±20	10	150	1.25+0.20/−0	
MLASL21GBB5226MTNA01	LMK212BBJ226MG-T	10		X5R	22 μ	±20	10	150	1.25+0.20/−0	
MLASL21GBB5476MTNA01	LMK212BBJ476MG-T	10		X5R	47 μ	±20	10	150	1.25+0.20/−0	
MLASJ21GAB5226□TNA01	JMK212ABJ226□G-T	6.3		X5R	22 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MLASJ21GBB5476MTNA01	JMK212BBJ476MG-T	6.3		X5R	47 μ	±20	10	150	1.25+0.20/−0	
MLASA21GBB5107MTCA01	AMK212BBJ107MG-TE	4		X5R	100 μ	±20	20	150	1.25+0.20/−0	

■PART NUMBER

【Temperature Characteristic B5(BJ): B(−25～+85℃)/X5R(−55～+85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU219JB5105□TNA01	UMK212ABJ105□D-T	50		X5R	1 μ	±10, ±20	10	150	0.85±0.10	
MLASU219LB5225□TNA01	UMK212BBJ225□D-T	50		X5R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MLASG219LB5475□TNA01	GMK212BBJ475□D-T	35		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLAST219SB5474□TNA01	TMK212 BJ474□D-T	25	B	X5R	0.47 μ	±10, ±20	3.5	200	0.85±0.10	
MLAST219SB5105□TNA01	TMK212 BJ105□D-T	25	B	X5R	1 μ	±10, ±20	5	200	0.85±0.10	
MLAST219JB5225□TNA01	TMK212ABJ225□D-T	25		X5R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MLAST219LB5475□TNA01	TMK212BBJ475□D-T	25		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLAST219LB5106□TNA01	TMK212BBJ106□D-T	25		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MLASE219SB5105□TNA01	EMK212 BJ105□D-T	16	B	X5R*1	1 μ	±10, ±20	5	200	0.85±0.10	
MLASE219JB5225□TNA01	EMK212ABJ225□D-T	16		X5R*1	2.2 μ	±10, ±20	5	200	0.85±0.10	
MLASE219SB5475□TNA01	EMK212 BJ475□D-T	16		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLASE219JB5106□TNA01	EMK212ABJ106□D-T	16		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MLASL219SB5105□TNA01	LMK212 BJ105□D-T	10	B	X5R*1	1 μ	±10, ±20	3.5	200	0.85±0.10	
MLASL219SB5225□TNA01	LMK212 BJ225□D-T	10		X5R*1	2.2 μ	±10, ±20	5	200	0.85±0.10	
MLASL219JB5106□TNA01	LMK212ABJ106□D-T	10		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MLASL219LB5226MTNA01	LMK212BBJ226MD-T	10		X5R	22 μ	±20	10	150	0.85±0.10	
MLASJ219JB5106□TNA01	JMK212ABJ106□D-T	6.3		X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MLASJ219JB5226MTNA01	JMK212ABJ226MD-T	6.3		X5R	22 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic C6 : X6S(−55～+105℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST21GBC6106□TNA01	TMK212BC6106□G-T	25		X6S	10 μ	±10, ±20	10	150	1.25+0.20/−0	
MLASE21GBC6226MTNC12	EMK212BC6226MG-TT	16		X6S	22 μ	±20	10	150	1.25+0.20/−0	
MLASL21GBC6226MTNA01	LMK212BC6226MG-T	10		X6S	22 μ	±20	10	150	1.25+0.20/−0	
MLASJ21GBC6226MTNA01	JMK212BC6226MG-T	6.3		X6S	22 μ	±20	10	150	1.25+0.20/−0	
MLASA21GAC6226MTNA01	AMK212AC6226MG-T	4		X6S	22 μ	±20	10	150	1.25+0.15/−0.05	
MLASA21GBC6476MTNA01	AMK212BC6476MG-T	4		X6S	47 μ	±20	10	150	1.25+0.20/−0	

【Temperature Characteristic C6 : X6S(−55～+105℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASL219JC6106□TNA01	LMK212AC6106□D-T	10		X6S	10 μ	±10, ±20	10	150	0.85±0.10	
MLASA219LC6226MTNA01	AMK212BC6226MD-T	4		X6S	22 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic B7 : X7R(−55～+125℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU21GSB7224□TNA01	UMK212 B7224□G-T	50		X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	
MLASU21GSB7474□TNA01	UMK212 B7474□G-T	50		X7R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	
MLASU21GSB7105□TNA01	UMK212 B7105□G-T	50		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MLASU21GBB7225□TNA01	UMK212BB7225□G-T	50		X7R	2.2 μ	±10, ±20	10	150	1.25+0.20/−0	
MLASG21GSB7105□TNA01	GMK212 B7105□G-T	35		X7R	1 μ	±10, ±20	10	150	1.25±0.10	
MLAST21GSB7225□TNB25	TMK212 B7225□G-TR	25		X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	
MLAST21GAB7475□TNA01	TMK212AB7475□G-T	25		X7R	4.7 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MLASE21GSB7475□TNA01	EMK212 B7475□G-T	16		X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	
MLASE21GBB7106MTNA01	EMK212BB7106MG-T	16		X7R	10 μ	±20	10	150	1.25+0.20/−0	
MLASL21GAB7106□TNA01	LMK212AB7106□G-T	10		X7R	10 μ	±10, ±20	10	150	1.25+0.15/−0.05	
MLASJ21GAB7106□TNA01	JMK212AB7106□G-T	6.3		X7R	10 μ	±10, ±20	10	150	1.25+0.15/−0.05	

【Temperature Characteristic B7 : X7R(−55～+125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU219JB7104□TNA01	UMK212AB7104□D-T	50		X7R	0.1 μ	±10, ±20	10	150	0.85±0.10	
MLASU219JB7224□TNA01	UMK212AB7224□D-T	50		X7R	0.22 μ	±10, ±20	10	150	0.85±0.10	
MLASU219JB7474□TNA01	UMK212AB7474□D-T	50		X7R	0.47 μ	±10, ±20	10	150	0.85±0.10	
MLASU219JB7105□TNA01	UMK212AB7105□D-T	50		X7R	1 μ	±10, ±20	10	150	0.85±0.10	
MLAST219JB7225□TNB25	TMK212AB7225□D-TR	25		X7R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MLASE219SB7474□TNA01	EMK212 B7474□D-T	16		X7R	0.47 μ	±10, ±20	3.5	200	0.85±0.10	
MLASE219SB7105□TNA01	EMK212 B7105□D-T	16		X7R	1 μ	±10, ±20	5	200	0.85±0.10	
MLASE219JB7225□TNA01	EMK212AB7225□D-T	16		X7R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MLASE219LB7475MTNA01	EMK212BB7475MD-T	16		X7R	4.7 μ	±20	10	150	0.85±0.10	
MLASL219SB7105□TNA01	LMK212 B7105□D-T	10		X7R	1 μ	±10, ±20	3.5	200	0.85±0.10	
MLASL219JB7225□TNA01	LMK212AB7225□D-T	10		X7R	2.2 μ	±10, ±20	5	200	0.85±0.10	
MLASL219JB7475□TNB25	LMK212AB7475□D-TR	10		X7R	4.7 μ	±10, ±20	10	150	0.85±0.10	

■PART NUMBER

●3216TYPE

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU31LSB5475□TNA01	UMK316 BJ475□L-T	50		X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MLASU31LBB5106□TNA01	UMK316BBJ106□L-T	50		X5R	10 μ	±10, ±20	10	150	1.6±0.30	
MLAST31LBB5226MTNA01	TMK316BBJ226ML-T	25		X5R	22 μ	±20	10	150	1.6±0.30	
MLASE31LBB5476MTNA01	EMK316BBJ476ML-T	16		X5R	47 μ	±20	10	150	1.6±0.30	
MLASL31LAB5476MTNA01	LMK316ABJ476ML-T	10		X5R	47 μ	±20	10	150	1.6±0.20	
MLASJ31LAB5107MTNA01	JMK316ABJ107ML-T	6.3		X5R	100 μ	±20	10	150	1.6±0.20	
MLASA31LAB5107MTNA01	AMK316ABJ107ML-T	4		X5R	100 μ	±20	10	150	1.6±0.20	
MLASA31LBB5157MTNA01	AMK316BBJ157ML-T	4		X5R	150 μ	±20	10	150	1.6±0.30	
MLASP31LBB5227MTNA01	PMK316BBJ227ML-T	2.5		X5R	220 μ	±20	10	150	1.6±0.30	

【Temperature Characteristic B5(BJ): B(−25～+85℃)/X5R(−55～+85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU319HB5105□TNA01	UMK316 BJ105□D-T	50	B	X5R	1 μ	±10, ±20	3.5	150	0.85±0.10	
MLASU319HB5225□TNA01	UMK316 BJ225□D-T	50	B	X5R	2.2 μ	±10, ±20	3.5	150	0.85±0.10	
MLASU319LB5475□TNA01	UMK316ABJ475□D-T	50		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLAST319HB5105□TNA01	TMK316 BJ105□D-T	25	B	X5R	1 μ	±10, ±20	3.5	200	0.85±0.10	
MLAST319HB5225□TNA01	TMK316 BJ225□D-T	25	B	X5R	2.2 μ	±10, ±20	3.5	150	0.85±0.10	
MLAST319HB5475□TNA01	TMK316 BJ475□D-T	25		X5R	4.7 μ	±10, ±20	5	150	0.85±0.10	
MLAST319LB5106□TNA01	TMK316ABJ106□D-T	25		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MLASE319HB5225□TNA01	EMK316 BJ225□D-T	16	B	X5R	2.2 μ	±10, ±20	3.5	200	0.85±0.10	
MLASE319HB5475□TNA01	EMK316 BJ475□D-T	16	B	X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MLASE319HB5106□TNA01	EMK316 BJ106□D-T	16		X5R	10 μ	±10, ±20	10	150	0.85±0.10	
MLASE319LB5226MTNA01	EMK316ABJ226MD-T	16		X5R	22 μ	±20	10	150	0.85±0.10	
MLASL319HB5475□TNA01	LMK316 BJ475□D-T	10	B	X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MLASL319HB5106□TNA01	LMK316 BJ106□D-T	10		X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MLASL319LB5226MTNA01	LMK316ABJ226MD-T	10		X5R	22 μ	±20	10	150	0.85±0.10	
MLASJ319HB5106□TNA01	JMK316 BJ106□D-T	6.3		X5R	10 μ	±10, ±20	10	200	0.85±0.10	
MLASJ319LB5226MTNA01	JMK316ABJ226MD-T	6.3		X5R	22 μ	±20	10	150	0.85±0.10	
MLASJ319LB5476MTNA01	JMK316ABJ476MD-T	6.3		X5R	47 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic C6 : X6S(−55～+105℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE31LBC6226MTNA01	EMK316BC6226ML-T	16		X6S	22 μ	±20	10	150	1.6±0.30	
MLASL31LBC6476MTNA01	LMK316BC6476ML-T	10		X6S	47 μ	±20	10	150	1.6±0.30	
MLASJ31LAC6476MTNA01	JMK316AC6476ML-T	6.3		X6S	47 μ	±20	10	150	1.6±0.20	
MLASA31LAC6476MTNA01	AMK316AC6476ML-T	4		X6S	47 μ	±20	10	200	1.6±0.20	
MLASA31LAC6107MTNA01	AMK316AC6107ML-T	4		X6S	100 μ	±20	10	150	1.6±0.20	

【Temperature Characteristic C7 : X7S(−55～+125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASJ31LAC7476MTNA01	JMK316AC7476ML-T	6.3		X7S	47 μ	±20	10	150	1.6±0.20	
MLASA31LAC7476MTNA01	AMK316AC7476ML-T	4		X7S	47 μ	±20	10	150	1.6±0.20	

【Temperature Characteristic B7 : X7R(−55～+125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU31LSB7225□TNA01	UMK316 B7225□L-T	50		X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	
MLASU31LAB7475□TNA01	UMK316AB7475□L-T	50		X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	
MLASG31LAB7106□TNB25	GMK316AB7106□L-TR	35		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MLAST31LAB7475□TNA01	TMK316AB7475□L-T	25		X7R	4.7 μ	±10, ±20	10	200	1.6±0.20	
MLAST31LAB7106□TNA01	TMK316AB7106□L-T	25		X7R	10 μ	±10, ±20	10	150	1.6±0.20	
MLASE31LSB7475□TNA01	EMK316 B7475□L-T	16		X7R	4.7 μ	±10, ±20	5	200	1.6±0.20	
MLASE31LAB7106□TNA01	EMK316AB7106□L-T	16		X7R	10 μ	±10, ±20	10	200	1.6±0.20	
MLASL31LAB7106□TNA01	LMK316AB7106□L-T	10		X7R	10 μ	±10, ±20	10	200	1.6±0.20	
MLASL31LAB7226□TNB25	LMK316AB7226□L-TR	10		X7R	22 μ	±10, ±20	10	150	1.6±0.20	

【Temperature Characteristic B7 : X7R(−55～+125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU319HB7225□TNA01	UMK316 B7225□D-T	50		X7R	2.2 μ	±10, ±20	10	150	0.85±0.10	
MLAST319LB7475□TNA01	TMK316AB7475□D-T	25		X7R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLASL319LB7106MTNA01	LMK316AB7106MD-T	10		X7R	10 μ	±20	10	150	0.85±0.10	

■PART NUMBER

●3225TYPE

【Temperature Characteristic B5(BJ): X5R(−55～＋85℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU32MSB5106□PNA01	UMK325 BJ106□M-P	50		X5R	10 μ	±10, ±20	5	150	2.5±0.20	
MLASG32MSB5226MPNA01	GMK325 BJ226MM-P	35		X5R	22 μ	±20	5	150	2.5±0.20	
MLAST32MAB5476MPNDT1	TMK325ABJ476MM-P	25		X5R	47 μ	±20	10	150	2.5±0.30	
MLASE32MAB5107MPNA01	EMK325ABJ107MM-P	16		X5R	100 μ	±20	10	150	2.5±0.30	
MLASL32MAB5107MPNA01	LMK325ABJ107MM-P	10		X5R	100 μ	±20	10	150	2.5±0.30	
MLASJ32MAB5157MPNDT1	JMK325ABJ157MM-P	6.3		X5R	150 μ	±20	10	150	2.5±0.30	
MLASJ32MAB5227MPNDT1	JMK325ABJ227MM-P	6.3		X5R	220 μ	±20	10	150	2.5±0.30	
MLASA32MAB5157MPNDT1	AMK325ABJ157MM-P	4		X5R	150 μ	±20	10	150	2.5±0.30	
MLASA32MAB5227MPNDT1	AMK325ABJ227MM-P	4		X5R	220 μ	±20	10	150	2.5±0.30	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU32NSB5475□TNA01	UMK325 BJ475□N-T	50		X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MLASG32NSB5225□TNA01	GMK325 BJ225□N-T	35	B	X5R	2.2 μ	±10, ±20	3.5	200	1.9±0.20	
MLASG32NSB5475□TNA01	GMK325 BJ475□N-T	35		X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MLASG32NSB5106□TNA01	GMK325 BJ106□N-T	35		X5R	10 μ	±10, ±20	5	150	1.9±0.20	
MLAST32NSB5335MTNA01	TMK325 BJ335MN-T	25	B	X5R*1	3.3 μ	±20	3.5	200	1.9±0.20	
MLAST32NSB5475□TNA01	TMK325 BJ475□N-T	25	B	X5R*1	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MLAST32NSB5106□TNA01	TMK325 BJ106□N-T	25		X5R	10 μ	±10, ±20	5	200	1.9±0.20	
MLASE32NSB5475□TNA01	EMK325 BJ475□N-T	16	B	X5R*1	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MLASE32NSB5106□TNA01	EMK325 BJ106□N-T	16		X5R	10 μ	±10, ±20	3.5	200	1.9±0.20	
MLASE32YBB5476MTNA01	EMK325 BJ476MY-T	16		X5R	47 μ	±20	10	150	1.9+0.1/−0.2	
MLASL32NSB5106□TNA01	LMK325 BJ106□N-T	10		X5R	10 μ	±10, ±20	3.5	200	1.9±0.20	
MLASL32YBB5226MTNA01	LMK325 BJ226MY-T	10	B	X5R	22 μ	±20	5	150	1.9+0.1/−0.2	
MLASJ32YBB5226MTNA01	JMK325 BJ226MY-T	6.3	B	X5R	22 μ	±20	5	200	1.9+0.1/−0.2	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST329JB5106□TNA01	TMK325 BJ106□D-T	25		X5R	10 μ	±10, ±20	5	150	0.85±0.10	
MLASE329JB5106□TNA01	EMK325 BJ106□D-T	16		X5R	10 μ	±10, ±20	5	150	0.85±0.10	
MLASE329JB5226MTNA01	EMK325 BJ226MD-T	16		X5R	22 μ	±20	10	150	0.85±0.10	
MLASL329JB5335□TNA01	LMK325 BJ335□D-T	10	B	X5R	3.3 μ	±10, ±20	3.5	200	0.85±0.10	
MLASL329JB5475□TNA01	LMK325 BJ475□D-T	10	B	X5R	4.7 μ	±10, ±20	5	200	0.85±0.10	
MLASL329JB5106□TNA01	LMK325 BJ106□D-T	10		X5R	10 μ	±10, ±20	5	150	0.85±0.10	

【Temperature Characteristic C6 : X6S(−55～＋105℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE32MAC6476MPNDT1	EMK325AC6476MM-P	16		X6S	47 μ	±20	10	150	2.5±0.30	
MLASL32MAC6107MPNA01	LMK325AC6107MM-P	10		X6S	100 μ	±20	10	150	2.5±0.30	
MLASA32MAC6157MPNDT1	AMK325AC6157MM-P	4		X6S	150 μ	±20	10	150	2.5±0.30	
MLASA32MAC6227MPNDT1	AMK325AC6227MM-P	4		X6S	220 μ	±20	10	150	2.5±0.30	
MLASP32MAC6227MPNDT1	PMK325AC6227MM-P	2.5		X6S	220 μ	±20	10	200	2.5±0.30	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU32MSB7335□PNA01	UMK325 B7335□M-P	50		X7R	3.3 μ	±10, ±20	3.5	200	2.5±0.20	
MLASU32MSB7475□PNA01	UMK325 B7475□M-P	50		X7R	4.7 μ	±10, ±20	5	150	2.5±0.20	
MLASU32MAB7106□PNA01	UMK325AB7106□M-P	50		X7R	10 μ	±10, ±20	10	150	2.5±0.30	
MLAST32MAB7106□PNA01	TMK325AB7106□M-P	25		X7R	10 μ	±10, ±20	10	200	2.5±0.30	
MLAST32MSB7226□PNB25	TMK325 B7226□M-PR	25		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MLASE32MSB7226□PNB25	EMK325 B7226□M-PR	16		X7R	22 μ	±10, ±20	10	150	2.5±0.20	
MLASL32MSB7476□PNB25	LMK325 B7476□M-PR	10		X7R	47 μ	±10, ±20	10	150	2.5±0.20	
MLASJ32MSB7476□PNB25	JMK325 B7476□M-PR	6.3		X7R	47 μ	±10, ±20	10	200	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU32NSB7475□TNB25	UMK325 B7475□N-TR	50		X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	
MLAST32NSB7335□TNA01	TMK325 B7335□N-T	25		X7R	3.3 μ	±10, ±20	3.5	200	1.9±0.20	
MLAST32NSB7475□TNA01	TMK325 B7475□N-T	25		X7R	4.7 μ	±10, ±20	3.5	150	1.9±0.20	
MLAST32NSB7106□TNB25	TMK325 B7106□N-TR	25		X7R	10 μ	±10, ±20	10	150	1.9±0.20	
MLASE32NSB7475□TNA01	EMK325 B7475□N-T	16		X7R	4.7 μ	±10, ±20	3.5	200	1.9±0.20	
MLASE32NSB7106□TNA01	EMK325 B7106□N-T	16		X7R	10 μ	±10, ±20	3.5	150	1.9±0.20	
MLASL32NSB7106□TNA01	LMK325 B7106□N-T	10		X7R	10 μ	±10, ±20	3.5	200	1.9±0.20	

■PART NUMBER

Multilayer Ceramic Capacitors (Temperature compensating type) for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●0402TYPE

【Temperature Characteristic CΔ : CΔ/C0Δ(－55～＋125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST042SCK0R4□WNA01	TMK042 CK0R4□D-W	25	CK	C0K	0.4 p	±0.05pF,±0.1pF,±0.25pF	408	200	0.2±0.02	
MLAST042SCK0R5□WNA01	TMK042 CK0R5□D-W	25	CK	C0K	0.5 p	±0.05pF,±0.1pF,±0.25pF	410	200	0.2±0.02	
MLAST042SCK0R6□WNA01	TMK042 CK0R6□D-W	25	CK	C0K	0.6 p	±0.05pF,±0.1pF,±0.25pF	412	200	0.2±0.02	
MLAST042SCK0R7□WNA01	TMK042 CK0R7□D-W	25	CK	C0K	0.7 p	±0.05pF,±0.1pF,±0.25pF	414	200	0.2±0.02	
MLAST042SCKR75□WNA01	TMK042 CKR75□D-W	25	CK	C0K	0.75 p	±0.05pF,±0.1pF,±0.25pF	415	200	0.2±0.02	
MLAST042SCK0R8□WNA01	TMK042 CK0R8□D-W	25	CK	C0K	0.8 p	±0.05pF,±0.1pF,±0.25pF	416	200	0.2±0.02	
MLAST042SCK0R9□WNA01	TMK042 CK0R9□D-W	25	CK	C0K	0.9 p	±0.05pF,±0.1pF,±0.25pF	418	200	0.2±0.02	
MLAST042SCK010□WNA01	TMK042 CK010□D-W	25	CK	C0K	1 p	±0.05pF,±0.1pF,±0.25pF	420	200	0.2±0.02	
MLAST042SCK1R1□WNA01	TMK042 CK1R1□D-W	25	CK	C0K	1.1 p	±0.05pF,±0.1pF,±0.25pF	422	200	0.2±0.02	
MLAST042SCK1R2□WNA01	TMK042 CK1R2□D-W	25	CK	C0K	1.2 p	±0.05pF,±0.1pF,±0.25pF	424	200	0.2±0.02	
MLAST042SCK1R3□WNA01	TMK042 CK1R3□D-W	25	CK	C0K	1.3 p	±0.05pF,±0.1pF,±0.25pF	426	200	0.2±0.02	
MLAST042SCK1R4□WNA01	TMK042 CK1R4□D-W	25	CK	C0K	1.4 p	±0.05pF,±0.1pF,±0.25pF	428	200	0.2±0.02	
MLAST042SCK1R5□WNA01	TMK042 CK1R5□D-W	25	CK	C0K	1.5 p	±0.05pF,±0.1pF,±0.25pF	430	200	0.2±0.02	
MLAST042SCK1R6□WNA01	TMK042 CK1R6□D-W	25	CK	C0K	1.6 p	±0.05pF,±0.1pF,±0.25pF	432	200	0.2±0.02	
MLAST042SCK1R7□WNA01	TMK042 CK1R7□D-W	25	CK	C0K	1.7 p	±0.05pF,±0.1pF,±0.25pF	434	200	0.2±0.02	
MLAST042SCK1R8□WNA01	TMK042 CK1R8□D-W	25	CK	C0K	1.8 p	±0.05pF,±0.1pF,±0.25pF	436	200	0.2±0.02	
MLAST042SCK1R9□WNA01	TMK042 CK1R9□D-W	25	CK	C0K	1.9 p	±0.05pF,±0.1pF,±0.25pF	438	200	0.2±0.02	
MLAST042SCK020□WNA01	TMK042 CK020□D-W	25	CK	C0K	2 p	±0.05pF,±0.1pF,±0.25pF	440	200	0.2±0.02	
MLAST042SCK2R1□WNA01	TMK042 CK2R1□D-W	25	CK	C0K	2.1 p	±0.05pF,±0.1pF,±0.25pF	442	200	0.2±0.02	
MLAST042SCK2R2□WNA01	TMK042 CK2R2□D-W	25	CK	C0K	2.2 p	±0.05pF,±0.1pF,±0.25pF	444	200	0.2±0.02	
MLAST042SCK2R3□WNA01	TMK042 CK2R3□D-W	25	CK	C0K	2.3 p	±0.05pF,±0.1pF,±0.25pF	446	200	0.2±0.02	
MLAST042SCK2R4□WNA01	TMK042 CK2R4□D-W	25	CK	C0K	2.4 p	±0.05pF,±0.1pF,±0.25pF	448	200	0.2±0.02	
MLAST042SCK2R5□WNA01	TMK042 CK2R5□D-W	25	CK	C0K	2.5 p	±0.05pF,±0.1pF,±0.25pF	450	200	0.2±0.02	
MLAST042SCK2R6□WNA01	TMK042 CK2R6□D-W	25	CK	C0K	2.6 p	±0.05pF,±0.1pF,±0.25pF	452	200	0.2±0.02	
MLAST042SCK2R7□WNA01	TMK042 CK2R7□D-W	25	CK	C0K	2.7 p	±0.05pF,±0.1pF,±0.25pF	454	200	0.2±0.02	
MLAST042SCK2R8□WNA01	TMK042 CK2R8□D-W	25	CK	C0K	2.8 p	±0.05pF,±0.1pF,±0.25pF	456	200	0.2±0.02	
MLAST042SCK2R9□WNA01	TMK042 CK2R9□D-W	25	CK	C0K	2.9 p	±0.05pF,±0.1pF,±0.25pF	458	200	0.2±0.02	
MLAST042SCJ030□WNA01	TMK042 CJ030□D-W	25	CJ	C0J	3 p	±0.05pF,±0.1pF,±0.25pF	460	200	0.2±0.02	
MLAST042SCJ3R1□WNA01	TMK042 CJ3R1□D-W	25	CJ	C0J	3.1 p	±0.1pF,±0.25pF	462	200	0.2±0.02	
MLAST042SCJ3R2□WNA01	TMK042 CJ3R2□D-W	25	CJ	C0J	3.2 p	±0.1pF,±0.25pF	464	200	0.2±0.02	
MLAST042SCJ3R3□WNA01	TMK042 CJ3R3□D-W	25	CJ	C0J	3.3 p	±0.1pF,±0.25pF	466	200	0.2±0.02	
MLAST042SCJ3R4□WNA01	TMK042 CJ3R4□D-W	25	CJ	C0J	3.4 p	±0.1pF,±0.25pF	468	200	0.2±0.02	
MLAST042SCJ3R5□WNA01	TMK042 CJ3R5□D-W	25	CJ	C0J	3.5 p	±0.1pF,±0.25pF	470	200	0.2±0.02	
MLAST042SCJ3R6□WNA01	TMK042 CJ3R6□D-W	25	CJ	C0J	3.6 p	±0.1pF,±0.25pF	472	200	0.2±0.02	
MLAST042SCJ3R7□WNA01	TMK042 CJ3R7□D-W	25	CJ	C0J	3.7 p	±0.1pF,±0.25pF	474	200	0.2±0.02	
MLAST042SCJ3R8□WNA01	TMK042 CJ3R8□D-W	25	CJ	C0J	3.8 p	±0.1pF,±0.25pF	476	200	0.2±0.02	
MLAST042SCJ3R9□WNA01	TMK042 CJ3R9□D-W	25	CJ	C0J	3.9 p	±0.1pF,±0.25pF	478	200	0.2±0.02	
MLAST042SCH040□WNA01	TMK042 CH040□D-W	25	CH	C0H	4 p	±0.1pF,±0.25pF	480	200	0.2±0.02	
MLAST042SCH4R1□WNA01	TMK042 CH4R1□D-W	25	CH	C0H	4.1 p	±0.1pF,±0.25pF	482	200	0.2±0.02	
MLAST042SCH4R2□WNA01	TMK042 CH4R2□D-W	25	CH	C0H	4.2 p	±0.1pF,±0.25pF	484	200	0.2±0.02	
MLAST042SCH4R3□WNA01	TMK042 CH4R3□D-W	25	CH	C0H	4.3 p	±0.1pF,±0.25pF	486	200	0.2±0.02	
MLAST042SCH4R4□WNA01	TMK042 CH4R4□D-W	25	CH	C0H	4.4 p	±0.1pF,±0.25pF	488	200	0.2±0.02	
MLAST042SCH4R5□WNA01	TMK042 CH4R5□D-W	25	CH	C0H	4.5 p	±0.1pF,±0.25pF	490	200	0.2±0.02	
MLAST042SCH4R6□WNA01	TMK042 CH4R6□D-W	25	CH	C0H	4.6 p	±0.1pF,±0.25pF	492	200	0.2±0.02	
MLAST042SCH4R7□WNA01	TMK042 CH4R7□D-W	25	CH	C0H	4.7 p	±0.1pF,±0.25pF	494	200	0.2±0.02	
MLAST042SCH4R8□WNA01	TMK042 CH4R8□D-W	25	CH	C0H	4.8 p	±0.1pF,±0.25pF	496	200	0.2±0.02	
MLAST042SCH4R9□WNA01	TMK042 CH4R9□D-W	25	CH	C0H	4.9 p	±0.1pF,±0.25pF	498	200	0.2±0.02	
MLAST042SCH050□WNA01	TMK042 CH050□D-W	25	CH	C0H	5 p	±0.1pF,±0.25pF	500	200	0.2±0.02	
MLAST042SCH5R1□WNA01	TMK042 CH5R1□D-W	25	CH	C0H	5.1 p	±0.1pF,±0.25pF,±0.5pF	502	200	0.2±0.02	
MLAST042SCH5R2□WNA01	TMK042 CH5R2□D-W	25	CH	C0H	5.2 p	±0.1pF,±0.25pF,±0.5pF	504	200	0.2±0.02	
MLAST042SCH5R3□WNA01	TMK042 CH5R3□D-W	25	CH	C0H	5.3 p	±0.1pF,±0.25pF,±0.5pF	506	200	0.2±0.02	
MLAST042SCH5R4□WNA01	TMK042 CH5R4□D-W	25	CH	C0H	5.4 p	±0.1pF,±0.25pF,±0.5pF	508	200	0.2±0.02	
MLAST042SCH5R5□WNA01	TMK042 CH5R5□D-W	25	CH	C0H	5.5 p	±0.1pF,±0.25pF,±0.5pF	510	200	0.2±0.02	
MLAST042SCH5R6□WNA01	TMK042 CH5R6□D-W	25	CH	C0H	5.6 p	±0.1pF,±0.25pF,±0.5pF	512	200	0.2±0.02	
MLAST042SCH5R7□WNA01	TMK042 CH5R7□D-W	25	CH	C0H	5.7 p	±0.1pF,±0.25pF,±0.5pF	514	200	0.2±0.02	
MLAST042SCH5R8□WNA01	TMK042 CH5R8□D-W	25	CH	C0H	5.8 p	±0.1pF,±0.25pF,±0.5pF	516	200	0.2±0.02	
MLAST042SCH5R9□WNA01	TMK042 CH5R9□D-W	25	CH	C0H	5.9 p	±0.1pF,±0.25pF,±0.5pF	518	200	0.2±0.02	
MLAST042SCH060□WNA01	TMK042 CH060□D-W	25	CH	C0H	6 p	±0.1pF,±0.25pF,±0.5pF	520	200	0.2±0.02	
MLAST042SCH6R1□WNA01	TMK042 CH6R1□D-W	25	CH	C0H	6.1 p	±0.1pF,±0.25pF,±0.5pF	522	200	0.2±0.02	
MLAST042SCH6R2□WNA01	TMK042 CH6R2□D-W	25	CH	C0H	6.2 p	±0.1pF,±0.25pF,±0.5pF	524	200	0.2±0.02	
MLAST042SCH6R3□WNA01	TMK042 CH6R3□D-W	25	CH	C0H	6.3 p	±0.1pF,±0.25pF,±0.5pF	526	200	0.2±0.02	
MLAST042SCH6R4□WNA01	TMK042 CH6R4□D-W	25	CH	C0H	6.4 p	±0.1pF,±0.25pF,±0.5pF	528	200	0.2±0.02	
MLAST042SCH6R5□WNA01	TMK042 CH6R5□D-W	25	CH	C0H	6.5 p	±0.1pF,±0.25pF,±0.5pF	530	200	0.2±0.02	
MLAST042SCH6R6□WNA01	TMK042 CH6R6□D-W	25	CH	C0H	6.6 p	±0.1pF,±0.25pF,±0.5pF	532	200	0.2±0.02	
MLAST042SCH6R7□WNA01	TMK042 CH6R7□D-W	25	CH	C0H	6.7 p	±0.1pF,±0.25pF,±0.5pF	534	200	0.2±0.02	
MLAST042SCH6R8□WNA01	TMK042 CH6R8□D-W	25	CH	C0H	6.8 p	±0.1pF,±0.25pF,±0.5pF	536	200	0.2±0.02	
MLAST042SCH6R9□WNA01	TMK042 CH6R9□D-W	25	CH	C0H	6.9 p	±0.1pF,±0.25pF,±0.5pF	538	200	0.2±0.02	
MLAST042SCH070□WNA01	TMK042 CH070□D-W	25	CH	C0H	7 p	±0.1pF,±0.25pF,±0.5pF	540	200	0.2±0.02	
MLAST042SCH7R1□WNA01	TMK042 CH7R1□D-W	25	CH	C0H	7.1 p	±0.1pF,±0.25pF,±0.5pF	542	200	0.2±0.02	
MLAST042SCH7R2□WNA01	TMK042 CH7R2□D-W	25	CH	C0H	7.2 p	±0.1pF,±0.25pF,±0.5pF	544	200	0.2±0.02	
MLAST042SCH7R3□WNA01	TMK042 CH7R3□D-W	25	CH	C0H	7.3 p	±0.1pF,±0.25pF,±0.5pF	546	200	0.2±0.02	
MLAST042SCH7R4□WNA01	TMK042 CH7R4□D-W	25	CH	C0H	7.4 p	±0.1pF,±0.25pF,±0.5pF	548	200	0.2±0.02	
MLAST042SCH7R5□WNA01	TMK042 CH7R5□D-W	25	CH	C0H	7.5 p	±0.1pF,±0.25pF,±0.5pF	550	200	0.2±0.02	
MLAST042SCH7R6□WNA01	TMK042 CH7R6□D-W	25	CH	C0H	7.6 p	±0.1pF,±0.25pF,±0.5pF	552	200	0.2±0.02	
MLAST042SCH7R7□WNA01	TMK042 CH7R7□D-W	25	CH	C0H	7.7 p	±0.1pF,±0.25pF,±0.5pF	554	200	0.2±0.02	
MLAST042SCH7R8□WNA01	TMK042 CH7R8□D-W	25	CH	C0H	7.8 p	±0.1pF,±0.25pF,±0.5pF	556	200	0.2±0.02	
MLAST042SCH7R9□WNA01	TMK042 CH7R9□D-W	25	CH	C0H	7.9 p	±0.1pF,±0.25pF,±0.5pF	558	200	0.2±0.02	
MLAST042SCH080□WNA01	TMK042 CH080□D-W	25	CH	C0H	8 p	±0.1pF,±0.25pF,±0.5pF	560	200	0.2±0.02	
MLAST042SCH8R1□WNA01	TMK042 CH8R1□D-W	25	CH	C0H	8.1 p	±0.1pF,±0.25pF,±0.5pF	562	200	0.2±0.02	
MLAST042SCH8R2□WNA01	TMK042 CH8R2□D-W	25	CH	C0H	8.2 p	±0.1pF,±0.25pF,±0.5pF	564	200	0.2±0.02	
MLAST042SCH8R3□WNA01	TMK042 CH8R3□D-W	25	CH	C0H	8.3 p	±0.1pF,±0.25pF,±0.5pF	566	200	0.2±0.02	
MLAST042SCH8R4□WNA01	TMK042 CH8R4□D-W	25	CH	C0H	8.4 p	±0.1pF,±0.25pF,±0.5pF	568	200	0.2±0.02	

■PART NUMBER

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST042SCH8R5□WNA01	TMK042 CH8R5□D-W	25	CH	C0H	8.5 p	±0.1pF,±0.25pF,±0.5pF	570	200	0.2±0.02	
MLAST042SCH8R6□WNA01	TMK042 CH8R6□D-W	25	CH	C0H	8.6 p	±0.1pF,±0.25pF,±0.5pF	572	200	0.2±0.02	
MLAST042SCH8R7□WNA01	TMK042 CH8R7□D-W	25	CH	C0H	8.7 p	±0.1pF,±0.25pF,±0.5pF	574	200	0.2±0.02	
MLAST042SCH8R8□WNA01	TMK042 CH8R8□D-W	25	CH	C0H	8.8 p	±0.1pF,±0.25pF,±0.5pF	576	200	0.2±0.02	
MLAST042SCH8R9□WNA01	TMK042 CH8R9□D-W	25	CH	C0H	8.9 p	±0.1pF,±0.25pF,±0.5pF	578	200	0.2±0.02	
MLAST042SCH090□WNA01	TMK042 CH090□D-W	25	CH	C0H	9 p	±0.1pF,±0.25pF,±0.5pF	580	200	0.2±0.02	
MLAST042SCH9R1□WNA01	TMK042 CH9R1□D-W	25	CH	C0H	9.1 p	±0.1pF,±0.25pF,±0.5pF	582	200	0.2±0.02	
MLAST042SCH9R2□WNA01	TMK042 CH9R2□D-W	25	CH	C0H	9.2 p	±0.1pF,±0.25pF,±0.5pF	584	200	0.2±0.02	
MLAST042SCH9R3□WNA01	TMK042 CH9R3□D-W	25	CH	C0H	9.3 p	±0.1pF,±0.25pF,±0.5pF	586	200	0.2±0.02	
MLAST042SCH9R4□WNA01	TMK042 CH9R4□D-W	25	CH	C0H	9.4 p	±0.1pF,±0.25pF,±0.5pF	588	200	0.2±0.02	
MLAST042SCH9R5□WNA01	TMK042 CH9R5□D-W	25	CH	C0H	9.5 p	±0.1pF,±0.25pF,±0.5pF	590	200	0.2±0.02	
MLAST042SCH9R6□WNA01	TMK042 CH9R6□D-W	25	CH	C0H	9.6 p	±0.1pF,±0.25pF,±0.5pF	592	200	0.2±0.02	
MLAST042SCH9R7□WNA01	TMK042 CH9R7□D-W	25	CH	C0H	9.7 p	±0.1pF,±0.25pF,±0.5pF	594	200	0.2±0.02	
MLAST042SCH9R8□WNA01	TMK042 CH9R8□D-W	25	CH	C0H	9.8 p	±0.1pF,±0.25pF,±0.5pF	596	200	0.2±0.02	
MLAST042SCH9R9□WNA01	TMK042 CH9R9□D-W	25	CH	C0H	9.9 p	±0.1pF,±0.25pF,±0.5pF	598	200	0.2±0.02	
MLAST042SCH100DWNA01	TMK042 CH100DD-W	25	CH	C0H	10 p	±0.5pF	600	200	0.2±0.02	
MLAST042SCH110JWNA01	TMK042 CH110JD-W	25	CH	C0H	11 p	±5%	620	200	0.2±0.02	
MLAST042SCH120JWNA01	TMK042 CH120JD-W	25	CH	C0H	12 p	±5%	640	200	0.2±0.02	
MLAST042SCH130JWNA01	TMK042 CH130JD-W	25	CH	C0H	13 p	±5%	660	200	0.2±0.02	
MLAST042SCH150JWNA01	TMK042 CH150JD-W	25	CH	C0H	15 p	±5%	700	200	0.2±0.02	
MLAST042SCH160JWNA01	TMK042 CH160JC-W	25	CH	C0H	16 p	±5%	720	200	0.2±0.02	
MLAST042SCH180JWNA01	TMK042 CH180JC-W	25	CH	C0H	18 p	±5%	760	200	0.2±0.02	
MLAST042SCH200JWNA01	TMK042 CH200JC-W	25	CH	C0H	20 p	±5%	800	200	0.2±0.02	
MLAST042SCH220JWNA01	TMK042 CH220JC-W	25	CH	C0H	22 p	±5%	840	200	0.2±0.02	
MLAST042SCH240JWNA01	TMK042 CH240JC-W	25	CH	C0H	24 p	±5%	880	200	0.2±0.02	
MLAST042SCH270JWNA01	TMK042 CH270JC-W	25	CH	C0H	27 p	±5%	940	200	0.2±0.02	
MLAST042SCH300JWNA01	TMK042 CH300JC-W	25	CH	C0H	30 p	±5%	1000	200	0.2±0.02	
MLAST042SCH330JWNA01	TMK042 CH330JC-W	25	CH	C0H	33 p	±5%	1000	200	0.2±0.02	
MLAST042SCH360JWNA01	TMK042 CH360JC-W	25	CH	C0H	36 p	±5%	1000	200	0.2±0.02	
MLAST042SCH390JWNA01	TMK042 CH390JC-W	25	CH	C0H	39 p	±5%	1000	200	0.2±0.02	
MLAST042SCH430JWNA01	TMK042 CH430JC-W	25	CH	C0H	43 p	±5%	1000	200	0.2±0.02	
MLAST042SCH470JWNA01	TMK042 CH470JC-W	25	CH	C0H	47 p	±5%	1000	200	0.2±0.02	
MLAST042SCH510JWNA01	TMK042 CH510JC-W	25	CH	C0H	51 p	±5%	1000	200	0.2±0.02	
MLAST042SCH560JWNA01	TMK042 CH560JC-W	25	CH	C0H	56 p	±5%	1000	200	0.2±0.02	
MLAST042SCH620JWNA01	TMK042 CH620JC-W	25	CH	C0H	62 p	±5%	1000	200	0.2±0.02	
MLAST042SCH680JWNA01	TMK042 CH680JC-W	25	CH	C0H	68 p	±5%	1000	200	0.2±0.02	
MLAST042SCH750JWNA01	TMK042 CH750JC-W	25	CH	C0H	75 p	±5%	1000	200	0.2±0.02	
MLAST042SCH820JWNA01	TMK042 CH820JC-W	25	CH	C0H	82 p	±5%	1000	200	0.2±0.02	
MLAST042SCH910JWNA01	TMK042 CH910JC-W	25	CH	C0H	91 p	±5%	1000	200	0.2±0.02	
MLAST042SCH101JWNA01	TMK042 CH101JC-W	25	CH	C0H	100 p	±5%	1000	200	0.2±0.02	

【Temperature Characteristic C△ : C△/C0△(−55～+125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SCK0R4□WNA01	EMK042 CK0R4□D-W	16	CK	C0K	0.4 p	±0.05pF,±0.1pF,±0.25pF	408	200	0.2±0.02	
MLASE042SCK0R5□WNA01	EMK042 CK0R5□D-W	16	CK	C0K	0.5 p	±0.05pF,±0.1pF,±0.25pF	410	200	0.2±0.02	
MLASE042SCK0R6□WNA01	EMK042 CK0R6□D-W	16	CK	C0K	0.6 p	±0.05pF,±0.1pF,±0.25pF	412	200	0.2±0.02	
MLASE042SCK0R7□WNA01	EMK042 CK0R7□D-W	16	CK	C0K	0.7 p	±0.05pF,±0.1pF,±0.25pF	414	200	0.2±0.02	
MLASE042SCKR75□WNA01	EMK042 CKR75□D-W	16	CK	C0K	0.75 p	±0.05pF,±0.1pF,±0.25pF	415	200	0.2±0.02	
MLASE042SCK0R8□WNA01	EMK042 CK0R8□D-W	16	CK	C0K	0.8 p	±0.05pF,±0.1pF,±0.25pF	416	200	0.2±0.02	
MLASE042SCK0R9□WNA01	EMK042 CK0R9□D-W	16	CK	C0K	0.9 p	±0.05pF,±0.1pF,±0.25pF	418	200	0.2±0.02	
MLASE042SCK010□WNA01	EMK042 CK010□D-W	16	CK	C0K	1 p	±0.05pF,±0.1pF,±0.25pF	420	200	0.2±0.02	
MLASE042SCK1R1□WNA01	EMK042 CK1R1□D-W	16	CK	C0K	1.1 p	±0.05pF,±0.1pF,±0.25pF	422	200	0.2±0.02	
MLASE042SCK1R2□WNA01	EMK042 CK1R2□D-W	16	CK	C0K	1.2 p	±0.05pF,±0.1pF,±0.25pF	424	200	0.2±0.02	
MLASE042SCK1R3□WNA01	EMK042 CK1R3□D-W	16	CK	C0K	1.3 p	±0.05pF,±0.1pF,±0.25pF	426	200	0.2±0.02	
MLASE042SCK1R4□WNA01	EMK042 CK1R4□D-W	16	CK	C0K	1.4 p	±0.05pF,±0.1pF,±0.25pF	428	200	0.2±0.02	
MLASE042SCK1R5□WNA01	EMK042 CK1R5□D-W	16	CK	C0K	1.5 p	±0.05pF,±0.1pF,±0.25pF	430	200	0.2±0.02	
MLASE042SCK1R6□WNA01	EMK042 CK1R6□D-W	16	CK	C0K	1.6 p	±0.05pF,±0.1pF,±0.25pF	432	200	0.2±0.02	
MLASE042SCK1R7□WNA01	EMK042 CK1R7□D-W	16	CK	C0K	1.7 p	±0.05pF,±0.1pF,±0.25pF	434	200	0.2±0.02	
MLASE042SCK1R8□WNA01	EMK042 CK1R8□D-W	16	CK	C0K	1.8 p	±0.05pF,±0.1pF,±0.25pF	436	200	0.2±0.02	
MLASE042SCK1R9□WNA01	EMK042 CK1R9□D-W	16	CK	C0K	1.9 p	±0.05pF,±0.1pF,±0.25pF	438	200	0.2±0.02	
MLASE042SCK020□WNA01	EMK042 CK020□D-W	16	CK	C0K	2 p	±0.05pF,±0.1pF,±0.25pF	440	200	0.2±0.02	
MLASE042SCK2R1□WNA01	EMK042 CK2R1□D-W	16	CK	C0K	2.1 p	±0.05pF,±0.1pF,±0.25pF	442	200	0.2±0.02	
MLASE042SCK2R2□WNA01	EMK042 CK2R2□D-W	16	CK	C0K	2.2 p	±0.05pF,±0.1pF,±0.25pF	444	200	0.2±0.02	
MLASE042SCK2R3□WNA01	EMK042 CK2R3□D-W	16	CK	C0K	2.3 p	±0.05pF,±0.1pF,±0.25pF	446	200	0.2±0.02	
MLASE042SCK2R4□WNA01	EMK042 CK2R4□D-W	16	CK	C0K	2.4 p	±0.05pF,±0.1pF,±0.25pF	448	200	0.2±0.02	
MLASE042SCK2R5□WNA01	EMK042 CK2R5□D-W	16	CK	C0K	2.5 p	±0.05pF,±0.1pF,±0.25pF	450	200	0.2±0.02	
MLASE042SCK2R6□WNA01	EMK042 CK2R6□D-W	16	CK	C0K	2.6 p	±0.05pF,±0.1pF,±0.25pF	452	200	0.2±0.02	
MLASE042SCK2R7□WNA01	EMK042 CK2R7□D-W	16	CK	C0K	2.7 p	±0.05pF,±0.1pF,±0.25pF	454	200	0.2±0.02	
MLASE042SCK2R8□WNA01	EMK042 CK2R8□D-W	16	CK	C0K	2.8 p	±0.05pF,±0.1pF,±0.25pF	456	200	0.2±0.02	
MLASE042SCK2R9□WNA01	EMK042 CK2R9□D-W	16	CK	C0K	2.9 p	±0.05pF,±0.1pF,±0.25pF	458	200	0.2±0.02	
MLASE042SCJ030□WNA01	EMK042 CJ030□D-W	16	CJ	C0J	3 p	±0.05pF,±0.1pF,±0.25pF	460	200	0.2±0.02	
MLASE042SCJ3R1□WNA01	EMK042 CJ3R1□D-W	16	CJ	C0J	3.1 p	±0.1pF,±0.25pF	462	200	0.2±0.02	
MLASE042SCJ3R2□WNA01	EMK042 CJ3R2□D-W	16	CJ	C0J	3.2 p	±0.1pF,±0.25pF	464	200	0.2±0.02	
MLASE042SCJ3R3□WNA01	EMK042 CJ3R3□D-W	16	CJ	C0J	3.3 p	±0.1pF,±0.25pF	466	200	0.2±0.02	
MLASE042SCJ3R4□WNA01	EMK042 CJ3R4□D-W	16	CJ	C0J	3.4 p	±0.1pF,±0.25pF	468	200	0.2±0.02	
MLASE042SCJ3R5□WNA01	EMK042 CJ3R5□D-W	16	CJ	C0J	3.5 p	±0.1pF,±0.25pF	470	200	0.2±0.02	
MLASE042SCJ3R6□WNA01	EMK042 CJ3R6□D-W	16	CJ	C0J	3.6 p	±0.1pF,±0.25pF	472	200	0.2±0.02	
MLASE042SCJ3R7□WNA01	EMK042 CJ3R7□D-W	16	CJ	C0J	3.7 p	±0.1pF,±0.25pF	474	200	0.2±0.02	
MLASE042SCJ3R8□WNA01	EMK042 CJ3R8□D-W	16	CJ	C0J	3.8 p	±0.1pF,±0.25pF	476	200	0.2±0.02	
MLASE042SCJ3R9□WNA01	EMK042 CJ3R9□D-W	16	CJ	C0J	3.9 p	±0.1pF,±0.25pF	478	200	0.2±0.02	
MLASE042SCH040□WNA01	EMK042 CH040□D-W	16	CH	C0H	4 p	±0.1pF,±0.25pF	480	200	0.2±0.02	
MLASE042SCH4R1□WNA01	EMK042 CH4R1□D-W	16	CH	C0H	4.1 p	±0.1pF,±0.25pF	482	200	0.2±0.02	
MLASE042SCH4R2□WNA01	EMK042 CH4R2□D-W	16	CH	C0H	4.2 p	±0.1pF,±0.25pF	484	200	0.2±0.02	
MLASE042SCH4R3□WNA01	EMK042 CH4R3□D-W	16	CH	C0H	4.3 p	±0.1pF,±0.25pF	486	200	0.2±0.02	

■PART NUMBER

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SCH4R4□WNA01	EMK042 CH4R4□D-W	16	CH	C0H	4.4 p	±0.1pF,±0.25pF	488	200	0.2±0.02	
MLASE042SCH4R5□WNA01	EMK042 CH4R5□D-W	16	CH	C0H	4.5 p	±0.1pF,±0.25pF	490	200	0.2±0.02	
MLASE042SCH4R6□WNA01	EMK042 CH4R6□D-W	16	CH	C0H	4.6 p	±0.1pF,±0.25pF	492	200	0.2±0.02	
MLASE042SCH4R7□WNA01	EMK042 CH4R7□D-W	16	CH	C0H	4.7 p	±0.1pF,±0.25pF	494	200	0.2±0.02	
MLASE042SCH4R8□WNA01	EMK042 CH4R8□D-W	16	CH	C0H	4.8 p	±0.1pF,±0.25pF	496	200	0.2±0.02	
MLASE042SCH4R9□WNA01	EMK042 CH4R9□D-W	16	CH	C0H	4.9 p	±0.1pF,±0.25pF	498	200	0.2±0.02	
MLASE042SCH050□WNA01	EMK042 CH050□D-W	16	CH	C0H	5 p	±0.1pF,±0.25pF	500	200	0.2±0.02	
MLASE042SCH5R1□WNA01	EMK042 CH5R1□D-W	16	CH	C0H	5.1 p	±0.1pF,±0.25pF,±0.5pF	502	200	0.2±0.02	
MLASE042SCH5R2□WNA01	EMK042 CH5R2□D-W	16	CH	C0H	5.2 p	±0.1pF,±0.25pF,±0.5pF	504	200	0.2±0.02	
MLASE042SCH5R3□WNA01	EMK042 CH5R3□D-W	16	CH	C0H	5.3 p	±0.1pF,±0.25pF,±0.5pF	506	200	0.2±0.02	
MLASE042SCH5R4□WNA01	EMK042 CH5R4□D-W	16	CH	C0H	5.4 p	±0.1pF,±0.25pF,±0.5pF	508	200	0.2±0.02	
MLASE042SCH5R5□WNA01	EMK042 CH5R5□D-W	16	CH	C0H	5.5 p	±0.1pF,±0.25pF,±0.5pF	510	200	0.2±0.02	
MLASE042SCH5R6□WNA01	EMK042 CH5R6□D-W	16	CH	C0H	5.6 p	±0.1pF,±0.25pF,±0.5pF	512	200	0.2±0.02	
MLASE042SCH5R7□WNA01	EMK042 CH5R7□D-W	16	CH	C0H	5.7 p	±0.1pF,±0.25pF,±0.5pF	514	200	0.2±0.02	
MLASE042SCH5R8□WNA01	EMK042 CH5R8□D-W	16	CH	C0H	5.8 p	±0.1pF,±0.25pF,±0.5pF	516	200	0.2±0.02	
MLASE042SCH5R9□WNA01	EMK042 CH5R9□D-W	16	CH	C0H	5.9 p	±0.1pF,±0.25pF,±0.5pF	518	200	0.2±0.02	
MLASE042SCH060□WNA01	EMK042 CH060□D-W	16	CH	C0H	6 p	±0.1pF,±0.25pF,±0.5pF	520	200	0.2±0.02	
MLASE042SCH6R1□WNA01	EMK042 CH6R1□D-W	16	CH	C0H	6.1 p	±0.1pF,±0.25pF,±0.5pF	522	200	0.2±0.02	
MLASE042SCH6R2□WNA01	EMK042 CH6R2□D-W	16	CH	C0H	6.2 p	±0.1pF,±0.25pF,±0.5pF	524	200	0.2±0.02	
MLASE042SCH6R3□WNA01	EMK042 CH6R3□D-W	16	CH	C0H	6.3 p	±0.1pF,±0.25pF,±0.5pF	526	200	0.2±0.02	
MLASE042SCH6R4□WNA01	EMK042 CH6R4□D-W	16	CH	C0H	6.4 p	±0.1pF,±0.25pF,±0.5pF	528	200	0.2±0.02	
MLASE042SCH6R5□WNA01	EMK042 CH6R5□D-W	16	CH	C0H	6.5 p	±0.1pF,±0.25pF,±0.5pF	530	200	0.2±0.02	
MLASE042SCH6R6□WNA01	EMK042 CH6R6□D-W	16	CH	C0H	6.6 p	±0.1pF,±0.25pF,±0.5pF	532	200	0.2±0.02	
MLASE042SCH6R7□WNA01	EMK042 CH6R7□D-W	16	CH	C0H	6.7 p	±0.1pF,±0.25pF,±0.5pF	534	200	0.2±0.02	
MLASE042SCH6R8□WNA01	EMK042 CH6R8□D-W	16	CH	C0H	6.8 p	±0.1pF,±0.25pF,±0.5pF	536	200	0.2±0.02	
MLASE042SCH6R9□WNA01	EMK042 CH6R9□D-W	16	CH	C0H	6.9 p	±0.1pF,±0.25pF,±0.5pF	538	200	0.2±0.02	
MLASE042SCH070□WNA01	EMK042 CH070□D-W	16	CH	C0H	7 p	±0.1pF,±0.25pF,±0.5pF	540	200	0.2±0.02	
MLASE042SCH7R1□WNA01	EMK042 CH7R1□D-W	16	CH	C0H	7.1 p	±0.1pF,±0.25pF,±0.5pF	542	200	0.2±0.02	
MLASE042SCH7R2□WNA01	EMK042 CH7R2□D-W	16	CH	C0H	7.2 p	±0.1pF,±0.25pF,±0.5pF	544	200	0.2±0.02	
MLASE042SCH7R3□WNA01	EMK042 CH7R3□D-W	16	CH	C0H	7.3 p	±0.1pF,±0.25pF,±0.5pF	546	200	0.2±0.02	
MLASE042SCH7R4□WNA01	EMK042 CH7R4□D-W	16	CH	C0H	7.4 p	±0.1pF,±0.25pF,±0.5pF	548	200	0.2±0.02	
MLASE042SCH7R5□WNA01	EMK042 CH7R5□D-W	16	CH	C0H	7.5 p	±0.1pF,±0.25pF,±0.5pF	550	200	0.2±0.02	
MLASE042SCH7R6□WNA01	EMK042 CH7R6□D-W	16	CH	C0H	7.6 p	±0.1pF,±0.25pF,±0.5pF	552	200	0.2±0.02	
MLASE042SCH7R7□WNA01	EMK042 CH7R7□D-W	16	CH	C0H	7.7 p	±0.1pF,±0.25pF,±0.5pF	554	200	0.2±0.02	
MLASE042SCH7R8□WNA01	EMK042 CH7R8□D-W	16	CH	C0H	7.8 p	±0.1pF,±0.25pF,±0.5pF	556	200	0.2±0.02	
MLASE042SCH7R9□WNA01	EMK042 CH7R9□D-W	16	CH	C0H	7.9 p	±0.1pF,±0.25pF,±0.5pF	558	200	0.2±0.02	
MLASE042SCH080□WNA01	EMK042 CH080□D-W	16	CH	C0H	8 p	±0.1pF,±0.25pF,±0.5pF	560	200	0.2±0.02	
MLASE042SCH8R1□WNA01	EMK042 CH8R1□D-W	16	CH	C0H	8.1 p	±0.1pF,±0.25pF,±0.5pF	562	200	0.2±0.02	
MLASE042SCH8R2□WNA01	EMK042 CH8R2□D-W	16	CH	C0H	8.2 p	±0.1pF,±0.25pF,±0.5pF	564	200	0.2±0.02	
MLASE042SCH8R3□WNA01	EMK042 CH8R3□D-W	16	CH	C0H	8.3 p	±0.1pF,±0.25pF,±0.5pF	566	200	0.2±0.02	
MLASE042SCH8R4□WNA01	EMK042 CH8R4□D-W	16	CH	C0H	8.4 p	±0.1pF,±0.25pF,±0.5pF	568	200	0.2±0.02	
MLASE042SCH8R5□WNA01	EMK042 CH8R5□D-W	16	CH	C0H	8.5 p	±0.1pF,±0.25pF,±0.5pF	570	200	0.2±0.02	
MLASE042SCH8R6□WNA01	EMK042 CH8R6□D-W	16	CH	C0H	8.6 p	±0.1pF,±0.25pF,±0.5pF	572	200	0.2±0.02	
MLASE042SCH8R7□WNA01	EMK042 CH8R7□D-W	16	CH	C0H	8.7 p	±0.1pF,±0.25pF,±0.5pF	574	200	0.2±0.02	
MLASE042SCH8R8□WNA01	EMK042 CH8R8□D-W	16	CH	C0H	8.8 p	±0.1pF,±0.25pF,±0.5pF	576	200	0.2±0.02	
MLASE042SCH8R9□WNA01	EMK042 CH8R9□D-W	16	CH	C0H	8.9 p	±0.1pF,±0.25pF,±0.5pF	578	200	0.2±0.02	
MLASE042SCH090□WNA01	EMK042 CH090□D-W	16	CH	C0H	9 p	±0.1pF,±0.25pF,±0.5pF	580	200	0.2±0.02	
MLASE042SCH9R1□WNA01	EMK042 CH9R1□D-W	16	CH	C0H	9.1 p	±0.1pF,±0.25pF,±0.5pF	582	200	0.2±0.02	
MLASE042SCH9R2□WNA01	EMK042 CH9R2□D-W	16	CH	C0H	9.2 p	±0.1pF,±0.25pF,±0.5pF	584	200	0.2±0.02	
MLASE042SCH9R3□WNA01	EMK042 CH9R3□D-W	16	CH	C0H	9.3 p	±0.1pF,±0.25pF,±0.5pF	586	200	0.2±0.02	
MLASE042SCH9R4□WNA01	EMK042 CH9R4□D-W	16	CH	C0H	9.4 p	±0.1pF,±0.25pF,±0.5pF	588	200	0.2±0.02	
MLASE042SCH9R5□WNA01	EMK042 CH9R5□D-W	16	CH	C0H	9.5 p	±0.1pF,±0.25pF,±0.5pF	590	200	0.2±0.02	
MLASE042SCH9R6□WNA01	EMK042 CH9R6□D-W	16	CH	C0H	9.6 p	±0.1pF,±0.25pF,±0.5pF	592	200	0.2±0.02	
MLASE042SCH9R7□WNA01	EMK042 CH9R7□D-W	16	CH	C0H	9.7 p	±0.1pF,±0.25pF,±0.5pF	594	200	0.2±0.02	
MLASE042SCH9R8□WNA01	EMK042 CH9R8□D-W	16	CH	C0H	9.8 p	±0.1pF,±0.25pF,±0.5pF	596	200	0.2±0.02	
MLASE042SCH9R9□WNA01	EMK042 CH9R9□D-W	16	CH	C0H	9.9 p	±0.1pF,±0.25pF,±0.5pF	598	200	0.2±0.02	
MLASE042SCH100DWNA01	EMK042 CH100DD-W	16	CH	C0H	10 p	±0.5pF	600	200	0.2±0.02	
MLASE042SCH110JWNA01	EMK042 CH110JD-W	16	CH	C0H	11 p	±5%	620	200	0.2±0.02	
MLASE042SCH120JWNA01	EMK042 CH120JD-W	16	CH	C0H	12 p	±5%	640	200	0.2±0.02	
MLASE042SCH130JWNA01	EMK042 CH130JD-W	16	CH	C0H	13 p	±5%	660	200	0.2±0.02	
MLASE042SCH150JWNA01	EMK042 CH150JD-W	16	CH	C0H	15 p	±5%	700	200	0.2±0.02	
MLASE042SCH160JWNA01	EMK042 CH160JC-W	16	CH	C0H	16 p	±5%	720	200	0.2±0.02	
MLASE042SCH180JWNA01	EMK042 CH180JC-W	16	CH	C0H	18 p	±5%	760	200	0.2±0.02	
MLASE042SCH200JWNA01	EMK042 CH200JC-W	16	CH	C0H	20 p	±5%	800	200	0.2±0.02	
MLASE042SCH220JWNA01	EMK042 CH220JC-W	16	CH	C0H	22 p	±5%	840	200	0.2±0.02	
MLASE042SCH240JWNA01	EMK042 CH240JC-W	16	CH	C0H	24 p	±5%	880	200	0.2±0.02	
MLASE042SCH270JWNA01	EMK042 CH270JC-W	16	CH	C0H	27 p	±5%	940	200	0.2±0.02	
MLASE042SCH300JWNA01	EMK042 CH300JC-W	16	CH	C0H	30 p	±5%	1000	200	0.2±0.02	
MLASE042SCH330JWNA01	EMK042 CH330JC-W	16	CH	C0H	33 p	±5%	1000	200	0.2±0.02	
MLASE042SCH360JWNA01	EMK042 CH360JC-W	16	CH	C0H	36 p	±5%	1000	200	0.2±0.02	
MLASE042SCH390JWNA01	EMK042 CH390JC-W	16	CH	C0H	39 p	±5%	1000	200	0.2±0.02	
MLASE042SCH430JWNA01	EMK042 CH430JC-W	16	CH	C0H	43 p	±5%	1000	200	0.2±0.02	
MLASE042SCH470JWNA01	EMK042 CH470JC-W	16	CH	C0H	47 p	±5%	1000	200	0.2±0.02	
MLASE042SCH510JWNA01	EMK042 CH510JC-W	16	CH	C0H	51 p	±5%	1000	200	0.2±0.02	
MLASE042SCH560JWNA01	EMK042 CH560JC-W	16	CH	C0H	56 p	±5%	1000	200	0.2±0.02	
MLASE042SCH620JWNA01	EMK042 CH620JC-W	16	CH	C0H	62 p	±5%	1000	200	0.2±0.02	
MLASE042SCH680JWNA01	EMK042 CH680JC-W	16	CH	C0H	68 p	±5%	1000	200	0.2±0.02	
MLASE042SCH750JWNA01	EMK042 CH750JC-W	16	CH	C0H	75 p	±5%	1000	200	0.2±0.02	
MLASE042SCH820JWNA01	EMK042 CH820JC-W	16	CH	C0H	82 p	±5%	1000	200	0.2±0.02	
MLASE042SCH910JWNA01	EMK042 CH910JC-W	16	CH	C0H	91 p	±5%	1000	200	0.2±0.02	
MLASE042SCH101JWNA01	EMK042 CH101JC-W	16	CH	C0H	100 p	±5%	1000	200	0.2±0.02	
MLASE042SCH221JWNA01	EMK042 CH221JC-W	16	CH	C0H	220 p	±5%	1000	200	0.2±0.02	
MLASE042SCH241JWNA01	EMK042 CH241JC-W	16	CH	C0H	240 p	±5%	1000	200	0.2±0.02	
MLASE042SCH271JWNA01	EMK042 CH271JC-W	16	CH	C0H	270 p	±5%	1000	200	0.2±0.02	
MLASE042SCH331JWNA01	EMK042 CH331JC-W	16	CH	C0H	330 p	±5%	1000	200	0.2±0.02	

■PART NUMBER

【Temperature Characteristic CG : CG/C0G(－55～＋125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST042SCG0R4□WNA01	TMK042 CG0R4□D-W	25	CG	C0G	0.4 p	±0.05pF,±0.1pF,±0.25pF	408	200	0.2±0.02	
MLAST042SCG0R5□WNA01	TMK042 CG0R5□D-W	25	CG	C0G	0.5 p	±0.05pF,±0.1pF,±0.25pF	410	200	0.2±0.02	
MLAST042SCG0R6□WNA01	TMK042 CG0R6□D-W	25	CG	C0G	0.6 p	±0.05pF,±0.1pF,±0.25pF	412	200	0.2±0.02	
MLAST042SCG0R7□WNA01	TMK042 CG0R7□D-W	25	CG	C0G	0.7 p	±0.05pF,±0.1pF,±0.25pF	414	200	0.2±0.02	
MLAST042SCGR75□WNA01	TMK042 CGR75□D-W	25	CG	C0G	0.75 p	±0.05pF,±0.1pF,±0.25pF	415	200	0.2±0.02	
MLAST042SCG0R8□WNA01	TMK042 CG0R8□D-W	25	CG	C0G	0.8 p	±0.05pF,±0.1pF,±0.25pF	416	200	0.2±0.02	
MLAST042SCG0R9□WNA01	TMK042 CG0R9□D-W	25	CG	C0G	0.9 p	±0.05pF,±0.1pF,±0.25pF	418	200	0.2±0.02	
MLAST042SCG010□WNA01	TMK042 CG010□D-W	25	CG	C0G	1 p	±0.05pF,±0.1pF,±0.25pF	420	200	0.2±0.02	
MLAST042SCG1R1□WNA01	TMK042 CG1R1□D-W	25	CG	C0G	1.1 p	±0.05pF,±0.1pF,±0.25pF	422	200	0.2±0.02	
MLAST042SCG1R2□WNA01	TMK042 CG1R2□D-W	25	CG	C0G	1.2 p	±0.05pF,±0.1pF,±0.25pF	424	200	0.2±0.02	
MLAST042SCG1R3□WNA01	TMK042 CG1R3□D-W	25	CG	C0G	1.3 p	±0.05pF,±0.1pF,±0.25pF	426	200	0.2±0.02	
MLAST042SCG1R4□WNA01	TMK042 CG1R4□D-W	25	CG	C0G	1.4 p	±0.05pF,±0.1pF,±0.25pF	428	200	0.2±0.02	
MLAST042SCG1R5□WNA01	TMK042 CG1R5□D-W	25	CG	C0G	1.5 p	±0.05pF,±0.1pF,±0.25pF	430	200	0.2±0.02	
MLAST042SCG1R6□WNA01	TMK042 CG1R6□D-W	25	CG	C0G	1.6 p	±0.05pF,±0.1pF,±0.25pF	432	200	0.2±0.02	
MLAST042SCG1R7□WNA01	TMK042 CG1R7□D-W	25	CG	C0G	1.7 p	±0.05pF,±0.1pF,±0.25pF	434	200	0.2±0.02	
MLAST042SCG1R8□WNA01	TMK042 CG1R8□D-W	25	CG	C0G	1.8 p	±0.05pF,±0.1pF,±0.25pF	436	200	0.2±0.02	
MLAST042SCG1R9□WNA01	TMK042 CG1R9□D-W	25	CG	C0G	1.9 p	±0.05pF,±0.1pF,±0.25pF	438	200	0.2±0.02	
MLAST042SCG020□WNA01	TMK042 CG020□D-W	25	CG	C0G	2 p	±0.05pF,±0.1pF,±0.25pF	440	200	0.2±0.02	
MLAST042SCG2R1□WNA01	TMK042 CG2R1□D-W	25	CG	C0G	2.1 p	±0.05pF,±0.1pF,±0.25pF	442	200	0.2±0.02	
MLAST042SCG2R2□WNA01	TMK042 CG2R2□D-W	25	CG	C0G	2.2 p	±0.05pF,±0.1pF,±0.25pF	444	200	0.2±0.02	
MLAST042SCG2R3□WNA01	TMK042 CG2R3□D-W	25	CG	C0G	2.3 p	±0.05pF,±0.1pF,±0.25pF	446	200	0.2±0.02	
MLAST042SCG2R4□WNA01	TMK042 CG2R4□D-W	25	CG	C0G	2.4 p	±0.05pF,±0.1pF,±0.25pF	448	200	0.2±0.02	
MLAST042SCG2R5□WNA01	TMK042 CG2R5□D-W	25	CG	C0G	2.5 p	±0.05pF,±0.1pF,±0.25pF	450	200	0.2±0.02	
MLAST042SCG2R6□WNA01	TMK042 CG2R6□D-W	25	CG	C0G	2.6 p	±0.05pF,±0.1pF,±0.25pF	452	200	0.2±0.02	
MLAST042SCG2R7□WNA01	TMK042 CG2R7□D-W	25	CG	C0G	2.7 p	±0.05pF,±0.1pF,±0.25pF	454	200	0.2±0.02	
MLAST042SCG2R8□WNA01	TMK042 CG2R8□D-W	25	CG	C0G	2.8 p	±0.05pF,±0.1pF,±0.25pF	456	200	0.2±0.02	
MLAST042SCG2R9□WNA01	TMK042 CG2R9□D-W	25	CG	C0G	2.9 p	±0.05pF,±0.1pF,±0.25pF	458	200	0.2±0.02	
MLAST042SCG030□WNA01	TMK042 CG030□D-W	25	CG	C0G	3 p	±0.05pF,±0.1pF,±0.25pF	460	200	0.2±0.02	
MLAST042SCG3R1□WNA01	TMK042 CG3R1□D-W	25	CG	C0G	3.1 p	±0.1pF,±0.25pF	462	200	0.2±0.02	
MLAST042SCG3R2□WNA01	TMK042 CG3R2□D-W	25	CG	C0G	3.2 p	±0.1pF,±0.25pF	464	200	0.2±0.02	
MLAST042SCG3R3□WNA01	TMK042 CG3R3□D-W	25	CG	C0G	3.3 p	±0.1pF,±0.25pF	466	200	0.2±0.02	
MLAST042SCG3R4□WNA01	TMK042 CG3R4□D-W	25	CG	C0G	3.4 p	±0.1pF,±0.25pF	468	200	0.2±0.02	
MLAST042SCG3R5□WNA01	TMK042 CG3R5□D-W	25	CG	C0G	3.5 p	±0.1pF,±0.25pF	470	200	0.2±0.02	
MLAST042SCG3R6□WNA01	TMK042 CG3R6□D-W	25	CG	C0G	3.6 p	±0.1pF,±0.25pF	472	200	0.2±0.02	
MLAST042SCG3R7□WNA01	TMK042 CG3R7□D-W	25	CG	C0G	3.7 p	±0.1pF,±0.25pF	474	200	0.2±0.02	
MLAST042SCG3R8□WNA01	TMK042 CG3R8□D-W	25	CG	C0G	3.8 p	±0.1pF,±0.25pF	476	200	0.2±0.02	
MLAST042SCG3R9□WNA01	TMK042 CG3R9□D-W	25	CG	C0G	3.9 p	±0.1pF,±0.25pF	478	200	0.2±0.02	
MLAST042SCG040□WNA01	TMK042 CG040□D-W	25	CG	C0G	4 p	±0.1pF,±0.25pF	480	200	0.2±0.02	
MLAST042SCG4R1□WNA01	TMK042 CG4R1□D-W	25	CG	C0G	4.1 p	±0.1pF,±0.25pF	482	200	0.2±0.02	
MLAST042SCG4R2□WNA01	TMK042 CG4R2□D-W	25	CG	C0G	4.2 p	±0.1pF,±0.25pF	484	200	0.2±0.02	
MLAST042SCG4R3□WNA01	TMK042 CG4R3□D-W	25	CG	C0G	4.3 p	±0.1pF,±0.25pF	486	200	0.2±0.02	
MLAST042SCG4R4□WNA01	TMK042 CG4R4□D-W	25	CG	C0G	4.4 p	±0.1pF,±0.25pF	488	200	0.2±0.02	
MLAST042SCG4R5□WNA01	TMK042 CG4R5□D-W	25	CG	C0G	4.5 p	±0.1pF,±0.25pF	490	200	0.2±0.02	
MLAST042SCG4R6□WNA01	TMK042 CG4R6□D-W	25	CG	C0G	4.6 p	±0.1pF,±0.25pF	492	200	0.2±0.02	
MLAST042SCG4R7□WNA01	TMK042 CG4R7□D-W	25	CG	C0G	4.7 p	±0.1pF,±0.25pF	494	200	0.2±0.02	
MLAST042SCG4R8□WNA01	TMK042 CG4R8□D-W	25	CG	C0G	4.8 p	±0.1pF,±0.25pF	496	200	0.2±0.02	
MLAST042SCG4R9□WNA01	TMK042 CG4R9□D-W	25	CG	C0G	4.9 p	±0.1pF,±0.25pF	498	200	0.2±0.02	
MLAST042SCG050□WNA01	TMK042 CG050□D-W	25	CG	C0G	5 p	±0.1pF,±0.25pF	500	200	0.2±0.02	
MLAST042SCG5R1□WNA01	TMK042 CG5R1□D-W	25	CG	C0G	5.1 p	±0.1pF,±0.25pF,±0.5pF	502	200	0.2±0.02	
MLAST042SCG5R2□WNA01	TMK042 CG5R2□D-W	25	CG	C0G	5.2 p	±0.1pF,±0.25pF,±0.5pF	504	200	0.2±0.02	
MLAST042SCG5R3□WNA01	TMK042 CG5R3□D-W	25	CG	C0G	5.3 p	±0.1pF,±0.25pF,±0.5pF	506	200	0.2±0.02	
MLAST042SCG5R4□WNA01	TMK042 CG5R4□D-W	25	CG	C0G	5.4 p	±0.1pF,±0.25pF,±0.5pF	508	200	0.2±0.02	
MLAST042SCG5R5□WNA01	TMK042 CG5R5□D-W	25	CG	C0G	5.5 p	±0.1pF,±0.25pF,±0.5pF	510	200	0.2±0.02	
MLAST042SCG5R6□WNA01	TMK042 CG5R6□D-W	25	CG	C0G	5.6 p	±0.1pF,±0.25pF,±0.5pF	512	200	0.2±0.02	
MLAST042SCG5R7□WNA01	TMK042 CG5R7□D-W	25	CG	C0G	5.7 p	±0.1pF,±0.25pF,±0.5pF	514	200	0.2±0.02	
MLAST042SCG5R8□WNA01	TMK042 CG5R8□D-W	25	CG	C0G	5.8 p	±0.1pF,±0.25pF,±0.5pF	516	200	0.2±0.02	
MLAST042SCG5R9□WNA01	TMK042 CG5R9□D-W	25	CG	C0G	5.9 p	±0.1pF,±0.25pF,±0.5pF	518	200	0.2±0.02	
MLAST042SCG060□WNA01	TMK042 CG060□D-W	25	CG	C0G	6 p	±0.1pF,±0.25pF,±0.5pF	520	200	0.2±0.02	
MLAST042SCG6R1□WNA01	TMK042 CG6R1□D-W	25	CG	C0G	6.1 p	±0.1pF,±0.25pF,±0.5pF	522	200	0.2±0.02	
MLAST042SCG6R2□WNA01	TMK042 CG6R2□D-W	25	CG	C0G	6.2 p	±0.1pF,±0.25pF,±0.5pF	524	200	0.2±0.02	
MLAST042SCG6R3□WNA01	TMK042 CG6R3□D-W	25	CG	C0G	6.3 p	±0.1pF,±0.25pF,±0.5pF	526	200	0.2±0.02	
MLAST042SCG6R4□WNA01	TMK042 CG6R4□D-W	25	CG	C0G	6.4 p	±0.1pF,±0.25pF,±0.5pF	528	200	0.2±0.02	
MLAST042SCG6R5□WNA01	TMK042 CG6R5□D-W	25	CG	C0G	6.5 p	±0.1pF,±0.25pF,±0.5pF	530	200	0.2±0.02	
MLAST042SCG6R6□WNA01	TMK042 CG6R6□D-W	25	CG	C0G	6.6 p	±0.1pF,±0.25pF,±0.5pF	532	200	0.2±0.02	
MLAST042SCG6R7□WNA01	TMK042 CG6R7□D-W	25	CG	C0G	6.7 p	±0.1pF,±0.25pF,±0.5pF	534	200	0.2±0.02	
MLAST042SCG6R8□WNA01	TMK042 CG6R8□D-W	25	CG	C0G	6.8 p	±0.1pF,±0.25pF,±0.5pF	536	200	0.2±0.02	
MLAST042SCG6R9□WNA01	TMK042 CG6R9□D-W	25	CG	C0G	6.9 p	±0.1pF,±0.25pF,±0.5pF	538	200	0.2±0.02	
MLAST042SCG070□WNA01	TMK042 CG070□D-W	25	CG	C0G	7 p	±0.1pF,±0.25pF,±0.5pF	540	200	0.2±0.02	
MLAST042SCG7R1□WNA01	TMK042 CG7R1□D-W	25	CG	C0G	7.1 p	±0.1pF,±0.25pF,±0.5pF	542	200	0.2±0.02	
MLAST042SCG7R2□WNA01	TMK042 CG7R2□D-W	25	CG	C0G	7.2 p	±0.1pF,±0.25pF,±0.5pF	544	200	0.2±0.02	
MLAST042SCG7R3□WNA01	TMK042 CG7R3□D-W	25	CG	C0G	7.3 p	±0.1pF,±0.25pF,±0.5pF	546	200	0.2±0.02	
MLAST042SCG7R4□WNA01	TMK042 CG7R4□D-W	25	CG	C0G	7.4 p	±0.1pF,±0.25pF,±0.5pF	548	200	0.2±0.02	
MLAST042SCG7R5□WNA01	TMK042 CG7R5□D-W	25	CG	C0G	7.5 p	±0.1pF,±0.25pF,±0.5pF	550	200	0.2±0.02	
MLAST042SCG7R6□WNA01	TMK042 CG7R6□D-W	25	CG	C0G	7.6 p	±0.1pF,±0.25pF,±0.5pF	552	200	0.2±0.02	
MLAST042SCG7R7□WNA01	TMK042 CG7R7□D-W	25	CG	C0G	7.7 p	±0.1pF,±0.25pF,±0.5pF	554	200	0.2±0.02	
MLAST042SCG7R8□WNA01	TMK042 CG7R8□D-W	25	CG	C0G	7.8 p	±0.1pF,±0.25pF,±0.5pF	556	200	0.2±0.02	
MLAST042SCG7R9□WNA01	TMK042 CG7R9□D-W	25	CG	C0G	7.9 p	±0.1pF,±0.25pF,±0.5pF	558	200	0.2±0.02	
MLAST042SCG080□WNA01	TMK042 CG080□D-W	25	CG	C0G	8 p	±0.1pF,±0.25pF,±0.5pF	560	200	0.2±0.02	
MLAST042SCG8R1□WNA01	TMK042 CG8R1□D-W	25	CG	C0G	8.1 p	±0.1pF,±0.25pF,±0.5pF	562	200	0.2±0.02	
MLAST042SCG8R2□WNA01	TMK042 CG8R2□D-W	25	CG	C0G	8.2 p	±0.1pF,±0.25pF,±0.5pF	564	200	0.2±0.02	
MLAST042SCG8R3□WNA01	TMK042 CG8R3□D-W	25	CG	C0G	8.3 p	±0.1pF,±0.25pF,±0.5pF	566	200	0.2±0.02	
MLAST042SCG8R4□WNA01	TMK042 CG8R4□D-W	25	CG	C0G	8.4 p	±0.1pF,±0.25pF,±0.5pF	568	200	0.2±0.02	
MLAST042SCG8R5□WNA01	TMK042 CG8R5□D-W	25	CG	C0G	8.5 p	±0.1pF,±0.25pF,±0.5pF	570	200	0.2±0.02	
MLAST042SCG8R6□WNA01	TMK042 CG8R6□D-W	25	CG	C0G	8.6 p	±0.1pF,±0.25pF,±0.5pF	572	200	0.2±0.02	
MLAST042SCG8R7□WNA01	TMK042 CG8R7□D-W	25	CG	C0G	8.7 p	±0.1pF,±0.25pF,±0.5pF	574	200	0.2±0.02	

■PART NUMBER

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAST042SCG8R8□WNA01	TMK042 CG8R8□D-W	25	CG	C0G	8.8 p	±0.1pF,±0.25pF,±0.5pF	576	200	0.2±0.02	
MLAST042SCG8R9□WNA01	TMK042 CG8R9□D-W	25	CG	C0G	8.9 p	±0.1pF,±0.25pF,±0.5pF	578	200	0.2±0.02	
MLAST042SCG090□WNA01	TMK042 CG090□D-W	25	CG	C0G	9 p	±0.1pF,±0.25pF,±0.5pF	580	200	0.2±0.02	
MLAST042SCG9R1□WNA01	TMK042 CG9R1□D-W	25	CG	C0G	9.1 p	±0.1pF,±0.25pF,±0.5pF	582	200	0.2±0.02	
MLAST042SCG9R2□WNA01	TMK042 CG9R2□D-W	25	CG	C0G	9.2 p	±0.1pF,±0.25pF,±0.5pF	584	200	0.2±0.02	
MLAST042SCG9R3□WNA01	TMK042 CG9R3□D-W	25	CG	C0G	9.3 p	±0.1pF,±0.25pF,±0.5pF	586	200	0.2±0.02	
MLAST042SCG9R4□WNA01	TMK042 CG9R4□D-W	25	CG	C0G	9.4 p	±0.1pF,±0.25pF,±0.5pF	588	200	0.2±0.02	
MLAST042SCG9R5□WNA01	TMK042 CG9R5□D-W	25	CG	C0G	9.5 p	±0.1pF,±0.25pF,±0.5pF	590	200	0.2±0.02	
MLAST042SCG9R6□WNA01	TMK042 CG9R6□D-W	25	CG	C0G	9.6 p	±0.1pF,±0.25pF,±0.5pF	592	200	0.2±0.02	
MLAST042SCG9R7□WNA01	TMK042 CG9R7□D-W	25	CG	C0G	9.7 p	±0.1pF,±0.25pF,±0.5pF	594	200	0.2±0.02	
MLAST042SCG9R8□WNA01	TMK042 CG9R8□D-W	25	CG	C0G	9.8 p	±0.1pF,±0.25pF,±0.5pF	596	200	0.2±0.02	
MLAST042SCG9R9□WNA01	TMK042 CG9R9□D-W	25	CG	C0G	9.9 p	±0.1pF,±0.25pF,±0.5pF	598	200	0.2±0.02	
MLAST042SCG100DWNA01	TMK042 CG100DD-W	25	CG	C0G	10 p	±0.5pF	600	200	0.2±0.02	
MLAST042SCG110JWNA01	TMK042 CG110JD-W	25	CG	C0G	11 p	±5%	620	200	0.2±0.02	
MLAST042SCG120JWNA01	TMK042 CG120JD-W	25	CG	C0G	12 p	±5%	640	200	0.2±0.02	
MLAST042SCG130JWNA01	TMK042 CG130JD-W	25	CG	C0G	13 p	±5%	660	200	0.2±0.02	
MLAST042SCG150JWNA01	TMK042 CG150JD-W	25	CG	C0G	15 p	±5%	700	200	0.2±0.02	
MLAST042SCG160JWNA01	TMK042 CG160JC-W	25	CG	C0G	16 p	±5%	720	200	0.2±0.02	
MLAST042SCG180JWNA01	TMK042 CG180JC-W	25	CG	C0G	18 p	±5%	760	200	0.2±0.02	
MLAST042SCG200JWNA01	TMK042 CG200JC-W	25	CG	C0G	20 p	±5%	800	200	0.2±0.02	
MLAST042SCG220JWNA01	TMK042 CG220JC-W	25	CG	C0G	22 p	±5%	840	200	0.2±0.02	
MLAST042SCG240JWNA01	TMK042 CG240JC-W	25	CG	C0G	24 p	±5%	880	200	0.2±0.02	
MLAST042SCG270JWNA01	TMK042 CG270JC-W	25	CG	C0G	27 p	±5%	940	200	0.2±0.02	
MLAST042SCG300JWNA01	TMK042 CG300JC-W	25	CG	C0G	30 p	±5%	1000	200	0.2±0.02	
MLAST042SCG330JWNA01	TMK042 CG330JC-W	25	CG	C0G	33 p	±5%	1000	200	0.2±0.02	
MLAST042SCG360JWNA01	TMK042 CG360JC-W	25	CG	C0G	36 p	±5%	1000	200	0.2±0.02	
MLAST042SCG390JWNA01	TMK042 CG390JC-W	25	CG	C0G	39 p	±5%	1000	200	0.2±0.02	
MLAST042SCG430JWNA01	TMK042 CG430JC-W	25	CG	C0G	43 p	±5%	1000	200	0.2±0.02	
MLAST042SCG470JWNA01	TMK042 CG470JC-W	25	CG	C0G	47 p	±5%	1000	200	0.2±0.02	
MLAST042SCG510JWNA01	TMK042 CG510JC-W	25	CG	C0G	51 p	±5%	1000	200	0.2±0.02	
MLAST042SCG560JWNA01	TMK042 CG560JC-W	25	CG	C0G	56 p	±5%	1000	200	0.2±0.02	
MLAST042SCG620JWNA01	TMK042 CG620JC-W	25	CG	C0G	62 p	±5%	1000	200	0.2±0.02	
MLAST042SCG680JWNA01	TMK042 CG680JC-W	25	CG	C0G	68 p	±5%	1000	200	0.2±0.02	
MLAST042SCG750JWNA01	TMK042 CG750JC-W	25	CG	C0G	75 p	±5%	1000	200	0.2±0.02	
MLAST042SCG820JWNA01	TMK042 CG820JC-W	25	CG	C0G	82 p	±5%	1000	200	0.2±0.02	
MLAST042SCG910JWNA01	TMK042 CG910JC-W	25	CG	C0G	91 p	±5%	1000	200	0.2±0.02	
MLAST042SCG101JWNA01	TMK042 CG101JC-W	25	CG	C0G	100 p	±5%	1000	200	0.2±0.02	

【Temperature Characteristic CG : CG/C0G(－55～＋125℃)】 0.2mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SCG0R4□WNA01	EMK042 CG0R4□D-W	16	CG	C0G	0.4 p	±0.05pF,±0.1pF,±0.25pF	408	200	0.2±0.02	
MLASE042SCG0R5□WNA01	EMK042 CG0R5□D-W	16	CG	C0G	0.5 p	±0.05pF,±0.1pF,±0.25pF	410	200	0.2±0.02	
MLASE042SCG0R6□WNA01	EMK042 CG0R6□D-W	16	CG	C0G	0.6 p	±0.05pF,±0.1pF,±0.25pF	412	200	0.2±0.02	
MLASE042SCG0R7□WNA01	EMK042 CG0R7□D-W	16	CG	C0G	0.7 p	±0.05pF,±0.1pF,±0.25pF	414	200	0.2±0.02	
MLASE042SCGR75□WNA01	EMK042 CGR75□D-W	16	CG	C0G	0.75 p	±0.05pF,±0.1pF,±0.25pF	415	200	0.2±0.02	
MLASE042SCG0R8□WNA01	EMK042 CG0R8□D-W	16	CG	C0G	0.8 p	±0.05pF,±0.1pF,±0.25pF	416	200	0.2±0.02	
MLASE042SCG0R9□WNA01	EMK042 CG0R9□D-W	16	CG	C0G	0.9 p	±0.05pF,±0.1pF,±0.25pF	418	200	0.2±0.02	
MLASE042SCG010□WNA01	EMK042 CG010□D-W	16	CG	C0G	1 p	±0.05pF,±0.1pF,±0.25pF	420	200	0.2±0.02	
MLASE042SCG1R1□WNA01	EMK042 CG1R1□D-W	16	CG	C0G	1.1 p	±0.05pF,±0.1pF,±0.25pF	422	200	0.2±0.02	
MLASE042SCG1R2□WNA01	EMK042 CG1R2□D-W	16	CG	C0G	1.2 p	±0.05pF,±0.1pF,±0.25pF	424	200	0.2±0.02	
MLASE042SCG1R3□WNA01	EMK042 CG1R3□D-W	16	CG	C0G	1.3 p	±0.05pF,±0.1pF,±0.25pF	426	200	0.2±0.02	
MLASE042SCG1R4□WNA01	EMK042 CG1R4□D-W	16	CG	C0G	1.4 p	±0.05pF,±0.1pF,±0.25pF	428	200	0.2±0.02	
MLASE042SCG1R5□WNA01	EMK042 CG1R5□D-W	16	CG	C0G	1.5 p	±0.05pF,±0.1pF,±0.25pF	430	200	0.2±0.02	
MLASE042SCG1R6□WNA01	EMK042 CG1R6□D-W	16	CG	C0G	1.6 p	±0.05pF,±0.1pF,±0.25pF	432	200	0.2±0.02	
MLASE042SCG1R7□WNA01	EMK042 CG1R7□D-W	16	CG	C0G	1.7 p	±0.05pF,±0.1pF,±0.25pF	434	200	0.2±0.02	
MLASE042SCG1R8□WNA01	EMK042 CG1R8□D-W	16	CG	C0G	1.8 p	±0.05pF,±0.1pF,±0.25pF	436	200	0.2±0.02	
MLASE042SCG1R9□WNA01	EMK042 CG1R9□D-W	16	CG	C0G	1.9 p	±0.05pF,±0.1pF,±0.25pF	438	200	0.2±0.02	
MLASE042SCG020□WNA01	EMK042 CG020□D-W	16	CG	C0G	2 p	±0.05pF,±0.1pF,±0.25pF	440	200	0.2±0.02	
MLASE042SCG2R1□WNA01	EMK042 CG2R1□D-W	16	CG	C0G	2.1 p	±0.05pF,±0.1pF,±0.25pF	442	200	0.2±0.02	
MLASE042SCG2R2□WNA01	EMK042 CG2R2□D-W	16	CG	C0G	2.2 p	±0.05pF,±0.1pF,±0.25pF	444	200	0.2±0.02	
MLASE042SCG2R3□WNA01	EMK042 CG2R3□D-W	16	CG	C0G	2.3 p	±0.05pF,±0.1pF,±0.25pF	446	200	0.2±0.02	
MLASE042SCG2R4□WNA01	EMK042 CG2R4□D-W	16	CG	C0G	2.4 p	±0.05pF,±0.1pF,±0.25pF	448	200	0.2±0.02	
MLASE042SCG2R5□WNA01	EMK042 CG2R5□D-W	16	CG	C0G	2.5 p	±0.05pF,±0.1pF,±0.25pF	450	200	0.2±0.02	
MLASE042SCG2R6□WNA01	EMK042 CG2R6□D-W	16	CG	C0G	2.6 p	±0.05pF,±0.1pF,±0.25pF	452	200	0.2±0.02	
MLASE042SCG2R7□WNA01	EMK042 CG2R7□D-W	16	CG	C0G	2.7 p	±0.05pF,±0.1pF,±0.25pF	454	200	0.2±0.02	
MLASE042SCG2R8□WNA01	EMK042 CG2R8□D-W	16	CG	C0G	2.8 p	±0.05pF,±0.1pF,±0.25pF	456	200	0.2±0.02	
MLASE042SCG2R9□WNA01	EMK042 CG2R9□D-W	16	CG	C0G	2.9 p	±0.05pF,±0.1pF,±0.25pF	458	200	0.2±0.02	
MLASE042SCG030□WNA01	EMK042 CG030□D-W	16	CG	C0G	3 p	±0.05pF,±0.1pF,±0.25pF	460	200	0.2±0.02	
MLASE042SCG3R1□WNA01	EMK042 CG3R1□D-W	16	CG	C0G	3.1 p	±0.1pF,±0.25pF	462	200	0.2±0.02	
MLASE042SCG3R2□WNA01	EMK042 CG3R2□D-W	16	CG	C0G	3.2 p	±0.1pF,±0.25pF	464	200	0.2±0.02	
MLASE042SCG3R3□WNA01	EMK042 CG3R3□D-W	16	CG	C0G	3.3 p	±0.1pF,±0.25pF	466	200	0.2±0.02	
MLASE042SCG3R4□WNA01	EMK042 CG3R4□D-W	16	CG	C0G	3.4 p	±0.1pF,±0.25pF	468	200	0.2±0.02	
MLASE042SCG3R5□WNA01	EMK042 CG3R5□D-W	16	CG	C0G	3.5 p	±0.1pF,±0.25pF	470	200	0.2±0.02	
MLASE042SCG3R6□WNA01	EMK042 CG3R6□D-W	16	CG	C0G	3.6 p	±0.1pF,±0.25pF	472	200	0.2±0.02	
MLASE042SCG3R7□WNA01	EMK042 CG3R7□D-W	16	CG	C0G	3.7 p	±0.1pF,±0.25pF	474	200	0.2±0.02	
MLASE042SCG3R8□WNA01	EMK042 CG3R8□D-W	16	CG	C0G	3.8 p	±0.1pF,±0.25pF	476	200	0.2±0.02	
MLASE042SCG3R9□WNA01	EMK042 CG3R9□D-W	16	CG	C0G	3.9 p	±0.1pF,±0.25pF	478	200	0.2±0.02	
MLASE042SCG040□WNA01	EMK042 CG040□D-W	16	CG	C0G	4 p	±0.1pF,±0.25pF	480	200	0.2±0.02	
MLASE042SCG4R1□WNA01	EMK042 CG4R1□D-W	16	CG	C0G	4.1 p	±0.1pF,±0.25pF	482	200	0.2±0.02	
MLASE042SCG4R2□WNA01	EMK042 CG4R2□D-W	16	CG	C0G	4.2 p	±0.1pF,±0.25pF	484	200	0.2±0.02	
MLASE042SCG4R3□WNA01	EMK042 CG4R3□D-W	16	CG	C0G	4.3 p	±0.1pF,±0.25pF	486	200	0.2±0.02	
MLASE042SCG4R4□WNA01	EMK042 CG4R4□D-W	16	CG	C0G	4.4 p	±0.1pF,±0.25pF	488	200	0.2±0.02	
MLASE042SCG4R5□WNA01	EMK042 CG4R5□D-W	16	CG	C0G	4.5 p	±0.1pF,±0.25pF	490	200	0.2±0.02	
MLASE042SCG4R6□WNA01	EMK042 CG4R6□D-W	16	CG	C0G	4.6 p	±0.1pF,±0.25pF	492	200	0.2±0.02	

■PART NUMBER

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASE042SCG4R7□WNA01	EMK042 CG4R7□D-W	16	CG	C0G	4.7 p	±0.1pF,±0.25pF	494	200	0.2±0.02	
MLASE042SCG4R8□WNA01	EMK042 CG4R8□D-W	16	CG	C0G	4.8 p	±0.1pF,±0.25pF	496	200	0.2±0.02	
MLASE042SCG4R9□WNA01	EMK042 CG4R9□D-W	16	CG	C0G	4.9 p	±0.1pF,±0.25pF	498	200	0.2±0.02	
MLASE042SCG050□WNA01	EMK042 CG050□D-W	16	CG	C0G	5 p	±0.1pF,±0.25pF	500	200	0.2±0.02	
MLASE042SCG5R1□WNA01	EMK042 CG5R1□D-W	16	CG	C0G	5.1 p	±0.1pF,±0.25pF,±0.5pF	502	200	0.2±0.02	
MLASE042SCG5R2□WNA01	EMK042 CG5R2□D-W	16	CG	C0G	5.2 p	±0.1pF,±0.25pF,±0.5pF	504	200	0.2±0.02	
MLASE042SCG5R3□WNA01	EMK042 CG5R3□D-W	16	CG	C0G	5.3 p	±0.1pF,±0.25pF,±0.5pF	506	200	0.2±0.02	
MLASE042SCG5R4□WNA01	EMK042 CG5R4□D-W	16	CG	C0G	5.4 p	±0.1pF,±0.25pF,±0.5pF	508	200	0.2±0.02	
MLASE042SCG5R5□WNA01	EMK042 CG5R5□D-W	16	CG	C0G	5.5 p	±0.1pF,±0.25pF,±0.5pF	510	200	0.2±0.02	
MLASE042SCG5R6□WNA01	EMK042 CG5R6□D-W	16	CG	C0G	5.6 p	±0.1pF,±0.25pF,±0.5pF	512	200	0.2±0.02	
MLASE042SCG5R7□WNA01	EMK042 CG5R7□D-W	16	CG	C0G	5.7 p	±0.1pF,±0.25pF,±0.5pF	514	200	0.2±0.02	
MLASE042SCG5R8□WNA01	EMK042 CG5R8□D-W	16	CG	C0G	5.8 p	±0.1pF,±0.25pF,±0.5pF	516	200	0.2±0.02	
MLASE042SCG5R9□WNA01	EMK042 CG5R9□D-W	16	CG	C0G	5.9 p	±0.1pF,±0.25pF,±0.5pF	518	200	0.2±0.02	
MLASE042SCG060□WNA01	EMK042 CG060□D-W	16	CG	C0G	6 p	±0.1pF,±0.25pF,±0.5pF	520	200	0.2±0.02	
MLASE042SCG6R1□WNA01	EMK042 CG6R1□D-W	16	CG	C0G	6.1 p	±0.1pF,±0.25pF,±0.5pF	522	200	0.2±0.02	
MLASE042SCG6R2□WNA01	EMK042 CG6R2□D-W	16	CG	C0G	6.2 p	±0.1pF,±0.25pF,±0.5pF	524	200	0.2±0.02	
MLASE042SCG6R3□WNA01	EMK042 CG6R3□D-W	16	CG	C0G	6.3 p	±0.1pF,±0.25pF,±0.5pF	526	200	0.2±0.02	
MLASE042SCG6R4□WNA01	EMK042 CG6R4□D-W	16	CG	C0G	6.4 p	±0.1pF,±0.25pF,±0.5pF	528	200	0.2±0.02	
MLASE042SCG6R5□WNA01	EMK042 CG6R5□D-W	16	CG	C0G	6.5 p	±0.1pF,±0.25pF,±0.5pF	530	200	0.2±0.02	
MLASE042SCG6R6□WNA01	EMK042 CG6R6□D-W	16	CG	C0G	6.6 p	±0.1pF,±0.25pF,±0.5pF	532	200	0.2±0.02	
MLASE042SCG6R7□WNA01	EMK042 CG6R7□D-W	16	CG	C0G	6.7 p	±0.1pF,±0.25pF,±0.5pF	534	200	0.2±0.02	
MLASE042SCG6R8□WNA01	EMK042 CG6R8□D-W	16	CG	C0G	6.8 p	±0.1pF,±0.25pF,±0.5pF	536	200	0.2±0.02	
MLASE042SCG6R9□WNA01	EMK042 CG6R9□D-W	16	CG	C0G	6.9 p	±0.1pF,±0.25pF,±0.5pF	538	200	0.2±0.02	
MLASE042SCG070□WNA01	EMK042 CG070□D-W	16	CG	C0G	7 p	±0.1pF,±0.25pF,±0.5pF	540	200	0.2±0.02	
MLASE042SCG7R1□WNA01	EMK042 CG7R1□D-W	16	CG	C0G	7.1 p	±0.1pF,±0.25pF,±0.5pF	542	200	0.2±0.02	
MLASE042SCG7R2□WNA01	EMK042 CG7R2□D-W	16	CG	C0G	7.2 p	±0.1pF,±0.25pF,±0.5pF	544	200	0.2±0.02	
MLASE042SCG7R3□WNA01	EMK042 CG7R3□D-W	16	CG	C0G	7.3 p	±0.1pF,±0.25pF,±0.5pF	546	200	0.2±0.02	
MLASE042SCG7R4□WNA01	EMK042 CG7R4□D-W	16	CG	C0G	7.4 p	±0.1pF,±0.25pF,±0.5pF	548	200	0.2±0.02	
MLASE042SCG7R5□WNA01	EMK042 CG7R5□D-W	16	CG	C0G	7.5 p	±0.1pF,±0.25pF,±0.5pF	550	200	0.2±0.02	
MLASE042SCG7R6□WNA01	EMK042 CG7R6□D-W	16	CG	C0G	7.6 p	±0.1pF,±0.25pF,±0.5pF	552	200	0.2±0.02	
MLASE042SCG7R7□WNA01	EMK042 CG7R7□D-W	16	CG	C0G	7.7 p	±0.1pF,±0.25pF,±0.5pF	554	200	0.2±0.02	
MLASE042SCG7R8□WNA01	EMK042 CG7R8□D-W	16	CG	C0G	7.8 p	±0.1pF,±0.25pF,±0.5pF	556	200	0.2±0.02	
MLASE042SCG7R9□WNA01	EMK042 CG7R9□D-W	16	CG	C0G	7.9 p	±0.1pF,±0.25pF,±0.5pF	558	200	0.2±0.02	
MLASE042SCG080□WNA01	EMK042 CG080□D-W	16	CG	C0G	8 p	±0.1pF,±0.25pF,±0.5pF	560	200	0.2±0.02	
MLASE042SCG8R1□WNA01	EMK042 CG8R1□D-W	16	CG	C0G	8.1 p	±0.1pF,±0.25pF,±0.5pF	562	200	0.2±0.02	
MLASE042SCG8R2□WNA01	EMK042 CG8R2□D-W	16	CG	C0G	8.2 p	±0.1pF,±0.25pF,±0.5pF	564	200	0.2±0.02	
MLASE042SCG8R3□WNA01	EMK042 CG8R3□D-W	16	CG	C0G	8.3 p	±0.1pF,±0.25pF,±0.5pF	566	200	0.2±0.02	
MLASE042SCG8R4□WNA01	EMK042 CG8R4□D-W	16	CG	C0G	8.4 p	±0.1pF,±0.25pF,±0.5pF	568	200	0.2±0.02	
MLASE042SCG8R5□WNA01	EMK042 CG8R5□D-W	16	CG	C0G	8.5 p	±0.1pF,±0.25pF,±0.5pF	570	200	0.2±0.02	
MLASE042SCG8R6□WNA01	EMK042 CG8R6□D-W	16	CG	C0G	8.6 p	±0.1pF,±0.25pF,±0.5pF	572	200	0.2±0.02	
MLASE042SCG8R7□WNA01	EMK042 CG8R7□D-W	16	CG	C0G	8.7 p	±0.1pF,±0.25pF,±0.5pF	574	200	0.2±0.02	
MLASE042SCG8R8□WNA01	EMK042 CG8R8□D-W	16	CG	C0G	8.8 p	±0.1pF,±0.25pF,±0.5pF	576	200	0.2±0.02	
MLASE042SCG8R9□WNA01	EMK042 CG8R9□D-W	16	CG	C0G	8.9 p	±0.1pF,±0.25pF,±0.5pF	578	200	0.2±0.02	
MLASE042SCG090□WNA01	EMK042 CG090□D-W	16	CG	C0G	9 p	±0.1pF,±0.25pF,±0.5pF	580	200	0.2±0.02	
MLASE042SCG9R1□WNA01	EMK042 CG9R1□D-W	16	CG	C0G	9.1 p	±0.1pF,±0.25pF,±0.5pF	582	200	0.2±0.02	
MLASE042SCG9R2□WNA01	EMK042 CG9R2□D-W	16	CG	C0G	9.2 p	±0.1pF,±0.25pF,±0.5pF	584	200	0.2±0.02	
MLASE042SCG9R3□WNA01	EMK042 CG9R3□D-W	16	CG	C0G	9.3 p	±0.1pF,±0.25pF,±0.5pF	586	200	0.2±0.02	
MLASE042SCG9R4□WNA01	EMK042 CG9R4□D-W	16	CG	C0G	9.4 p	±0.1pF,±0.25pF,±0.5pF	588	200	0.2±0.02	
MLASE042SCG9R5□WNA01	EMK042 CG9R5□D-W	16	CG	C0G	9.5 p	±0.1pF,±0.25pF,±0.5pF	590	200	0.2±0.02	
MLASE042SCG9R6□WNA01	EMK042 CG9R6□D-W	16	CG	C0G	9.6 p	±0.1pF,±0.25pF,±0.5pF	592	200	0.2±0.02	
MLASE042SCG9R7□WNA01	EMK042 CG9R7□D-W	16	CG	C0G	9.7 p	±0.1pF,±0.25pF,±0.5pF	594	200	0.2±0.02	
MLASE042SCG9R8□WNA01	EMK042 CG9R8□D-W	16	CG	C0G	9.8 p	±0.1pF,±0.25pF,±0.5pF	596	200	0.2±0.02	
MLASE042SCG9R9□WNA01	EMK042 CG9R9□D-W	16	CG	C0G	9.9 p	±0.1pF,±0.25pF,±0.5pF	598	200	0.2±0.02	
MLASE042SCG100DWNA01	EMK042 CG100DD-W	16	CG	C0G	10 p	±0.5pF	600	200	0.2±0.02	
MLASE042SCG110JWNA01	EMK042 CG110JD-W	16	CG	C0G	11 p	±5%	620	200	0.2±0.02	
MLASE042SCG120JWNA01	EMK042 CG120JD-W	16	CG	C0G	12 p	±5%	640	200	0.2±0.02	
MLASE042SCG130JWNA01	EMK042 CG130JD-W	16	CG	C0G	13 p	±5%	660	200	0.2±0.02	
MLASE042SCG150JWNA01	EMK042 CG150JD-W	16	CG	C0G	15 p	±5%	700	200	0.2±0.02	
MLASE042SCG160JWNA01	EMK042 CG160JC-W	16	CG	C0G	16 p	±5%	720	200	0.2±0.02	
MLASE042SCG180JWNA01	EMK042 CG180JC-W	16	CG	C0G	18 p	±5%	760	200	0.2±0.02	
MLASE042SCG200JWNA01	EMK042 CG200JC-W	16	CG	C0G	20 p	±5%	800	200	0.2±0.02	
MLASE042SCG220JWNA01	EMK042 CG220JC-W	16	CG	C0G	22 p	±5%	840	200	0.2±0.02	
MLASE042SCG240JWNA01	EMK042 CG240JC-W	16	CG	C0G	24 p	±5%	880	200	0.2±0.02	
MLASE042SCG270JWNA01	EMK042 CG270JC-W	16	CG	C0G	27 p	±5%	940	200	0.2±0.02	
MLASE042SCG300JWNA01	EMK042 CG300JC-W	16	CG	C0G	30 p	±5%	1000	200	0.2±0.02	
MLASE042SCG330JWNA01	EMK042 CG330JC-W	16	CG	C0G	33 p	±5%	1000	200	0.2±0.02	
MLASE042SCG360JWNA01	EMK042 CG360JC-W	16	CG	C0G	36 p	±5%	1000	200	0.2±0.02	
MLASE042SCG390JWNA01	EMK042 CG390JC-W	16	CG	C0G	39 p	±5%	1000	200	0.2±0.02	
MLASE042SCG430JWNA01	EMK042 CG430JC-W	16	CG	C0G	43 p	±5%	1000	200	0.2±0.02	
MLASE042SCG470JWNA01	EMK042 CG470JC-W	16	CG	C0G	47 p	±5%	1000	200	0.2±0.02	
MLASE042SCG510JWNA01	EMK042 CG510JC-W	16	CG	C0G	51 p	±5%	1000	200	0.2±0.02	
MLASE042SCG560JWNA01	EMK042 CG560JC-W	16	CG	C0G	56 p	±5%	1000	200	0.2±0.02	
MLASE042SCG620JWNA01	EMK042 CG620JC-W	16	CG	C0G	62 p	±5%	1000	200	0.2±0.02	
MLASE042SCG680JWNA01	EMK042 CG680JC-W	16	CG	C0G	68 p	±5%	1000	200	0.2±0.02	
MLASE042SCG750JWNA01	EMK042 CG750JC-W	16	CG	C0G	75 p	±5%	1000	200	0.2±0.02	
MLASE042SCG820JWNA01	EMK042 CG820JC-W	16	CG	C0G	82 p	±5%	1000	200	0.2±0.02	
MLASE042SCG910JWNA01	EMK042 CG910JC-W	16	CG	C0G	91 p	±5%	1000	200	0.2±0.02	
MLASE042SCG101JWNA01	EMK042 CG101JC-W	16	CG	C0G	100 p	±5%	1000	200	0.2±0.02	
MLASE042SCG221JWNA01	EMK042 CG221JC-W	16	CG	C0G	220 p	±5%	1000	200	0.2±0.02	
MLASE042SCG241JWNA01	EMK042 CG241JC-W	16	CG	C0G	240 p	±5%	1000	200	0.2±0.02	
MLASE042SCG271JWNA01	EMK042 CG271JC-W	16	CG	C0G	270 p	±5%	1000	200	0.2±0.02	
MLASE042SCG331JWNA01	EMK042 CG331JC-W	16	CG	C0G	330 p	±5%	1000	200	0.2±0.02	

■PART NUMBER

●0603TYPE

【Temperature Characteristic CH : CH/C0H(－55～＋125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU063SCH200JFNA01	UMK063 CH200JT-F	50	CH	C0H	20 p	±5%	800	200	0.3±0.03	
MLASU063SCH220JFNA01	UMK063 CH220JT-F	50	CH	C0H	22 p	±5%	840	200	0.3±0.03	
MLASU063SCH240JFNA01	UMK063 CH240JT-F	50	CH	C0H	24 p	±5%	880	200	0.3±0.03	
MLASU063SCH270JFNA01	UMK063 CH270JT-F	50	CH	C0H	27 p	±5%	940	200	0.3±0.03	
MLASU063SCH300JFNA01	UMK063 CH300JT-F	50	CH	C0H	30 p	±5%	1000	200	0.3±0.03	
MLASU063SCH330JFNA01	UMK063 CH330JT-F	50	CH	C0H	33 p	±5%	1000	200	0.3±0.03	
MLASU063SCH360JFNA01	UMK063 CH360JT-F	50	CH	C0H	36 p	±5%	1000	200	0.3±0.03	
MLASU063SCH390JFNA01	UMK063 CH390JT-F	50	CH	C0H	39 p	±5%	1000	200	0.3±0.03	
MLASU063SCH430JFNA01	UMK063 CH430JT-F	50	CH	C0H	43 p	±5%	1000	200	0.3±0.03	
MLASU063SCH470JFNA01	UMK063 CH470JT-F	50	CH	C0H	47 p	±5%	1000	200	0.3±0.03	
MLASU063SCH510JFNA01	UMK063 CH510JT-F	50	CH	C0H	51 p	±5%	1000	200	0.3±0.03	
MLASU063SCH560JFNA01	UMK063 CH560JT-F	50	CH	C0H	56 p	±5%	1000	200	0.3±0.03	
MLASU063SCH620JFNA01	UMK063 CH620JT-F	50	CH	C0H	62 p	±5%	1000	200	0.3±0.03	
MLASU063SCH680JFNA01	UMK063 CH680JT-F	50	CH	C0H	68 p	±5%	1000	200	0.3±0.03	
MLASU063SCH750JFNA01	UMK063 CH750JT-F	50	CH	C0H	75 p	±5%	1000	200	0.3±0.03	
MLASU063SCH820JFNA01	UMK063 CH820JT-F	50	CH	C0H	82 p	±5%	1000	200	0.3±0.03	
MLASU063SCH910JFNA01	UMK063 CH910JT-F	50	CH	C0H	91 p	±5%	1000	200	0.3±0.03	
MLASU063SCH101JFNA01	UMK063 CH101JT-F	50	CH	C0H	100 p	±5%	1000	200	0.3±0.03	
MLASU063SCH111JFNA01	UMK063 CH111JT-F	50	CH	C0H	110 p	±5%	1000	200	0.3±0.03	
MLASU063SCH121JFNA01	UMK063 CH121JT-F	50	CH	C0H	120 p	±5%	1000	200	0.3±0.03	
MLASU063SCH131JFNA01	UMK063 CH131JT-F	50	CH	C0H	130 p	±5%	1000	200	0.3±0.03	
MLASU063SCH151JFNA01	UMK063 CH151JT-F	50	CH	C0H	150 p	±5%	1000	200	0.3±0.03	
MLASU063SCH181JFNA01	UMK063 CH181JT-F	50	CH	C0H	180 p	±5%	1000	200	0.3±0.03	
MLASU063SCH201JFNA01	UMK063 CH201JT-F	50	CH	C0H	200 p	±5%	1000	200	0.3±0.03	
MLASU063SCH221JFNA01	UMK063 CH221JT-F	50	CH	C0H	220 p	±5%	1000	200	0.3±0.03	
MLAST063SCH241JFNA01	TMK063 CH241JT-F	25	CH	C0H	240 p	±5%	1000	200	0.3±0.03	
MLAST063SCH271JFNA01	TMK063 CH271JT-F	25	CH	C0H	270 p	±5%	1000	200	0.3±0.03	
MLAST063SCH301JFNA01	TMK063 CH301JT-F	25	CH	C0H	300 p	±5%	1000	200	0.3±0.03	
MLAST063SCH331JFNA01	TMK063 CH331JT-F	25	CH	C0H	330 p	±5%	1000	200	0.3±0.03	
MLAST063SCH361JFNA01	TMK063 CH361JT-F	25	CH	C0H	360 p	±5%	1000	200	0.3±0.03	
MLAST063SCH391JFNA01	TMK063 CH391JT-F	25	CH	C0H	390 p	±5%	1000	200	0.3±0.03	
MLAST063SCH431JFNA01	TMK063 CH431JT-F	25	CH	C0H	430 p	±5%	1000	200	0.3±0.03	
MLAST063SCH471JFNA01	TMK063 CH471JT-F	25	CH	C0H	470 p	±5%	1000	200	0.3±0.03	
MLAST063SCH511JFNA01	TMK063 CH511JT-F	25	CH	C0H	510 p	±5%	1000	200	0.3±0.03	
MLAST063SCH561JFNA01	TMK063 CH561JT-F	25	CH	C0H	560 p	±5%	1000	200	0.3±0.03	
MLAST063SCH621JFNA01	TMK063 CH621JT-F	25	CH	C0H	620 p	±5%	1000	200	0.3±0.03	
MLAST063SCH681JFNA01	TMK063 CH681JT-F	25	CH	C0H	680 p	±5%	1000	200	0.3±0.03	
MLAST063SCH751JFNA01	TMK063 CH751JT-F	25	CH	C0H	750 p	±5%	1000	200	0.3±0.03	
MLAST063SCH821JFNA01	TMK063 CH821JT-F	25	CH	C0H	820 p	±5%	1000	200	0.3±0.03	
MLAST063SCH911JFNA01	TMK063 CH911JT-F	25	CH	C0H	910 p	±5%	1000	200	0.3±0.03	
MLAST063SCH102JFNA01	TMK063 CH102JT-F	25	CH	C0H	1000 p	±5%	1000	200	0.3±0.03	

■PART NUMBER

【Temperature Characteristic CG : CG/C0G(－55～＋125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASU063SCG200JFNA01	UMK063 CG200JT-F	50	CG	C0G	20 p	±5%	800	200	0.3±0.03	
MLASU063SCG220JFNA01	UMK063 CG220JT-F	50	CG	C0G	22 p	±5%	840	200	0.3±0.03	
MLASU063SCG240JFNA01	UMK063 CG240JT-F	50	CG	C0G	24 p	±5%	880	200	0.3±0.03	
MLASU063SCG270JFNA01	UMK063 CG270JT-F	50	CG	C0G	27 p	±5%	940	200	0.3±0.03	
MLASU063SCG300JFNA01	UMK063 CG300JT-F	50	CG	C0G	30 p	±5%	1000	200	0.3±0.03	
MLASU063SCG330JFNA01	UMK063 CG330JT-F	50	CG	C0G	33 p	±5%	1000	200	0.3±0.03	
MLASU063SCG360JFNA01	UMK063 CG360JT-F	50	CG	C0G	36 p	±5%	1000	200	0.3±0.03	
MLASU063SCG390JFNA01	UMK063 CG390JT-F	50	CG	C0G	39 p	±5%	1000	200	0.3±0.03	
MLASU063SCG430JFNA01	UMK063 CG430JT-F	50	CG	C0G	43 p	±5%	1000	200	0.3±0.03	
MLASU063SCG470JFNA01	UMK063 CG470JT-F	50	CG	C0G	47 p	±5%	1000	200	0.3±0.03	
MLASU063SCG510JFNA01	UMK063 CG510JT-F	50	CG	C0G	51 p	±5%	1000	200	0.3±0.03	
MLASU063SCG560JFNA01	UMK063 CG560JT-F	50	CG	C0G	56 p	±5%	1000	200	0.3±0.03	
MLASU063SCG620JFNA01	UMK063 CG620JT-F	50	CG	C0G	62 p	±5%	1000	200	0.3±0.03	
MLASU063SCG680JFNA01	UMK063 CG680JT-F	50	CG	C0G	68 p	±5%	1000	200	0.3±0.03	
MLASU063SCG750JFNA01	UMK063 CG750JT-F	50	CG	C0G	75 p	±5%	1000	200	0.3±0.03	
MLASU063SCG820JFNA01	UMK063 CG820JT-F	50	CG	C0G	82 p	±5%	1000	200	0.3±0.03	
MLASU063SCG910JFNA01	UMK063 CG910JT-F	50	CG	C0G	91 p	±5%	1000	200	0.3±0.03	
MLASU063SCG101JFNA01	UMK063 CG101JT-F	50	CG	C0G	100 p	±5%	1000	200	0.3±0.03	
MLASU063SCG111JFNA01	UMK063 CG111JT-F	50	CG	C0G	110 p	±5%	1000	200	0.3±0.03	
MLASU063SCG121JFNA01	UMK063 CG121JT-F	50	CG	C0G	120 p	±5%	1000	200	0.3±0.03	
MLASU063SCG131JFNA01	UMK063 CG131JT-F	50	CG	C0G	130 p	±5%	1000	200	0.3±0.03	
MLASU063SCG151JFNA01	UMK063 CG151JT-F	50	CG	C0G	150 p	±5%	1000	200	0.3±0.03	
MLASU063SCG181JFNA01	UMK063 CG181JT-F	50	CG	C0G	180 p	±5%	1000	200	0.3±0.03	
MLASU063SCG201JFNA01	UMK063 CG201JT-F	50	CG	C0G	200 p	±5%	1000	200	0.3±0.03	
MLASU063SCG221JFNA01	UMK063 CG221JT-F	50	CG	C0G	220 p	±5%	1000	200	0.3±0.03	
MLAST063SCG241JFNA01	TMK063 CG241JT-F	25	CG	C0G	240 p	±5%	1000	200	0.3±0.03	
MLAST063SCG271JFNA01	TMK063 CG271JT-F	25	CG	C0G	270 p	±5%	1000	200	0.3±0.03	
MLAST063SCG301JFNA01	TMK063 CG301JT-F	25	CG	C0G	300 p	±5%	1000	200	0.3±0.03	
MLAST063SCG331JFNA01	TMK063 CG331JT-F	25	CG	C0G	330 p	±5%	1000	200	0.3±0.03	
MLAST063SCG361JFNA01	TMK063 CG361JT-F	25	CG	C0G	360 p	±5%	1000	200	0.3±0.03	
MLAST063SCG391JFNA01	TMK063 CG391JT-F	25	CG	C0G	390 p	±5%	1000	200	0.3±0.03	
MLAST063SCG431JFNA01	TMK063 CG431JT-F	25	CG	C0G	430 p	±5%	1000	200	0.3±0.03	
MLAST063SCG471JFNA01	TMK063 CG471JT-F	25	CG	C0G	470 p	±5%	1000	200	0.3±0.03	
MLAST063SCG511JFNA01	TMK063 CG511JT-F	25	CG	C0G	510 p	±5%	1000	200	0.3±0.03	
MLAST063SCG561JFNA01	TMK063 CG561JT-F	25	CG	C0G	560 p	±5%	1000	200	0.3±0.03	
MLAST063SCG621JFNA01	TMK063 CG621JT-F	25	CG	C0G	620 p	±5%	1000	200	0.3±0.03	
MLAST063SCG681JFNA01	TMK063 CG681JT-F	25	CG	C0G	680 p	±5%	1000	200	0.3±0.03	
MLAST063SCG751JFNA01	TMK063 CG751JT-F	25	CG	C0G	750 p	±5%	1000	200	0.3±0.03	
MLAST063SCG821JFNA01	TMK063 CG821JT-F	25	CG	C0G	820 p	±5%	1000	200	0.3±0.03	
MLAST063SCG911JFNA01	TMK063 CG911JT-F	25	CG	C0G	910 p	±5%	1000	200	0.3±0.03	
MLAST063SCG102JFNA01	TMK063 CG102JT-F	25	CG	C0G	1000 p	±5%	1000	200	0.3±0.03	

■PART NUMBER

Low distortion design/Audible/Good bias Multilayer Ceramic Capacitors (CFCAP) for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●1005TYPE

【Temperature Characteristic SD : Standard(－55～＋125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU105SSD391KFNA01	UMK105 SD391KV-F	50	Standard Type	390 p	±10	0.1	200	0.5±0.05	
MLAYU105SSD471KFNA01	UMK105 SD471KV-F	50	Standard Type	470 p	±10	0.1	200	0.5±0.05	
MLAYU105SSD561KFNA01	UMK105 SD561KV-F	50	Standard Type	560 p	±10	0.1	200	0.5±0.05	
MLAYT105SSD681KFNA01	TMK105 SD681KV-F	25	Standard Type	680 p	±10	0.1	200	0.5±0.05	
MLAYT105SSD821KFNA01	TMK105 SD821KV-F	25	Standard Type	820 p	±10	0.1	200	0.5±0.05	
MLAYT105SSD102KFNA01	TMK105 SD102KV-F	25	Standard Type	1000 p	±10	0.1	200	0.5±0.05	
MLAYT105SSD122KFNA01	TMK105 SD122KV-F	25	Standard Type	1200 p	±10	0.1	200	0.5±0.05	
MLAYE105SSD152KFNA01	EMK105 SD152KV-F	16	Standard Type	1500 p	±10	0.1	200	0.5±0.05	
MLAYE105SSD182KFNA01	EMK105 SD182KV-F	16	Standard Type	1800 p	±10	0.1	200	0.5±0.05	
MLAYE105SSD222KFNA01	EMK105 SD222KV-F	16	Standard Type	2200 p	±10	0.1	200	0.5±0.05	
MLAYE105SSD272KFNA01	EMK105 SD272KV-F	16	Standard Type	2700 p	±10	0.1	200	0.5±0.05	
MLAYL105SSD332KFNA01	LMK105 SD332KV-F	10	Standard Type	3300 p	±10	0.1	200	0.5±0.05	
MLAYL105SSD392KFNA01	LMK105 SD392KV-F	10	Standard Type	3900 p	±10	0.1	200	0.5±0.05	
MLAYL105SSD472KFNA01	LMK105 SD472KV-F	10	Standard Type	4700 p	±10	0.1	200	0.5±0.05	

【Temperature Characteristic SD : Standard(－55～＋125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYL1L3YSD152KFNA01	LMK105 SD152KP-F	10	Standard Type	1500 p	±10	0.1	200	0.3±0.03	
MLAYJ1L3YSD272KFNA01	JMK105 SD272KP-F	6.3	Standard Type	2700 p	±10	0.1	200	0.3±0.03	

●1608TYPE

【Temperature Characteristic SD : Standard(－55～＋125℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU168SSD102KTNA01	UMK107 SD102KA-T	50	Standard Type	1000 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD122KTNA01	UMK107 SD122KA-T	50	Standard Type	1200 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD152KTNA01	UMK107 SD152KA-T	50	Standard Type	1500 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD182KTNA01	UMK107 SD182KA-T	50	Standard Type	1800 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD222KTNA01	UMK107 SD222KA-T	50	Standard Type	2200 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD272KTNA01	UMK107 SD272KA-T	50	Standard Type	2700 p	±10	0.1	200	0.8±0.10	
MLAYU168SSD332KTNA01	UMK107 SD332KA-T	50	Standard Type	3300 p	±10	0.1	200	0.8±0.10	
MLAYT168SSD392KTNA01	TMK107 SD392KA-T	25	Standard Type	3900 p	±10	0.1	200	0.8±0.10	
MLAYT168SSD472KTNA01	TMK107 SD472KA-T	25	Standard Type	4700 p	±10	0.1	200	0.8±0.10	
MLAYE168SSD562KTNA01	EMK107 SD562KA-T	16	Standard Type	5600 p	±10	0.1	200	0.8±0.10	
MLAYE168SSD682KTNA01	EMK107 SD682KA-T	16	Standard Type	6800 p	±10	0.1	200	0.8±0.10	
MLAYE168SSD822KTNA01	EMK107 SD822KA-T	16	Standard Type	8200 p	±10	0.1	200	0.8±0.10	
MLAYE168SSD103KTNA01	EMK107 SD103KA-T	16	Standard Type	0.01 μ	±10	0.1	200	0.8±0.10	
MLAYL168SSD123KTNA01	LMK107 SD123KA-T	10	Standard Type	0.012 μ	±10	0.1	200	0.8±0.10	
MLAYL168SSD153KTNA01	LMK107 SD153KA-T	10	Standard Type	0.015 μ	±10	0.1	200	0.8±0.10	
MLAYL168SSD183KTNA01	LMK107 SD183KA-T	10	Standard Type	0.018 μ	±10	0.1	200	0.8±0.10	
MLAYL168SSD223KTNA01	LMK107 SD223KA-T	10	Standard Type	0.022 μ	±10	0.1	200	0.8±0.10	

●2012TYPE

【Temperature Characteristic SD : Standard(－55～＋125℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYG21GSSD183KTNA01	GMK212 SD183KG-T	35	Standard Type	0.018 μ	±10	0.1	200	1.25±0.10	
MLAYG21GSSD223KTNA01	GMK212 SD223KG-T	35	Standard Type	0.022 μ	±10	0.1	200	1.25±0.10	
MLAYG21GSSD273KTNA01	GMK212 SD273KG-T	35	Standard Type	0.027 μ	±10	0.1	200	1.25±0.10	
MLAYL21GSSD683KTNA01	LMK212 SD683KG-T	10	Standard Type	0.068 μ	±10	0.1	200	1.25±0.10	
MLAYL21GSSD823KTNA01	LMK212 SD823KG-T	10	Standard Type	0.082 μ	±10	0.1	200	1.25±0.10	
MLAYL21GSSD104KTNA01	LMK212 SD104KG-T	10	Standard Type	0.1 μ	±10	0.1	200	1.25±0.10	

【Temperature Characteristic SD : Standard(－55～＋125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU219SSD392KTNA01	UMK212 SD392KD-T	50	Standard Type	3900 p	±10	0.1	200	0.85±0.10	
MLAYU219SSD472KTNA01	UMK212 SD472KD-T	50	Standard Type	4700 p	±10	0.1	200	0.85±0.10	
MLAYU219SSD562KTNA01	UMK212 SD562KD-T	50	Standard Type	5600 p	±10	0.1	200	0.85±0.10	
MLAYU219SSD682KTNA01	UMK212 SD682KD-T	50	Standard Type	6800 p	±10	0.1	200	0.85±0.10	
MLAYU219SSD822KTNA01	UMK212 SD822KD-T	50	Standard Type	8200 p	±10	0.1	200	0.85±0.10	
MLAYU219SSD103KTNA01	UMK212 SD103KD-T	50	Standard Type	0.01 μ	±10	0.1	200	0.85±0.10	
MLAYG219SSD123KTNA01	GMK212 SD123KD-T	35	Standard Type	0.012 μ	±10	0.1	200	0.85±0.10	
MLAYG219SSD153KTNA01	GMK212 SD153KD-T	35	Standard Type	0.015 μ	±10	0.1	200	0.85±0.10	
MLAYE219SSD333KTNA01	EMK212 SD333KD-T	16	Standard Type	0.033 μ	±10	0.1	200	0.85±0.10	
MLAYL219SSD473KTNA01	LMK212 SD473KD-T	10	Standard Type	0.047 μ	±10	0.1	200	0.85±0.10	

■PART NUMBER

●3216TYPE

【Temperature Characteristic SD : Standard(−55～+125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYT31LSSD823KTNA01	TMK316 SD823KL-T	25	Standard Type	0.082 μ	±10	0.1	200	1.6±0.20	
MLAYT31LSSD104KTNA01	TMK316 SD104KL-T	25	Standard Type	0.1 μ	±10	0.1	200	1.6±0.20	

【Temperature Characteristic SD : Standard(−55～+125℃)】 1.15mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYG31QHSD333KTNA01	GMK316 SD333KF-T	35	Standard Type	0.033 μ	±10	0.1	200	1.15±0.10	
MLAYG31QHSD393KTNA01	GMK316 SD393KF-T	35	Standard Type	0.039 μ	±10	0.1	200	1.15±0.10	
MLAYT31QHSD473KTNA01	TMK316 SD473KF-T	25	Standard Type	0.047 μ	±10	0.1	200	1.15±0.10	
MLAYT31QHSD563KTNA01	TMK316 SD563KF-T	25	Standard Type	0.056 μ	±10	0.1	200	1.15±0.10	
MLAYT31QHSD683KTNA01	TMK316 SD683KF-T	25	Standard Type	0.068 μ	±10	0.1	200	1.15±0.10	

■PART NUMBER

Low distortion design/Audible/Good bias Multilayer Ceramic Capacitors (CF_LD) for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●1608TYPE

【Temperature Characteristic LD : X5R(−55～+85℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU168BLD224□TNA01	UMK107BLD224□A-T	50		X5R	0.22 μ	±10 , ±20	10	150	0.8+0.20/−0	
MLAYT168BLD474□TNA01	TMK107BLD474□A-T	25		X5R	0.47 μ	±10 , ±20	10	150	0.8+0.20/−0	
MLAYT168BLD105□TNA01	TMK107BLD105□A-T	25		X5R	1 μ	±10 , ±20	10	150	0.8+0.20/−0	

●2012TYPE

【Temperature Characteristic LD : X5R(−55～+85℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYG21GSLD105□TNA01	GMK212 LD105□G-T	35		X5R	1 μ	±10 , ±20	10	150	1.25±0.10	
MLAYG21GBLD225□TNA01	GMK212BLD225□G-T	35		X5R	2.2 μ	±10 , ±20	10	150	1.25+0.20/−0	

●3216TYPE

【Temperature Characteristic LD : X5R(−55～+85℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU31LSLD105□TNA01	UMK316 LD105□L-T	50		X5R	1 μ	±10 , ±20	10	150	1.6±0.20	
MLAYG31LBLD475□TNA01	GMK316BLD475□L-T	35		X5R	4.7 μ	±10 , ±20	10	150	1.6±0.30	
MLAYT31LBLD106□TNA01	TMK316BLD106□L-T	25		X5R	10 μ	±10 , ±20	10	150	1.6±0.30	

●3225TYPE

【Temperature Characteristic LD : X5R(−55～+85℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU32NSLD105□TNA01	UMK325 LD105□N-T	50		X5R	1 μ	±10 , ±20	10	200	1.9±0.20	

【Temperature Characteristic LD : X5R(−55～+85℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLAYU32MSLD475□PNA01	UMK325 LD475□M-P	50		X5R	4.7 μ	±10 , ±20	10	200	2.5±0.20	

■PART NUMBER

Medium-High Voltage Multilayer Ceramic Capacitors for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●1005TYPE

【Temperature Characteristic B7 : X7R(−55～+125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH105SB7221□FNA01	HMK105 B7221□V-F	100		X7R	220 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7331□FNA01	HMK105 B7331□V-F	100		X7R	330 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7471□FNA01	HMK105 B7471□V-F	100		X7R	470 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7681□FNA01	HMK105 B7681□V-F	100		X7R	680 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7102□FNA01	HMK105 B7102□V-F	100		X7R	1000 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7152□FNA01	HMK105 B7152□V-F	100		X7R	1500 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7222□FNA01	HMK105 B7222□V-F	100		X7R	2200 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7332□FNA01	HMK105 B7332□V-F	100		X7R	3300 p	±10 , ±20	2.5	200	0.5±0.05	
MLASH105SB7472□FNA01	HMK105 B7472□V-F	100		X7R	4700 p	±10 , ±20	2.5	200	0.5±0.05	

【Temperature Characteristic CH : CH/C0H(−55～+125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH105SCH080DFNA01	HMK105 CH080DV-F	100	CH	C0H	8 p	±0.5pF	560	200	0.5±0.05	
MLASH105SCH090DFNA01	HMK105 CH090DV-F	100	CH	C0H	9 p	±0.5pF	580	200	0.5±0.05	
MLASH105SCH100DFNA01	HMK105 CH100DV-F	100	CH	C0H	10 p	±0.5pF	600	200	0.5±0.05	
MLASH105SCH120JFNA01	HMK105 CH120JV-F	100	CH	C0H	12 p	±5%	640	200	0.5±0.05	
MLASH105SCH150JFNA01	HMK105 CH150JV-F	100	CH	C0H	15 p	±5%	700	200	0.5±0.05	
MLASH105SCH180JFNA01	HMK105 CH180JV-F	100	CH	C0H	18 p	±5%	760	200	0.5±0.05	
MLASH105SCH220JFNA01	HMK105 CH220JV-F	100	CH	C0H	22 p	±5%	840	200	0.5±0.05	
MLASH105SCH240JFNA01	HMK105 CH240JV-F	100	CH	C0H	24 p	±5%	880	200	0.5±0.05	
MLASH105SCH270JFNA01	HMK105 CH270JV-F	100	CH	C0H	27 p	±5%	940	200	0.5±0.05	
MLASH105SCH330JFNA01	HMK105 CH330JV-F	100	CH	C0H	33 p	±5%	1000	200	0.5±0.05	
MLASH105SCH390JFNA01	HMK105 CH390JV-F	100	CH	C0H	39 p	±5%	1000	200	0.5±0.05	
MLASH105SCH470JFNA01	HMK105 CH470JV-F	100	CH	C0H	47 p	±5%	1000	200	0.5±0.05	
MLASH105SCH560JFNA01	HMK105 CH560JV-F	100	CH	C0H	56 p	±5%	1000	200	0.5±0.05	
MLASH105SCH680JFNA01	HMK105 CH680JV-F	100	CH	C0H	68 p	±5%	1000	200	0.5±0.05	
MLASH105SCH820JFNA01	HMK105 CH820JV-F	100	CH	C0H	82 p	±5%	1000	200	0.5±0.05	
MLASH105SCH101JFNA01	HMK105 CH101JV-F	100	CH	C0H	100 p	±5%	1000	200	0.5±0.05	

【Temperature Characteristic CG : CG/C0G(−55～+125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q (at 1MHz) (min)	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH105SCG080DFNA01	HMK105 CG080DV-F	100	CG	C0G	8 p	±0.5pF	560	200	0.5±0.05	
MLASH105SCG090DFNA01	HMK105 CG090DV-F	100	CG	C0G	9 p	±0.5pF	580	200	0.5±0.05	
MLASH105SCG100DFNA01	HMK105 CG100DV-F	100	CG	C0G	10 p	±0.5pF	600	200	0.5±0.05	
MLASH105SCG120JFNA01	HMK105 CG120JV-F	100	CG	C0G	12 p	±5%	640	200	0.5±0.05	
MLASH105SCG150JFNA01	HMK105 CG150JV-F	100	CG	C0G	15 p	±5%	700	200	0.5±0.05	
MLASH105SCG180JFNA01	HMK105 CG180JV-F	100	CG	C0G	18 p	±5%	760	200	0.5±0.05	
MLASH105SCG220JFNA01	HMK105 CG220JV-F	100	CG	C0G	22 p	±5%	840	200	0.5±0.05	
MLASH105SCG240JFNA01	HMK105 CG240JV-F	100	CG	C0G	24 p	±5%	880	200	0.5±0.05	
MLASH105SCG270JFNA01	HMK105 CG270JV-F	100	CG	C0G	27 p	±5%	940	200	0.5±0.05	
MLASH105SCG330JFNA01	HMK105 CG330JV-F	100	CG	C0G	33 p	±5%	1000	200	0.5±0.05	
MLASH105SCG390JFNA01	HMK105 CG390JV-F	100	CG	C0G	39 p	±5%	1000	200	0.5±0.05	
MLASH105SCG470JFNA01	HMK105 CG470JV-F	100	CG	C0G	47 p	±5%	1000	200	0.5±0.05	
MLASH105SCG560JFNA01	HMK105 CG560JV-F	100	CG	C0G	56 p	±5%	1000	200	0.5±0.05	
MLASH105SCG680JFNA01	HMK105 CG680JV-F	100	CG	C0G	68 p	±5%	1000	200	0.5±0.05	
MLASH105SCG820JFNA01	HMK105 CG820JV-F	100	CG	C0G	82 p	±5%	1000	200	0.5±0.05	
MLASH105SCG101JFNA01	HMK105 CG101JV-F	100	CG	C0G	100 p	±5%	1000	200	0.5±0.05	

●1608TYPE

【Temperature Characteristic B5(BJ): B(−25～+85℃)/X5R(−55～+85℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH168SB5102□TNA01	HMK107 BJ102□A-T	100	B	X5R*1	1000 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5152□TNA01	HMK107 BJ152□A-T	100	B	X5R*1	1500 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5222□TNA01	HMK107 BJ222□A-T	100	B	X5R*1	2200 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5332□TNA01	HMK107 BJ332□A-T	100	B	X5R*1	3300 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5472□TNA01	HMK107 BJ472□A-T	100	B	X5R*1	4700 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5682□TNA01	HMK107 BJ682□A-T	100	B	X5R*1	6800 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5103□TNA01	HMK107 BJ103□A-T	100	B	X5R*1	0.01 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5153□TNA01	HMK107 BJ153□A-T	100	B	X5R*1	0.015 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5223□TNA01	HMK107 BJ223□A-T	100	B	X5R*1	0.022 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5333□TNA01	HMK107 BJ333□A-T	100	B	X5R*1	0.033 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5473□TNA01	HMK107 BJ473□A-T	100	B	X5R*1	0.047 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5104□TNA01	HMK107 BJ104□A-T	100	B	X5R*1	0.1 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB5224□TCA01	HMK107 BJ224□A-TE	100	B	X5R*1	0.22 μ	±10 , ±20	3.5	150	0.8±0.10	

【Temperature Characteristic C7 : X7S(−55～+125℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH168SC7224□TCA01	HMK107 C7224□A-TE	100		X7S	0.22 μ	±10 , ±20	3.5	150	0.8±0.10	

■PART NUMBER

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH168SB7102□TNA01	HMK107 B7102□A-T	100		X7R	1000 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7152□TNA01	HMK107 B7152□A-T	100		X7R	1500 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7222□TNA01	HMK107 B7222□A-T	100		X7R	2200 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7332□TNA01	HMK107 B7332□A-T	100		X7R	3300 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7472□TNA01	HMK107 B7472□A-T	100		X7R	4700 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7682□TNA01	HMK107 B7682□A-T	100		X7R	6800 p	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7103□TNA01	HMK107 B7103□A-T	100		X7R	0.01 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7153□TNA01	HMK107 B7153□A-T	100		X7R	0.015 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7223□TNA01	HMK107 B7223□A-T	100		X7R	0.022 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7333□TNA01	HMK107 B7333□A-T	100		X7R	0.033 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7473□TNA01	HMK107 B7473□A-T	100		X7R	0.047 μ	±10 , ±20	3.5	200	0.8±0.10	
MLASH168SB7104□TNA01	HMK107 B7104□A-T	100		X7R	0.1 μ	±10 , ±20	3.5	200	0.8±0.10	

【Temperature Characteristic SD : Standard(−55～＋125℃)】 0.8mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH168SSD101KTNA01	HMK107 SD101KA-T	100	Standard Type	100 p	±10	0.1	200	0.8±0.10	
MLASH168SSD121KTNA01	HMK107 SD121KA-T	100	Standard Type	120 p	±10	0.1	200	0.8±0.10	
MLASH168SSD151KTNA01	HMK107 SD151KA-T	100	Standard Type	150 p	±10	0.1	200	0.8±0.10	
MLASH168SSD181KTNA01	HMK107 SD181KA-T	100	Standard Type	180 p	±10	0.1	200	0.8±0.10	
MLASH168SSD221KTNA01	HMK107 SD221KA-T	100	Standard Type	220 p	±10	0.1	200	0.8±0.10	
MLASH168SSD271KTNA01	HMK107 SD271KA-T	100	Standard Type	270 p	±10	0.1	200	0.8±0.10	
MLASH168SSD331KTNA01	HMK107 SD331KA-T	100	Standard Type	330 p	±10	0.1	200	0.8±0.10	
MLASH168SSD391KTNA01	HMK107 SD391KA-T	100	Standard Type	390 p	±10	0.1	200	0.8±0.10	
MLASH168SSD471KTNA01	HMK107 SD471KA-T	100	Standard Type	470 p	±10	0.1	200	0.8±0.10	
MLASH168SSD561KTNA01	HMK107 SD561KA-T	100	Standard Type	560 p	±10	0.1	200	0.8±0.10	
MLASH168SSD681KTNA01	HMK107 SD681KA-T	100	Standard Type	680 p	±10	0.1	200	0.8±0.10	
MLASH168SSD821KTNA01	HMK107 SD821KA-T	100	Standard Type	820 p	±10	0.1	200	0.8±0.10	
MLASH168SSD102KTNA01	HMK107 SD102KA-T	100	Standard Type	1000 p	±10	0.1	200	0.8±0.10	

●2012TYPE

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH21GSB5103□TNA01	HMK212 BJ103□G-T	100	B	X5R*1	0.01 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5153□TNA01	HMK212 BJ153□G-T	100	B	X5R*1	0.015 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5223□TNA01	HMK212 BJ223□G-T	100	B	X5R*1	0.022 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5333□TNA01	HMK212 BJ333□G-T	100	B	X5R*1	0.033 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5473□TNA01	HMK212 BJ473□G-T	100	B	X5R*1	0.047 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5683□TNA01	HMK212 BJ683□G-T	100	B	X5R*1	0.068 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5104□TNA01	HMK212 BJ104□G-T	100	B	X5R*1	0.1 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5224□TNA01	HMK212 BJ224□G-T	100	B	X5R*1	0.22 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB5474□TCA01	HMK212 BJ474□G-TE	100	B	X5R*1	0.47 μ	±10 , ±20	3.5	150	1.25±0.10	
MLASH21GBB5105□TCA01	HMK212BBJ105□G-TE	100	B	X5R*1	1 μ	±10 , ±20	3.5	150	1.25+0.20/−0	
MLASQ21GSB5472□TNA01	QMK212 BJ472□G-T	250	B	X5R*1	4700 p	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB5682□TNA01	QMK212 BJ682□G-T	250	B	X5R*1	6800 p	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB5103□TNA01	QMK212 BJ103□G-T	250	B	X5R*1	0.01 μ	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB5153□TNA01	QMK212 BJ153□G-T	250	B	X5R*1	0.015 μ	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB5223□TNA01	QMK212 BJ223□G-T	250	B	X5R*1	0.022 μ	±10 , ±20	2.5	150	1.25±0.10	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASQ219SB5102□TNA01	QMK212 BJ102□D-T	250	B	X5R*1	1000 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB5152□TNA01	QMK212 BJ152□D-T	250	B	X5R*1	1500 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB5222□TNA01	QMK212 BJ222□D-T	250	B	X5R*1	2200 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB5332□TNA01	QMK212 BJ332□D-T	250	B	X5R*1	3300 p	±10 , ±20	2.5	150	0.85±0.10	

【Temperature Characteristic C7 : X7S(−55～＋125℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH21GSC7474□TCA01	HMK212 C7474□G-TE	100		X7S	0.47 μ	±10 , ±20	3.5	150	1.25±0.10	
MLASH21GBC7105□TCA01	HMK212BC7105□G-TE	100		X7S	1 μ	±10 , ±20	3.5	150	1.25+0.20/−0	

■PART NUMBER

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH21GSB7103□TNA01	HMK212 B7103□G-T	100		X7R	0.01 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7153□TNA01	HMK212 B7153□G-T	100		X7R	0.015 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7223□TNA01	HMK212 B7223□G-T	100		X7R	0.022 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7333□TNA01	HMK212 B7333□G-T	100		X7R	0.033 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7473□TNA01	HMK212 B7473□G-T	100		X7R	0.047 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7683□TNA01	HMK212 B7683□G-T	100		X7R	0.068 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7104□TNA01	HMK212 B7104□G-T	100		X7R	0.1 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASH21GSB7224□TNA01	HMK212 B7224□G-T	100		X7R	0.22 μ	±10 , ±20	3.5	200	1.25±0.10	
MLASQ21GSB7472□TNA01	QMK212 B7472□G-T	250		X7R	4700 p	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB7682□TNA01	QMK212 B7682□G-T	250		X7R	6800 p	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB7103□TNA01	QMK212 B7103□G-T	250		X7R	0.01 μ	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB7153□TNA01	QMK212 B7153□G-T	250		X7R	0.015 μ	±10 , ±20	2.5	150	1.25±0.10	
MLASQ21GSB7223□TNA01	QMK212 B7223□G-T	250		X7R	0.022 μ	±10 , ±20	2.5	150	1.25±0.10	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASQ219SB7102□TNA01	QMK212 B7102□D-T	250		X7R	1000 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB7152□TNA01	QMK212 B7152□D-T	250		X7R	1500 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB7222□TNA01	QMK212 B7222□D-T	250		X7R	2200 p	±10 , ±20	2.5	150	0.85±0.10	
MLASQ219SB7332□TNA01	QMK212 B7332□D-T	250		X7R	3300 p	±10 , ±20	2.5	150	0.85±0.10	

【Temperature Characteristic SD : Standard(−55～＋125℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH219SSD222KTNA01	HMK212 SD222KD-T	100	Standard Type	2200 p	±10	0.1	200	0.85±0.10	
MLASH219SSD472KTNA01	HMK212 SD472KD-T	100	Standard Type	4700 p	±10	0.1	200	0.85±0.10	
MLASQ219SSD101KTNA01	QMK212 SD101KD-T	250	Standard Type	100 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD121KTNA01	QMK212 SD121KD-T	250	Standard Type	120 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD151KTNA01	QMK212 SD151KD-T	250	Standard Type	150 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD181KTNA01	QMK212 SD181KD-T	250	Standard Type	180 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD221KTNA01	QMK212 SD221KD-T	250	Standard Type	220 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD331KTNA01	QMK212 SD331KD-T	250	Standard Type	330 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD391KTNA01	QMK212 SD391KD-T	250	Standard Type	390 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD471KTNA01	QMK212 SD471KD-T	250	Standard Type	470 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD561KTNA01	QMK212 SD561KD-T	250	Standard Type	560 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD681KTNA01	QMK212 SD681KD-T	250	Standard Type	680 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD821KTNA01	QMK212 SD821KD-T	250	Standard Type	820 p	±10	0.1	150	0.85±0.10	
MLASQ219SSD102KTNA01	QMK212 SD102KD-T	250	Standard Type	1000 p	±10	0.1	150	0.85±0.10	

【Temperature Characteristic SD : Standard(−55～＋125℃)】 1.25mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH21GSSD392KTNA01	HMK212 SD392KG-T	100	Standard Type	3900 p	±10	0.1	200	1.25±0.10	

●3216TYPE

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH31LSB5473□TNA01	HMK316 BJ473□L-T	100	B	X5R*1	0.047 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5683□TNA01	HMK316 BJ683□L-T	100	B	X5R*1	0.068 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5104□TNA01	HMK316 BJ104□L-T	100	B	X5R*1	0.1 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5154□TNA01	HMK316 BJ154□L-T	100	B	X5R*1	0.15 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5224□TNA01	HMK316 BJ224□L-T	100	B	X5R*1	0.22 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5334□TNA01	HMK316 BJ334□L-T	100	B	X5R*1	0.33 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5474□TNA01	HMK316 BJ474□L-T	100	B	X5R*1	0.47 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB5105□TNA01	HMK316 BJ105□L-T	100	B	X5R*1	1 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LAB5225□TCA01	HMK316ABJ225□L-TE	100	B	X5R*1	2.2 μ	±10 , ±20	3.5	150	1.6±0.20	
MLASQ31LSB5333□TNA01	QMK316 BJ333□L-T	250	B	X5R*1	0.033 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB5473□TNA01	QMK316 BJ473□L-T	250	B	X5R*1	0.047 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB5683□TNA01	QMK316 BJ683□L-T	250	B	X5R*1	0.068 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB5104□TNA01	QMK316 BJ104□L-T	250	B	X5R*1	0.1 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASS31LSB5153□TNA01	SMK316 BJ153□L-T	630	B	X5R*1	0.015 μ	±10 , ±20	2.5	120	1.6±0.20	
MLASS31LSB5223□TNA01	SMK316 BJ223□L-T	630	B	X5R*1	0.022 μ	±10 , ±20	2.5	120	1.6±0.20	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.15mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASS31QHB5102□TNA01	SMK316 BJ102□F-T	630	B	X5R*1	1000 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5152□TNA01	SMK316 BJ152□F-T	630	B	X5R*1	1500 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5222□TNA01	SMK316 BJ222□F-T	630	B	X5R*1	2200 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5332□TNA01	SMK316 BJ332□F-T	630	B	X5R*1	3300 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5472□TNA01	SMK316 BJ472□F-T	630	B	X5R*1	4700 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5682□TNA01	SMK316 BJ682□F-T	630	B	X5R*1	6800 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB5103□TNA01	SMK316 BJ103□F-T	630	B	X5R*1	0.01 μ	±10 , ±20	2.5	120	1.15±0.10	

■PART NUMBER

【Temperature Characteristic C7 : X7S(−55～＋125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH31LAC7225□TCA01	HMK316AC7225□L-TE	100		X7S	2.2 μ	±10 , ±20	3.5	150	1.6±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH31LSB7473□TNA01	HMK316 B7473□L-T	100		X7R	0.047 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7683□TNA01	HMK316 B7683□L-T	100		X7R	0.068 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7104□TNA01	HMK316 B7104□L-T	100		X7R	0.1 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7154□TNA01	HMK316 B7154□L-T	100		X7R	0.15 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7224□TNA01	HMK316 B7224□L-T	100		X7R	0.22 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7334□TNA01	HMK316 B7334□L-T	100		X7R	0.33 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7474□TNA01	HMK316 B7474□L-T	100		X7R	0.47 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASH31LSB7105□TNA01	HMK316 B7105□L-T	100		X7R	1 μ	±10 , ±20	3.5	200	1.6±0.20	
MLASQ31LSB7333□TNA01	QMK316 B7333□L-T	250		X7R	0.033 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB7473□TNA01	QMK316 B7473□L-T	250		X7R	0.047 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB7683□TNA01	QMK316 B7683□L-T	250		X7R	0.068 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASQ31LSB7104□TNA01	QMK316 B7104□L-T	250		X7R	0.1 μ	±10 , ±20	2.5	150	1.6±0.20	
MLASS31LSB7153□TNA01	SMK316 B7153□L-T	630		X7R	0.015 μ	±10 , ±20	2.5	120	1.6±0.20	
MLASS31LSB7223□TNA01	SMK316 B7223□L-T	630		X7R	0.022 μ	±10 , ±20	2.5	120	1.6±0.20	
MLASS31LAB7333□TNA01	SMK316AB7333□L-T	630		X7R	0.033 μ	±10 , ±20	2.5	120	1.6±0.20	
MLASS31LAB7473□TNA01	SMK316AB7473□L-T	630		X7R	0.047 μ	±10 , ±20	2.5	120	1.6±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.15mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASS31QHB7102□TNA01	SMK316 B7102□F-T	630		X7R	1000 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7152□TNA01	SMK316 B7152□F-T	630		X7R	1500 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7222□TNA01	SMK316 B7222□F-T	630		X7R	2200 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7332□TNA01	SMK316 B7332□F-T	630		X7R	3300 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7472□TNA01	SMK316 B7472□F-T	630		X7R	4700 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7682□TNA01	SMK316 B7682□F-T	630		X7R	6800 p	±10 , ±20	2.5	120	1.15±0.10	
MLASS31QHB7103□TNA01	SMK316 B7103□F-T	630		X7R	0.01 μ	±10 , ±20	2.5	120	1.15±0.10	

【Temperature Characteristic SD : Standard(−55～＋125℃)】 1.6mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH31LSSD223KTNA01	HMK316 SD223KL-T	100	Standard Type	0.022 μ	±10	0.1	200	1.6±0.20	
MLASQ31LSSD103KTNA01	QMK316 SD103KL-T	250	Standard Type	0.01 μ	±10	0.1	150	1.6±0.20	

●3225TYPE

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32MSB5225□PNA01	HMK325 BJ225□M-P	100	B	X5R*1	2.2 μ	±10 , ±20	3.5	200	2.5±0.20	
MLASH32MSB5475□PCA01	HMK325 BJ475□M-PE	100	B	X5R*1	4.7 μ	±10 , ±20	3.5	150	2.5±0.20	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32NSB5154□TNA01	HMK325 BJ154□N-T	100	B	X5R*1	0.15 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5224□TNA01	HMK325 BJ224□N-T	100	B	X5R*1	0.22 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5334□TNA01	HMK325 BJ334□N-T	100	B	X5R*1	0.33 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5474□TNA01	HMK325 BJ474□N-T	100	B	X5R*1	0.47 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5684□TNA01	HMK325 BJ684□N-T	100	B	X5R*1	0.68 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5105□TNA01	HMK325 BJ105□N-T	100	B	X5R*1	1 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB5475□TCA01	HMK325 BJ475□N-TE	100	B	X5R*1	4.7 μ	±10 , ±20	3.5	150	1.9±0.20	
MLASQ32NSB5473□TNA01	QMK325 BJ473□N-T	250	B	X5R*1	0.047 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB5104□TNA01	QMK325 BJ104□N-T	250	B	X5R*1	0.1 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB5154□TNA01	QMK325 BJ154□N-T	250	B	X5R*1	0.15 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB5224□TNA01	QMK325 BJ224□N-T	250	B	X5R*1	0.22 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASS32NSB5223□TNA01	SMK325 BJ223□N-T	630	B	X5R*1	0.022 μ	±10 , ±20	2.5	120	1.9±0.20	
MLASS32NSB5333□TNA01	SMK325 BJ333□N-T	630	B	X5R*1	0.033 μ	±10 , ±20	2.5	120	1.9±0.20	
MLASS32NSB5473□TNA01	SMK325 BJ473□N-T	630	B	X5R*1	0.047 μ	±10 , ±20	2.5	120	1.9±0.20	

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 1.15mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32QJB5104□TNA01	HMK325 BJ104□F-T	100	B	X5R*1	0.1 μ	±10 , ±20	3.5	200	1.15±0.10	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32MSB7225□PNA01	HMK325 B7225□M-P	100		X7R	2.2 μ	±10 , ±20	3.5	200	2.5±0.20	

■PART NUMBER

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.9mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32NSB7154□TNA01	HMK325 B7154□N-T	100		X7R	0.15 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB7224□TNA01	HMK325 B7224□N-T	100		X7R	0.22 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB7334□TNA01	HMK325 B7334□N-T	100		X7R	0.33 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB7474□TNA01	HMK325 B7474□N-T	100		X7R	0.47 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB7684□TNA01	HMK325 B7684□N-T	100		X7R	0.68 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASH32NSB7105□TNA01	HMK325 B7105□N-T	100		X7R	1 μ	±10 , ±20	3.5	200	1.9±0.20	
MLASQ32NSB7473□TNA01	QMK325 B7473□N-T	250		X7R	0.047 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB7104□TNA01	QMK325 B7104□N-T	250		X7R	0.1 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB7154□TNA01	QMK325 B7154□N-T	250		X7R	0.15 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASQ32NSB7224□TNA01	QMK325 B7224□N-T	250		X7R	0.22 μ	±10 , ±20	2.5	150	1.9±0.20	
MLASS32NSB7223□TNA01	SMK325 B7223□N-T	630		X7R	0.022 μ	±10 , ±20	2.5	120	1.9±0.20	
MLASS32NSB7333□TNA01	SMK325 B7333□N-T	630		X7R	0.033 μ	±10 , ±20	2.5	120	1.9±0.20	
MLASS32NSB7473□TNA01	SMK325 B7473□N-T	630		X7R	0.047 μ	±10 , ±20	2.5	120	1.9±0.20	

【Temperature Characteristic C7 : X7S(−55～＋125℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32MSC7475□PCA01	HMK325 C7475□M-PE	100		X7S	4.7 μ	±10 , ±20	3.5	150	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 1.15mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH32QJB7104□TNA01	HMK325 B7104□F-T	100		X7R	0.1 μ	±10 , ±20	3.5	200	1.15±0.10	

●4532TYPE

【Temperature Characteristic B5(BJ): B(−25～＋85℃)/X5R(−55～＋85℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH45MSB5474□TNA01	HMK432 BJ474□M-T	100	B	X5R*1	0.47 μ	±10 , ±20	3.5	200	2.5±0.20	
MLASH45MSB5105□TNA01	HMK432 BJ105□M-T	100	B	X5R*1	1 μ	±10 , ±20	3.5	200	2.5±0.20	
MLASH45MSB5155□TNA01	HMK432 BJ155□M-T	100	B	X5R*1	1.5 μ	±10 , ±20	3.5	200	2.5±0.20	
MLASH45MSB5225□TNA01	HMK432 BJ225□M-T	100	B	X5R*1	2.2 μ	±10 , ±20	3.5	200	2.5±0.20	
MLASQ45MSB5104□TNA01	QMK432 BJ104□M-T	250	B	X5R*1	0.1 μ	±10 , ±20	2.5	150	2.5±0.20	
MLASQ45MSB5224□TNA01	QMK432 BJ224□M-T	250	B	X5R*1	0.22 μ	±10 , ±20	2.5	150	2.5±0.20	
MLASQ45MSB5334□TNA01	QMK432 BJ334□M-T	250	B	X5R*1	0.33 μ	±10 , ±20	2.5	150	2.5±0.20	
MLASQ45MSB5474□TNA01	QMK432 BJ474□M-T	250	B	X5R*1	0.47 μ	±10 , ±20	2.5	150	2.5±0.20	
MLASS45MSB5473□TNA01	SMK432 BJ473□M-T	630	B	X5R*1	0.047 μ	±10 , ±20	2.5	120	2.5±0.20	
MLASS45MSB5683□TNA01	SMK432 BJ683□M-T	630	B	X5R*1	0.068 μ	±10 , ±20	2.5	120	2.5±0.20	
MLASS45MSB5104□TNA01	SMK432 BJ104□M-T	630	B	X5R*1	0.1 μ	±10 , ±20	2.5	120	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 2.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASH45MSB7474□TNA01	HMK432 B7474□M-T	100		X7R	0.47 μ	±10, ±20	3.5	200	2.5±0.20	
MLASH45MSB7105□TNA01	HMK432 B7105□M-T	100		X7R	1 μ	±10, ±20	3.5	200	2.5±0.20	
MLASH45MSB7155□TNA01	HMK432 B7155□M-T	100		X7R	1.5 μ	±10, ±20	3.5	200	2.5±0.20	
MLASH45MSB7225□TNA01	HMK432 B7225□M-T	100		X7R	2.2 μ	±10, ±20	3.5	200	2.5±0.20	
MLASQ45MSB7104□TNA01	QMK432 B7104□M-T	250		X7R	0.1 μ	±10, ±20	2.5	150	2.5±0.20	
MLASQ45MSB7224□TNA01	QMK432 B7224□M-T	250		X7R	0.22 μ	±10, ±20	2.5	150	2.5±0.20	
MLASQ45MSB7334□TNA01	QMK432 B7334□M-T	250		X7R	0.33 μ	±10, ±20	2.5	150	2.5±0.20	
MLASQ45MSB7474□TNA01	QMK432 B7474□M-T	250		X7R	0.47 μ	±10, ±20	2.5	150	2.5±0.20	
MLASS45MSB7473□TNA01	SMK432 B7473□M-T	630		X7R	0.047 μ	±10, ±20	2.5	120	2.5±0.20	
MLASS45MSB7683□TNA01	SMK432 B7683□M-T	630		X7R	0.068 μ	±10, ±20	2.5	120	2.5±0.20	
MLASS45MSB7104□TNA01	SMK432 B7104□M-T	630		X7R	0.1 μ	±10, ±20	2.5	120	2.5±0.20	

【Temperature Characteristic B7 : X7R(−55～＋125℃)】 2.0mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLASX45YAB7222KTCA01	XMK432 B7222KY-TE	2000		X7R	2200 p	±10	2.5	110	2.0+0/−0.30	
MLASX45YAB7472KTCA01	XMK432 B7472KY-TE	2000		X7R	4700 p	±10	2.5	110	2.0+0/−0.30	

■PART NUMBER

LW Reversal Decoupling Low ESL Capacitors (LWDC™) for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

●0510TYPE

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLT103SB5104MFNA01	TWK105 BJ104MP-F	25		X5R	0.1 μ	±20	5	150	0.3±0.05	
MLRLE103SB5224MFNA01	EWK105 BJ224MP-F	16		X5R	0.22 μ	±20	10	150	0.3±0.05	
MLRLL103SB5474MFNA01	LWK105 BJ474MP-F	10		X5R	0.47 μ	±20	10	150	0.3±0.05	
MLRLJ103SB5104MFNA01	JWK105 BJ104MP-F	6.3		X5R*1	0.1 μ	±20	5	150	0.3±0.05	
MLRLJ103SB5474MFNA01	JWK105 BJ474MP-F	6.3		X5R*1	0.47 μ	±20	10	150	0.3±0.05	
MLRLJ103SB5105MFNA01	JWK105 BJ105MP-F	6.3		X5R	1 μ	±20	10	150	0.3±0.05	
MLRLJ103SB5225MFNA01	JWK105 BJ225MP-F	6.3		X5R	2.2 μ	±20	10	150	0.3±0.05	

【Temperature Characteristic C6 : X6S(−55～+105℃), C7 : X7S(−55～+125℃)】 0.3mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLE103SC6104MFNA01	EWK105 C6104MP-F	16		X6S	0.1 μ	±20	5	150	0.3±0.05	
MLRLL103SC7104MFNA01	LWK105 C7104MP-F	10		X7S	0.1 μ	±20	5	150	0.3±0.05	
MLRLL103SC6224MFNA01	LWK105 C6224MP-F	10		X6S	0.22 μ	±20	10	150	0.3±0.05	
MLRLJ103SC7104MFNA01	JWK105 C7104MP-F	6.3		X7S	0.1 μ	±20	5	150	0.3±0.05	
MLRLJ103SC7224MFNA01	JWK105 C7224MP-F	6.3		X7S	0.22 μ	±20	10	150	0.3±0.05	
MLRLJ103SC6474MFNA01	JWK105 C6474MP-F	6.3		X6S	0.47 μ	±20	10	150	0.3±0.05	
MLRLA103SC6224MFNA01	AWK105 C6224MP-F	4		X6S	0.22 μ	±20	10	150	0.3±0.05	
MLRLA103SC6474MFNA01	AWK105 C6474MP-F	4		X6S	0.47 μ	±20	10	150	0.3±0.05	
MLRLA103SC6105MFNA01	AWK105 C6105MP-F	4		X6S	1 μ	±20	10	150	0.3±0.05	
MLRLA103SC6225MFNA01	AWK105 C6225MP-F	4		X6S	2.2 μ	±20	10	150	0.3±0.05	

●0816TYPE

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLT165SB5104MTNA01	TWK107 BJ104MV-T	25		X5R*1	0.1 μ	±20	5	150	0.5±0.05	
MLRLE165SB5224MTNA01	EWK107 BJ224MV-T	16		X5R*1	0.22 μ	±20	5	150	0.5±0.05	
MLRLE165SB5474MTNA01	EWK107 BJ474MV-T	16		X5R*1	0.47 μ	±20	5	150	0.5±0.05	
MLRLL165SB5105MTNA01	LWK107 BJ105MV-T	10		X5R	1 μ	±20	10	150	0.5±0.05	
MLRLL165SB5225MTNA01	LWK107 BJ225MV-T	10		X5R	2.2 μ	±20	10	150	0.5±0.05	
MLRLJ165SB5105MTNA01	JWK107 BJ105MV-T	6.3		X5R*1	1 μ	±20	10	150	0.5±0.05	
MLRLJ165SB5225MTNA01	JWK107 BJ225MV-T	6.3		X5R	2.2 μ	±20	10	150	0.5±0.05	
MLRLJ165SB5475MTNA01	JWK107 BJ475MV-T	6.3		X5R	4.7 μ	±20	10	150	0.5±0.05	
MLRLA165SB5106MTNA01	AWK107 BJ106MV-T	4		X5R	10 μ	±20	10	150	0.5±0.05	

【Temperature Characteristic B7 : X7R(−55～+125℃), C6 : X6S(−55～+105℃), C7 : X7S(−55～+125℃)】 0.5mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLT165SB7104MTNA01	TWK107 B7104MV-T	25		X7R	0.1 μ	±20	5	150	0.5±0.05	
MLRLE165SB7224MTNA01	EWK107 B7224MV-T	16		X7R	0.22 μ	±20	5	150	0.5±0.05	
MLRLE165SB7474MTNA01	EWK107 B7474MV-T	16		X7R	0.47 μ	±20	5	150	0.5±0.05	
MLRLJ165SC7105MTNA01	JWK107 C7105MV-T	6.3		X7S	1 μ	±20	10	150	0.5±0.05	
MLRLA165SC7225MTNA01	AWK107 C7225MV-T	4		X7S	2.2 μ	±20	10	150	0.5±0.05	
MLRLA165SC6475MTNA01	AWK107 C6475MV-T	4		X6S	4.7 μ	±20	10	150	0.5±0.05	
MLRLP165SC6106MTNA01	PWK107 C6106MV-T	2.5		X6S	10 μ	±20	10	150	0.5±0.05	

●1220TYPE

【Temperature Characteristic B5(BJ): X5R(−55～+85℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLT219SB5475□TNA01	TWK212 BJ475□D-T	25		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLRLE219SB5106MTNA01	EWK212 BJ106MD-T	16		X5R	10 μ	±20	10	150	0.85±0.10	
MLRLL219SB5475□TNA01	LWK212 BJ475□D-T	10		X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLRLL219SB5106MTNA01	LWK212 BJ106MD-T	10		X5R	10 μ	±20	10	150	0.85±0.10	
MLRLJ219SB5226MTNA01	JWK212 BJ226MD-T	6.3		X5R	22 μ	±20	10	150	0.85±0.10	

【Temperature Characteristic B7 : X7R(−55～+125℃), C6 : X6S(−55～+105℃)】 0.85mm thickness

New part number	Old part number (for reference)	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT Rated voltage x %	Thickness*3 [mm]	Note
MLRLT219SB7225□TNA01	TWK212 B7225□D-T	25		X7R	2.2 μ	±10, ±20	5	150	0.85±0.10	
MLRLE219SC6475□TNA01	EWK212 C6475□D-T	16		X6S	4.7 μ	±10, ±20	10	150	0.85±0.10	
MLRLL219SC6106MTNA01	LWK212 C6106MD-T	10		X6S	10 μ	±20	10	150	0.85±0.10	
MLRLA219SC6226MTNA01	AWK212 C6226MD-T	4		X6S	22 μ	±20	10	150	0.85±0.10	

■PACKAGING

①Minimum Quantity

●Taped package

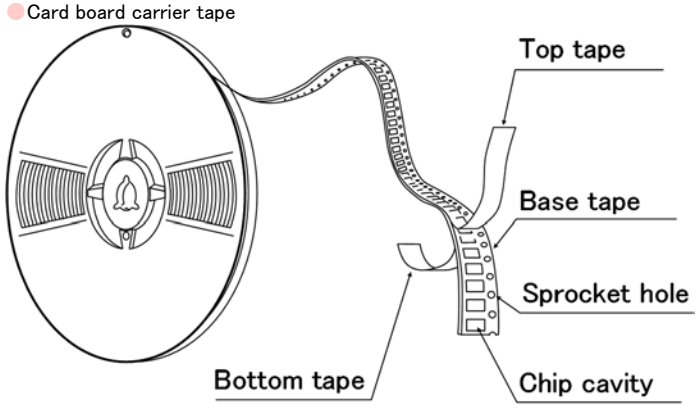
Type			Thickness		Standard Quantity[pcs]	
Code	JIS(mm)	EIA(inch)	[mm]	Code	Paper tape	Embossed tape
02	0201	008004	0.125	1	—	50000
04	0402	01005	0.2	2	—	40000
06	0603	0201	0.3	3	15000	—
1L	1005	0402	0.13	H	—	20000
			0.18	E	—	15000
			0.2	2	20000	—
			0.3	3	15000	—
10	1005	0402	0.5	5	10000	—
	0510 ※	0204	0.3	3	10000	—
16	1608	0603	0.45	K	4000	—
			0.7	7		
			0.8	8		
			0.8	8	3000 (Soft Termination)	3000 (Soft Termination)
	0816 ※	0306	0.5	5	—	4000
21	2012	0805	0.85	9	4000	—
			1.25	G	—	3000
			1.25	G	—	2000 (Soft Termination)
	1220 ※	0508	0.85	9	4000	—
31	3216	1206	0.85	9	4000	—
			1.15	Q	—	3000
			1.6	L	—	2000
32	3225	1210	0.85	9	—	2000
			1.15	Q		
			1.9	N		
			2.0 max	Y		
			2.5	M	—	500(T), 1000(P)
45	4532	1812	2.0 max	Y	—	1000
			2.5	M	—	500

注:※LW Reverse type (MSRL, MCRL, MBRL, MLRL, MMRL)

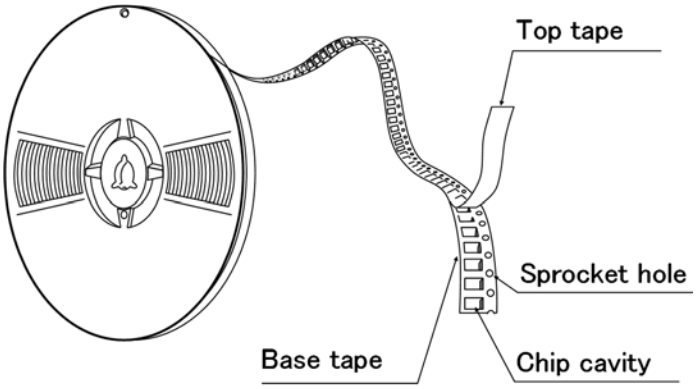
②Taping material

※No bottom tape for pressed carrier tape

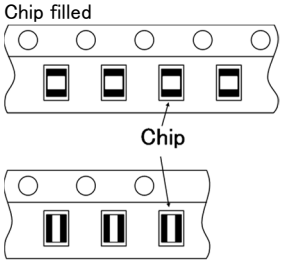
Card board carrier tape



Embossed tape



Chip filled



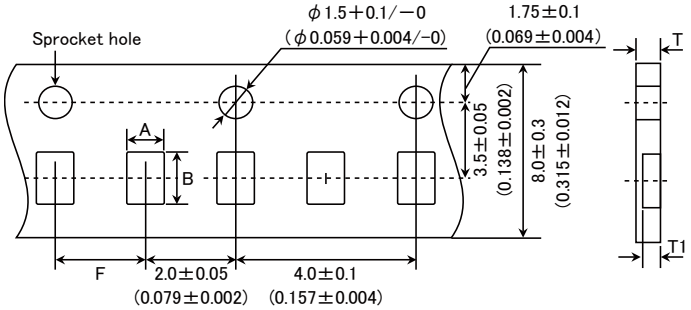
※ LW Reverse type.

③Representative taping dimensions

Paper Tape(8mm wide)

●Pressed carrier tape(2mm pitch)

Unit:mm(inch)



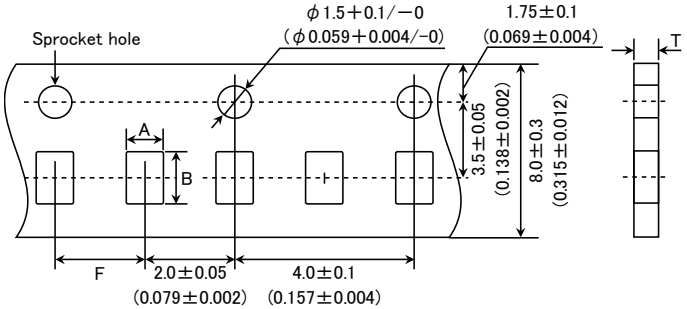
Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	T	T1
0603 (0201)	0.37	0.67	2.0±0.05	0.45max.	0.42max.
0510 (0204) ※	0.65	1.15			
1005 (0402) (*1 2)				0.4max.	0.3max.
1005 (0402) (*1 3)				0.45max.	0.42max.

Note *1 Thickness, 2:0.2mm , 3:0.3mm. ※ LW Reverse type.

Unit:mm

●Punched carrier tape (2mm pitch)

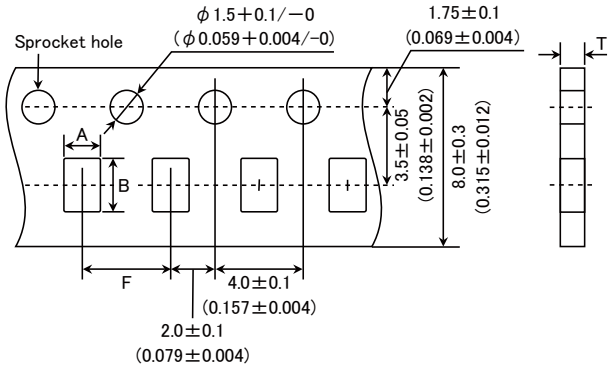
Unit:mm(inch)



Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness
	A	B	F	T
1005 (0402)	0.65	1.15	2.0±0.05	0.8max.

Unit:mm

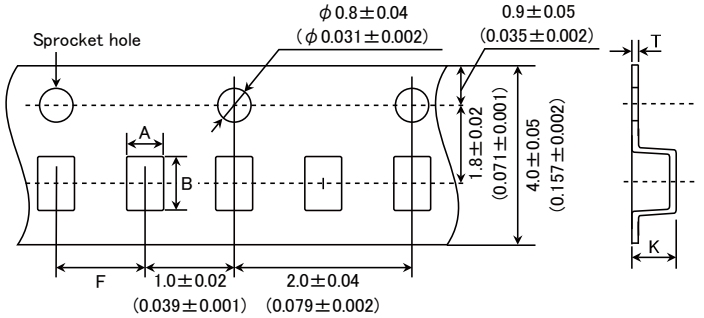
●Punched carrier tape (4mm pitch)　　Unit:mm(inch)



Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness
	A	B	F	T
1608 (0603) 0816 (0306) ※	1.0	1.8	4.0±0.1	1.1max.
2012 (0805) 1220 (0508) ※	1.65	2.4		1.1max.
3216 (1206)	2.0	3.6		

Note:Taping size might be different depending on the size of the product. ※ LW Reverse type.　　Unit:mm

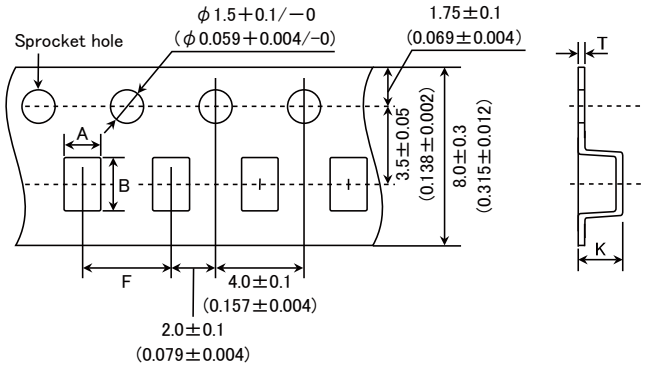
●Embossed tape(4mm wide)　　Unit:mm(inch)



Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
0201 (008004)	0.135	0.27	1.0±0.02	0.5max.	0.25max.
0402 (01005)	0.23	0.43			

Unit:mm

●Embossed tape(8mm wide)　　Unit:mm(inch)

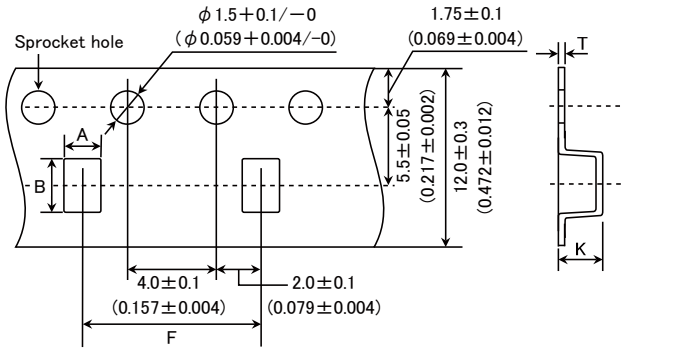


Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
1005 (0402)	0.6	1.1	2.0±0.1	0.6max	0.2±0.1
0816 (0306) ※	1.0	1.8	4.0±0.1	1.3max.	0.25±0.1
2012 (0805)	1.65	2.4		3.4max.	0.6max.
3216 (1206)	2.0	3.6			
3225 (1210)	2.8	3.6			

Note: ※ LW Reverse type.　　Unit:mm

Embossed tape (12mm wide)

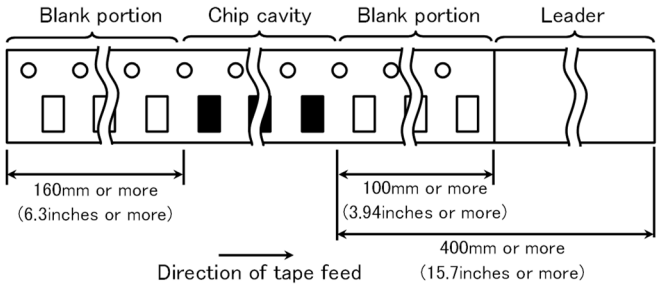
Unit : mm (inch)



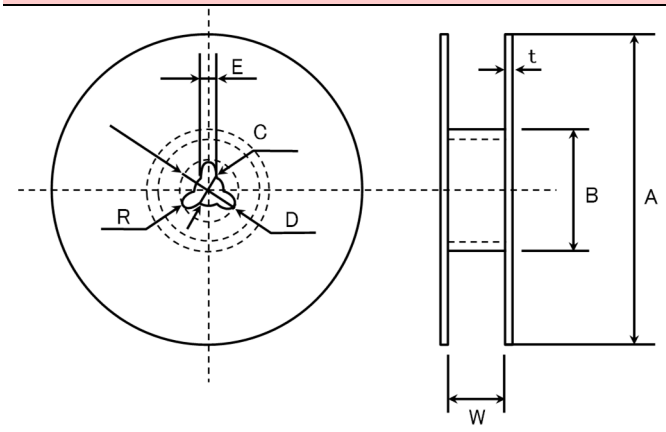
Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
3225 (1210)	3.1	4.0	8.0±0.1	4.0max.	0.6max.
4532 (1812)	3.7	4.9	8.0±0.1	4.0max.	0.6max.

Unit : mm

④Trailer and Leader



⑤Reel size



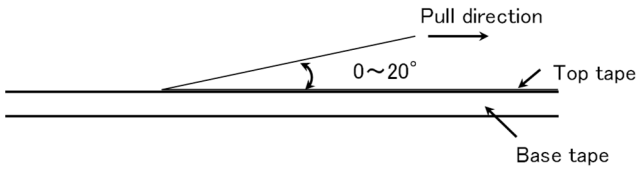
A	B	C	D	E	R
φ178±2.0	φ50min.	φ13.0±0.2	φ21.0±0.8	2.0±0.5	1.0

	T	W
4mm wide tape	1.5max.	5±1.0
8mm wide tape	2.5max.	10±1.5
12mm wide tape	2.5max.	14±1.5

Unit : mm

⑥Top Tape Strength

The top tape requires a peel-off force of 0.1 to 0.7N in the direction of the arrow as illustrated below.



Multilayer Ceramic Capacitors for General Electronic Equipment for Consumer
Multilayer Ceramic Capacitors
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

■RELIABILITY DATA

1.Operating Temperature Range

Specified Value	Temperature Compensating(Class1)	Standard / High Frequency Type	−55 to +125℃
	High Permittivity (Class2)		

	Specification	Temperature Range
B5	B	−25 to +85℃
	X5R	−55 to +85℃
B7	X7R	−55 to +125℃
C6	X6S	−55 to +105℃
C7	X7S	−55 to +125℃

2. Storage Conditions

Specified Value	Temperature Compensating(Class1)	Standard / High Frequency Type	−55 to +125℃
	High Permittivity (Class2)		

	Specification	Temperature Range
B5	B	−25 to +85℃
	X5R	−55 to +85℃
B7	X7R	−55 to +125℃
C6	X6S	−55 to +105℃
C7	X7S	−55 to +125℃

3. Rated Voltage

Specified Value	Temperature Compensating(Class1)	Standard	50VDC, 25VDC, 16VDC
		High Frequency Type	25VDC, 16VDC
	High Permittivity (Class2)		50VDC, 35VDC, 25VDC, 16VDC, 10VDC, 6.3VDC, 4VDC, 2.5VDC

4. Withstanding Voltage (Between terminals)

Specified Value	Temperature Compensating(Class1)	Standard / High Frequency Type	No breakdown or damage
	High Permittivity (Class2)		

Test Methods and Remarks		
	Class 1	Class 2
Applied voltage	Rated voltage × 3	Rated voltage × 2.5
Duration	1 to 5 sec.	
Charge/discharge current	50mA max.	

5. Insulation Resistance

Specified Value	Temperature Compensating(Class1)	Standard / High Frequency Type	10000 MΩ min.
	High Permittivity (Class2) Note 1		C≦0.047μF : 10000 MΩ min. C＞0.047μF : 500MΩ・μF (C:Nominal capacitance)
Test Methods and Remarks	Applied voltage : Rated voltage Duration : 60±5 sec. Charge/discharge current : 50mA max.		

6. Capacitance (Tolerance)

Specified Value

Temperature Compensating(Class1)	Standard	0.2pF≦C≦5pF : ±0.25pF 5pF≦C≦10pF : ±0.5pF C＞10pF : ±5%
	High Frequency Type	Refer to detailed specification
High Permittivity (Class2)		±10% or ±20%

Test Methods and Remarks

	Class 1		Class 2	
	Standard	High Frequency Type	C≦10μF	C＞10μF
Preconditioning	None		Thermal treatment (at 150℃ for 1hr) Note 2	
Measuring frequency	1MHz±10%	1GHz	1kHz±10%	120±10Hz
Measuring voltage Note 1	0.5 to 5Vrms		1±0.2Vrms	0.5±0.1Vrms
Bias application	None			

7. Q or Dissipation Factor

Specified Value

Temperature Compensating(Class1)	Standard	C＜30pF : Q≧400+20C C≧30pF : Q≧1000 (C:Nominal capacitance)
	High Frequency Type	Refer to detailed specification
High Permittivity (Class2) Note 1		2.5% max.

Test Methods and Remarks

	Class 1		Class 2	
	Standard	High Frequency Type	C≦10μF	C＞10μF
Preconditioning	None		Thermal treatment (at 150℃ for 1hr) Note 2	
Measuring frequency	1MHz±10%	1GHz	1kHz±10%	120±10Hz
Measuring voltage Note 1	0.5 to 5Vrms		1±0.2Vrms	0.5±0.1Vrms
Bias application	None			

8. Temperature Characteristic (Without voltage application)

Specified Value

Temperature Compensating(Class1) — Standard

Temperature Characteristic [ppm/℃]		Tolerance [ppm/℃]
C□ : 0	CG(C0G) CH(C0H) CJ(C0J) CK(C0K)	G:±30 H:±60 J:±120 H:±250

Temperature Compensating(Class1) — High Frequency Type

Temperature Characteristic [ppm/℃]		Tolerance [ppm/℃]
C□ : 0	CG(C0G) CH(C0H)	G:±30 H:±60

High Permittivity (Class2)

	Specification	Capacitance change	Reference temperature	Temperature Range
B5	B	±10%	20℃	−25 to +85℃
	X5R	±15%	25℃	−55 to +85℃
B7	X7R	±15%	25℃	−55 to +125℃
C6	XS	±22%	25℃	−55 to +105℃
C7	X7S	±22%	25℃	−55 to +125℃

Test Methods and Remarks

Class 1

Capacitance at 20℃ and 85℃ shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.

$$\frac{(C_{85}-C_{20})}{C_{20}\times\Delta T}\times 10^{6}(\mathrm{ppm/℃}) \qquad \Delta T=65$$

Class 2

Capacitance at each step shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.

Step	B	X5R、X7R、X6S、X7S
1	Minimum operating temperature	
2	20℃	25℃
3	Maximum operating temperature	

$$\frac{(C-C_2)}{C_2}\times 100(\%)$$

C : Capacitance in Step 1 or Step 3

C_2 : Capacitance in Step 2

※Measuring frequency and voltage: Refer to detailed specification

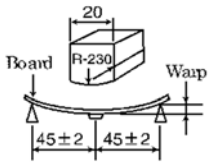
9. Deflection

Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within ±5% or ±0.5 pF, whichever is larger.
		High Frequency Type	Appearance : No abnormality Capacitance change : Within±0.5 pF
	High Permittivity (Class2)		Appearance : No abnormality Capacitance change : Within ±12.5%

Test Methods and Remarks

	Multilayer Ceramic Capacitors	
	0201, 0402, 0603, ※1005 Type	The other types
Board	Glass epoxy-resin substrate	
Thickness	0.8mm	1.6mm
Warp	1mm	
Duration	10 sec.	

※1005 Type thickness, 2: 0.2mm , 3: 0.3mm.



(Unit: mm)

Capacitance measurement shall be conducted with the board bent

10. Adhesive Strength of Terminal Electrodes

Specified Value	Temperature Compensating(Class1)	Standard	No terminal separation or its indication.
		High Frequency Type	
	High Permittivity (Class2)		

Test Methods and Remarks

	0201Type	0402、0603Type	1005Type or more
Applied force	1N	2N	5N
Duration	10±1 sec		30±5 sec

11. Vibration

Specified Value	Temperature Compensating(Class1)	Standard	Initial performance shall be satisfied.
		High Frequency Type	
	High Permittivity (Class2)		

Test Methods and Remarks

Preconditioning : Thermal treatment(at 150℃ for 1hr) Note2 (Only High permittivity)
Frequency range : 10 to 55 Hz
Overall amplitude : 1.5 mm
Sweeping method : 10 to 55 to 10 Hz for 1 min
Two hours each in X, Y, Z directions: 6 hrs in total

12. Solderability

Specified Value	Temperature Compensating(Class1)	Standard	At least 95% of terminal electrode is covered by new solder.
		High Frequency Type	
	High Permittivity (Class2)		

Test Methods and Remarks

	Eutectic solder	Lead-free solder
Solder type	H60A or H63A	Sn-3.0Ag-0.5Cu
Solder temperature	230±5℃	245±3℃
Duration	4±1 sec.	

13. Resistance to Soldering

Specified Value

Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
	High Frequency Type	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within ±7.5% Dissipation factor : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals): No abnormality

Test Methods and Remarks

	Class 1	
	0201, 0402, 0603 Type	1005 Type
Preconditioning	None	
Preheating	150℃, 1 to 2 min.	80 to 100℃, 2 to 5 min. 150 to 200℃, 2 to 5 min.
Solder temp.	270±5℃	
Duration	3±0.5 sec.	
Recovery	24±2 hrs (Standard condition) Note 5	

	Class 2		
	0201, 0402、0603 Type	1005, 1608, 2012 Type	3216, 3225, 4532 Type
Preconditioning	Thermal treatment (at 150℃ for 1 hr) Note 2		
Preheating	150℃, 1 to 2 min.	80 to 100℃, 2 to 5 min. 150 to 200℃, 2 to 5 min.	80 to 100℃, 5 to 10 min. 150 to 200℃, 5 to 10 min.
Solder temp.	270±5℃		
Duration	3±0.5 sec.		
Recovery	24±2 hrs (Standard condition) Note 5		

14. Temperature Cycle (Thermal Shock)

Specified Value

Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
	High Frequency Type	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within ±7.5% Dissipation factor : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality

Test Methods and Remarks

	Class 1	Class 2
Preconditioning	None	Thermal treatment (at 150℃ for 1 hr) Note 2
1 cycle		
Number of cycles	5 times	
Recovery	24±2 hrs (Standard condition) Note 5	

Step	Temperature(℃)	Time(min.)
1	Minimum operating temperature	30±3
2	Normal temperature	2 to 3
3	Maximum operating temperature	30±3
4	Normal temperature	2 to 3

15. Humidity (Steady State)			
Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within ±5% or ±0.5pF, whichever is larger. Q : C＜10pF : Q≧200＋10C 10≦C＜30pF : Q≧275＋2.5C C≧30pF:Q≧350(C:Nominal capacitance) Insulation resistance : 1000 MΩ min.
		High Frequency Type	Appearance : No abnormality Capacitance change : Within ±5% or ±0.5pF, whichever is larger. Insulation resistance : 1000 MΩ min.
	High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within ±12.5% Dissipation factor : 5.0% max. Insulation resistance : 50 MΩ μF or 1000 MΩ whichever is smaller.
Test Methods and Remarks	Preconditioning : Thermal treatment(at 150℃ for 1hr) Note2 (Only High permittivity) Temperature : 40±2℃ Humidity : 90 to 95%RH Duration : 500 ＋24/－0 hrs Recovery : 24±2hrs under the standard condition Note 1,5		

16. Humidity Loading			
Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within ±7.5% or ±0.75pF, whichever is larger. Q : C＜30pF:Q≧100＋10C/3 C≧30pF:Q≧200 (C:Nominal capacitance) Insulation resistance : 500 MΩ min.
		High Frequency Type	Appearance : No abnormality Capacitance change : C≦2pF:Within ±0.4 pF C＞2pF:Within ±0.75 pF C＞10pF: Within±0.75% (C:Nominal capacitance) Insulation resistance : 500 MΩ min.
	High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within ±12.5% Dissipation factor : 5.0% max. Insulation resistance : 25 MΩ μF or 500 MΩ, whichever is smaller.
Test Methods and Remarks	Preconditioning : Voltage treatment(Rated voltage are applied for 1 hour at 40℃) Note 1,3 (Only High permittivity) Temperature : 40±2℃ Humidity : 90 to 95%RH Duration : 500 ＋24/－0 hrs Applied voltage : Rated voltage Charge/discharge current : 50mA max. Recovery : 24±2hrs under the standard condition Note 1,5		

17. High Temperature Loading				
Specified Value	Temperature Compensating(Class1)	Standard	Appearance Capacitance change Q Insulation resistance	: No abnormality : Within ±3% or ±0.3pF, whichever is larger. : C＜10pF: Q≧200＋10C 10≦C＜30pF:Q≧275＋2.5C C≧30pF: Q≧350(C:Nominal capacitance) : 1000 MΩ min.
		High Frequency Type	Appearance Capacitance change Insulation resistance	: No abnormality : Within ±3% or ±0.3pF, whichever is larger. : 1000 MΩ min.
	High Permittivity (Class2) Note 1		Appearance Capacitance change Dissipation factor Insulation resistance	: No abnormality : Within ±12.5% : 5.0% max. : 50 MΩ μF or 1000 MΩ, whichever is smaller.
Test Methods and Remarks	Preconditioning Temperature Duration Applied voltage Charge/discharge current Recovery	: Voltage treatment(Twice the rated voltage shall be applied for 1 hour at 85℃, 105℃ or 125℃) Note 1,3,4 (Only High permittivity) : Maximum operating temperature : 1000 ＋24/－0 hrs : Rated voltage×2 Note 4 : 50mA max. : 24±2hrs under the standard condition Note 1,5		

Note 1 The figures indicate typical specifications. Please refer to individual specifications in detail.

Note 2 Thermal treatment : Initial value shall be measured after test sample is heat-treated at 150＋0/－10℃ for an hour and kept at room temperature for 24±2hours.

Note 3 Voltage treatment : Initial value shall be measured after test sample is voltage-treated for an hour at both the temperature and voltage specified in the test conditions, and kept at room temperature for 24±2hours.

Note 4 150% of rated voltage is applicable to some items. Please refer to their specifications for further information.

Note 5 Standard condition: Temperature: 5 to 35℃, Relative humidity: 45 to 85 % RH, Air pressure: 86 to 106kPa When there are questions concerning measurement results, in order to provide correlation data, the test shall be conducted under the following condition.
Temperature: 20±2℃, Relative humidity: 60 to 70 % RH, Air pressure: 86 to 106kPa Unless otherwise specified, all the tests are conducted under the "standard condition".

Low distortion design/Audible/Good bias Multilayer Ceramic Capacitors for General Electronic Equipment for Consumer
Low distortion design/Audible/Good bias Multilayer Ceramic Capacitors for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

■RELIABILITY DATA

1. Operating Temperature Range			
Specified Value		Specification	Temperature Range
	LD	X5R	−55～＋85℃
	SD	−	−55～＋125℃

2. Storage Temperature Range			
Specified Value		Specification	Temperature Range
	LD	X5R	−55～＋85℃
	SD	−	−55～＋125℃

3. Rated Voltage	
Specified Value	6.3VDC, 10VDC, 16VDC, 25VDC, 35VDC, 50VDC

4. Dielectric Withstanding Voltage （Between terminals）	
Specified Value	No breakdown or damage
Test Methods and Remarks	Applied voltage :Rated voltage×2.5(LD), Rated voltage×3(SD) Duration : 1 to 5 sec. Charge/discharge current : 50mA max.

5. Insulation Resistance	
Specified Value Note 1	10000 MΩ or 500MΩ μF, whichever is smaller
Test Methods and Remarks	Applied voltage : Rated voltage Duration : 60±5 sec. Charge/discharge current : 50mA max.

6. Capacitance （Tolerance）	
Specified Value	±10% or ±20%
Test Methods and Remarks	Measuring frequency : 1kHz±10% Measuring voltage : 1±0.2Vrms Bias application : None

7. Dissipation Factor	
Specified Value	10% max (LD) , 0.1% max (SD)
Test Methods and Remarks	Measuring frequency : 1kHz±10% Measuring voltage : 1±0.2Vrms Bias application : None

8, Temperature Characteristic (Without voltage application)

Specified Value

Specification		Capacitance change	Reference temperature	Temperature Range
LD	X5R	±15%	25℃	−55～+85℃

Test Methods and Remarks

Capacitance at each step shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.

Step	X5R
1	Minimum operating temperature
2	25℃
3	Maximum operating temperature

$$\frac{(C-C_2)}{C_2} \times 100(\%)$$

C :Capacitance value in Step1 or Step3
C_2 :Capacitance value in Step2

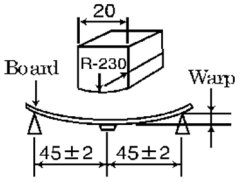
9. Bending Strength

Specified Value

Appearance : No abnormality
Capacitance change : Within±12.5%(LD), Within±5%(SD)

Test Methods and Remarks

Warp : 1mm
Speed : 0.5mm/second
Duration : 10 seconds
Test board : glass epoxy resin substrate
Thickness : 1.6mm



(Unit: mm)

Capacitance measurement shall be conducted with the board bent.

10. Adhesive Force of Terminal Electrodes

Specified Value

Terminal electrodes shall be no exfoliation or a sign of exfoliation.

Test Methods and Remarks

Applied force : 5N
Duration : 30 ±5 seconds

11. Vibration

Specified Value

Initial performance shall be satisfied.

Test Methods and Remarks

Preconditioning : Thermal treatment(at 150℃ for 1hr) Note2 (Only LD)
Frequency range : 10 to 55 Hz
Overall amplitude : 1.5 mm
Sweeping method : 10 to 55 to 10 Hz for 1 min
Two hours each in X, Y, Z directions: 6 hrs in total

12. Solderability

Specified Value

At least 95% of terminal electrode is covered by new solder.

Test Methods and Remarks

	Eutectic solder	Lead-free solder
Solder type	H60A or H63A	Sn-3.0Ag-0.5Cu
Solder temperature	230±5℃	245±3℃
Duration	4±1 sec.	

13. Resistance to Soldering Heat

Specified Value

Appearance : No abnormality
Capacitance change : Within±7.5%(LD), Within±2.5%(SD)
Dissipation factor : Initial value
Insulation resistance : Initial value
Withstanding voltage (between terminals) : No abnormality

Test Methods and Remarks

	LD	
	1608、2012type	3216、3225type
Preconditioning	Thermal treatment (at 150℃ for 1 hr) Note 2	
Preheating conditions	80 to 100℃ 2 to 5 min 150 to 200℃ 2 to 5 min	80 to 100℃ 5 to 10 min 150 to 200℃ 5 to 10 min
Solder temp.	270 ±5℃	
Duration	3 ±0.5 sec.	
Measurement shall be conducted	24±2hrs under the standard condition Note 5	

	SD	
	1005、1608、2012type	3216type
Preheating conditions	80 to 100℃ 2 to 5 min 150 to 200℃ 2 to 5 min	80 to 100℃ 5 to 10 min 150 to 200℃ 5 to 10 min
Solder temp.	270 ±5℃	
Duration	3 ±0.5 sec.	
Measurement shall be conducted	24±2hrs under the standard condition Note 5	

14. Temperature Cycle (Thermal Shock)

Specified Value

Appearance : No abnormality
Capacitance change : Within±7.5%(LD), Within±2.5%(SD)
Dissipation factor : Initial value
Insulation resistance : Initial value
Withstanding voltage (between terminals) : No abnormality

Test Methods and Remarks

	LD	SD
Preconditioning	Thermal treatment (at 150℃ for 1 hr) Note 2	None
1 cycle		
Number of cycles	5 time	
Measurement shall be conducted	24±2hrs under the standard condition Note 5	

Step	temperature(℃)	Time(min.)
1	Minimum operating temperature	30±3 min.
2	Normal temperature	2 to 3 min.
3	Maximum operating temperature	30±3 min.
4	Normal temperature	2 to 3 min.

15. Humidity (Steady state)

Specified Value Note 1

Appearance : No abnormality
Capacitance change : Within±12.5%(LD), ±5% Within(SD)
Dissipation factor : 20%max(LD), 0.5%max(SD)
Insulation resistance : 50MΩ μF or 1000MΩ, whichever is smaller

Test Methods and Remarks

	LD	SD
Preconditioning	Thermal treatment (at 150℃ for 1 hr) Note 2	None
Temperature	40±2℃	
Humidity	90 to 95% RH	
Duration	500 +24/−0 hrs	
Measurement shall be conducted	24 ±2hrs under the standard condition Note 5	

16. Humidity Loading

Specified Value Note 1	Appearance : No abnormality Capacitance change : Within±12.5%(LD), Within±7.5%(SD) Dissipation factor : 20%max(LD), 0.5%max(SD) Insulation resistance : 25MΩ μF or 500MΩ, whichever is smaller

Test Methods and Remarks

	LD	SD
Preconditioning	Voltage treatment (Rated voltage are applied for 1 hour at 40 ℃) Note 3	None
Temperature	40±2℃	
Humidity	90 to 95% RH	
Duration	500 +24/−0 hrs	
Applied voltage	Rated voltage	
Charge/discharge current	50mA max	
Measurement shall be conducted	24 ±2hrs under the standard condition Note 5	

17. High Temperature Loading

Specified Value Note 1	Appearance : No abnormality Capacitance change : Within±12.5%(LD), Within±3%(SD) Dissipation factor : 20%max(LD), 0.35%max(SD) Insulation resistance : 50MΩ μF or 1000MΩ, whichever is smaller

Test Methods and Remarks

	LD	SD
Preconditioning	Voltage treatment (Twice the rated voltage shall be applied for 1 hour at 85℃ or 125℃) Note 3, Note 4	None
Temperature	Maximum operating temperature	
Duration	1000 +48/−0 hrs	
Applied voltage	Rated voltage x 2 Note 4	Rated voltage x 2
Charge/discharge current	50mA max	
Measurement shall be conducted	24 ±2hrs under the standard condition Note 5	

Note 1 The figures indicate typical specifications. Please refer to individual specifications in detail.

Note 2 Thermal treatment : Initial value shall be measured after test sample is heat-treated at 150+0/−10℃ for an hour and kept at room temperature for 24±2hours.

Note 3 Voltage treatment : Initial value shall be measured after test sample is voltage-treated for an hour at both the temperature and voltage specified in the test conditions, and kept at room temperature for 24±2hours.

Note 4 150% of rated voltage is applicable to some items. Please refer to their specifications for further information.

Note 5 Standard condition: Temperature: 5 to 35℃, Relative humidity: 45 to 85 % RH, Air pressure: 86 to 106kPa When there are questions concerning measurement results, in order to provide correlation data, the test shall be conducted under the following condition.
Temperature: 20±2℃, Relative humidity: 60 to 70 % RH, Air pressure: 86 to 106kPa Unless otherwise specified, all the tests are conducted under the "standard condition".

Medium-High Voltage Multilayer Ceramic Capacitor for General Electronic Equipment for Consumer
Medium-High Voltage Multilayer Ceramic Capacitor for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

■RELIABILITY DATA

1. Operating Temperature Range		
Specified Value	Temperature Compensating(Class1)	C0G, C0H : −55 to +125℃
	High Permittivity (Class2)	X7R, X7S : −55 to +125℃ X5R : −55 to +85℃ B : −25 to +85℃ SD : −55 to +125℃

2. Storage Temperature Range		
Specified Value	Temperature Compensating(Class1)	C0G, C0H : −55 to +125℃
	High Permittivity (Class2)	X7R, X7S : −55 to +125℃ X5R : −55 to +85℃ B : −25 to +85℃ SD : −55 to +125℃

3. Rated Voltage		
Specified Value	Temperature Compensating(Class1)	100VDC(Code:H)
	High Permittivity (Class2)	100VDC(Code:H), 250VDC(Code:Q), 630VDC(Code:S), 2000VDC(Code:X)

4. Withstanding Voltage(Between terminals)		
Specified Value	No breakdown or damage	
Test Methods and Remarks	Applied voltage Duration Charge/discharge current	: Rated voltage(H)×2.5, Rated voltage(Q)×2, Rated voltage(S, X)×1.2 : 1 to 5sec. : 50mA max.

5. Insulation Resistance		
Specified Value	Temperature Compensating(Class1)	10000 MΩ min.
	High Permittivity (Class2)	100MΩ・μF or 10GΩ, whichever is smaller.
Test Methods and Remarks	Applied voltage Duration Charge/discharge current	: Rated voltage(H, Q), 500V(S, X) : 60±5sec. : 50mA max.

6. Capacitance (Tolerance)		
Specified Value	Temperature Compensating(Class1)	C≦10pF : ±0.5pF C>10pF : ±5% (C: Nominal capacitance)
	High Permittivity (Class2)	±10%, ±20%
Test Methods and Remarks	Temperature Compensating(Class1)	Measuring frequency : 1MHz±10% Measuring voltage : 0.5～5Vrms Bias application : None
	High Permittivity (Class2)	Measuring frequency : 1kHz±10%, 1MHz±10%(SD: 1608type(H), 2012type(Q)) Measuring voltage : 1±0.2Vrms Bias application : None

7. Q or Dissipation Factor

Specified Value	Temperature Compensating(Class1)	C＜30pF : Q≧400＋20C C≧30pF : Q≧1000　(C:Nominal capacitance)
	High Permittivity (Class2)	3.5%max(H: 1608type min),2.5%max(H: 1005type,Q, S, X),0.1type max (SD)
Test Methods and Remarks	Temperature Compensating(Class1)	Measuring frequency : 1MHz±10% Measuring voltage : 0.5～5Vrms Bias application : None
	High Permittivity (Class2)	Measuring frequency : 1kHz±10%, 1MHz±10%(SD:1608type(H), 2012type(Q)) Measuring voltage : 1±0.2Vrms Bias application : None

8. Temperature Characteristic of Capacitance

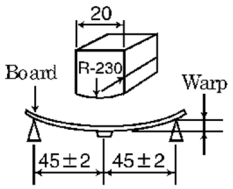
Specified Value	Temperature Compensating(Class1)	C0G :0±30ppm/℃(−55 to ＋125℃) C0H :0±60ppm/℃(−55～＋125℃)
	High Permittivity (Class2)	B : ±10%(−25 to ＋85℃) X5R : ±15%(−55 to ＋85℃) X7R : ±15%(−55 to ＋125℃ X7S : ±22%(−55 to ＋125℃)
Test Methods and Remarks		Class 1 Capacitance at 20℃ and 85℃ shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation. $\frac{(C_{85}-C_{20})}{C_{20}\times\Delta T}\times 10^{6}(ppm/℃)$　　$\Delta T=65$ Class 2 Capacitance at each step shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.

Step	B	X5R、X7R、X7S
1	Minimum operating temperature	
2	20℃	25℃
3	Maximum operating temperature	

$\frac{(C-C_2)}{C_2}\times 100(\%)$

C : Capacitance value in Step 1 or Step 3
C2 : Capacitance value in Step 2

9. Deflection

Specified Value	Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±5% or ±0.5 pF, whichever is larger.
	High Permittivity (Class2)	Appearance : No abnormality Capacitance change :±10%, ±5%,(SD)
Test Methods and Remarks	Warp : 1mm Duration : 10sec. Test board : Glass epoxy-resin substrate Thickness : 1.6mm Capacitance measurement shall be conducted with the board bent.	 (Unit: mm)

10. Adhesive Strength of Terminal Electrodes

Specified Value	Temperature Compensating(Class1)	No terminal separation or its indication.
	High Permittivity (Class2)	
Test Methods and Remarks	Applied force : 5N Duration : 30±5sec.	

11. Vibration

Specified Value	Temperature Compensating(Class1) High Permittivity (Class2)	Initial performance shall be satisfied.
Test Methods and Remarks	Preconditioning : Thermal treatment(at 150℃ for 1hr) Note1 (Only High permittivity) Frequency range : 10 to 55 Hz Overall amplitude : 1.5 mm Sweeping method : 10 to 55 to 10 Hz for 1 min Two hours each in X, Y, Z directions: 6 hrs in total	

12. Solderability

Specified Value	Temperature Compensating(Class1) High Permittivity (Class2)	At least 95% of terminal electrode is covered by new solder

Test Methods and Remarks

	Eutectic solder	Lead-free solder
Solder type	H60A or H63A	Sn-3.0Ag-0.5Cu
Solder temperature	230±5℃	245±3℃
Duration	4±1 sec.	

13. Resistance to Soldering

Specified Value

Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
High Permittivity (Class2)	Appearance : No abnormality Capacitance change : Within±7.5%(H: 1005type), ±15%(H: 1608type min) ±10%(Q, S, X), ±2.5%(SD) Dissipation facto : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality

Test Methods and Remarks

	Temperature Compensating(Class1)
Preconditioning	None
Solder temperature	270±5℃
Duration	3±0.5sec.
Preheating conditions	80 to 100℃, 2 to 5 min. 150 to 200℃, 2 to 5min.
Recovery	24±2hrs under the standard condition Note3

	High Permittivity (Class2)
Preconditioning	Thermal treatment(at 150℃ for 1hr) Note1
Solder temperature	270±5℃
Duration	3±0.5sec.
Preheating conditions	80 to 100℃, 2 to 5 min.(2012type max), 5 to 10 min(3216type min) 150 to 200℃, 2 to 5min.(2012type max), 5 to 10 min(3216type min)
Recovery	24±2hrs under the standard condition Note3

14. Temperature Cycle (Thermal Shock)

Specified Value

Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±2.5% or ±0.25pF, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
High Permittivity (Class2)	Appearance : No abnormality Capacitance change : Within±7.5%(H: 1005type), ±15%(H: 1608type min) ±10%(Q, S, X), ±2.5%(SD) Dissipation facto : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality

Test Methods and Remarks

	Class 1	Class 2
Preconditioning	None	Thermal treatment (at 150℃ for 1 hr) Note 1
1 cycle	Step 1: Minimum operating temperature, 30±3 Step 2: Normal temperature, 2 to 3 Step 3: Maximum operating temperature, 30±3 Step 4: Normal temperature, 2 to 3	
Number of cycles	5 times	
Recovery	24±2 hrs (Standard condition) Note 3	

15. Humidity (Steady state)

Specified Value

Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±5% or ±0.5pF, whichever is larger. Q : C＜10pF : Q≧200＋10C 10≦C＜30pF : Q≧275＋2.5C C≧30pF:Q≧350 (C:Nominal capacitance) Insulation resistance : 1000 MΩ min.
High Permittivity (Class2)	Appearance : No abnormality Capacitance change :±12.5%max(1005type), ±15%max(1608type min), ±5%max(SD) Dissipation factor : 5%max(H: 1005type,Q, S, X), 7%max(H: 1608type min), 0.5%max(SD). Insulation resistance : 25MΩ μF or 1000MΩ, whichever is smaller.

Test Methods and Remarks

Preconditioning : Thermal treatment(at 150℃ for 1hr) Note1 (Only High permittivity)
Temperature : 40±2℃
Humidity : 90 to 95%RH
Duration : 500 ＋24/－0 hrs
Recovery : 24±2hrs under the standard condition Note3

16. Humidity Loading

Specified Value

Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±7.5% or ±0.75pF, whichever is larger Q : C＜30pF:Q≧100＋10C/3 C≧30pF:Q≧200 (C:Nominal capacitance) Insulation resistance : 500 MΩ min.
High Permittivity (Class2)	Appearance : No abnormality Capacitance change :±12.5%max(1005type), ±15%max(1608type min), ±7.5%max(SD) Dissipation factor : 5%max(H:1005type,Q, S, X), 7%max(H:1608type min), 0.5%max(SD) Insulation resistance : 10MΩ μF or 500MΩ, whichever is smaller.

Test Methods and Remarks

Preconditioning : Voltage treatment(Rated voltage are applied for 1 hour at 40℃)Note 2 (Only High permittivity)
Temperature : 40±2℃
Humidity : 90 to 95%RH
Duration : 500 ＋24/－0 hrs
Applied voltage : Rated voltage
Charge/discharge current : 50mA max.
Recovery : 24±2hrs under the standard condition Note3

17. High Temperature Loading		
Specified Value	Temperature Compensating(Class1)	Appearance : No abnormality Capacitance change : Within ±3% or ±0.3pF, whichever is larger Q : C＜10pF: Q≧200＋10C 10≦C＜30pF: Q≧275＋2.5C C≧30pF: Q≧350 (C:Nominal capacitance) Insulation resistance : 1000 MΩ min.
	High Permittivity (Class2)	Appearance : No abnormality Capacitance change :±12.5%max(1005type), ±15%max(1608type min), ±3%max(SD) Dissipation factor : 5%max(H:1005type,Q, S, X), 7%max(H:1608type min), 0.35%max(SD) Insulation resistance : 50MΩ μF or 1000MΩ, whichever is smaller.
Test Methods and Remarks	Preconditioning : Voltage treatment(Twice the rated voltage shall be applied for 1 hour at 85℃ or 125℃) Note 2 (Only High permittivity) Temperature : Maximum operating temperature Duration : 1000 ＋24/－0 hrs Applied voltage : Rated voltage(H)×2, Rated voltage(Q)×1.5, Rated voltage×1.2(S, X)×1.2 Charge/discharge current : 50mA max. Recovery : 24±2hrs under the standard condition Note3	

Note1 Thermal treatment : Initial value shall be measured after test sample is heat-treated at 150＋0/－10℃ for an hour and kept at room temperature for 24±2hours.

Note2 Voltage treatment : Initial value shall be measured after test sample is voltage-treated for an hour at both the temperature and voltage specified in the test conditions, and kept at room temperature for 24±2hours.

Note3 Standard condition : Temperature: 5 to 35℃, Relative humidity: 45 to 85 % RH, Air pressure: 86 to 106kPa
When there are questions concerning measurement results, in order to provide correlation data, the test shall be conducted under the following condition.
Temperature: 20±2℃, Relative humidity: 60 to 70 % RH, Air pressure: 86 to 106kPa
Unless otherwise specified, all the tests are conducted under the "standard condition".

■PRECAUTIONS

1. Circuit Design

Precautions

◆Verification of operating environment, electrical rating and performance

1. A malfunction of equipment in fields such as medical, aerospace, nuclear control, etc. may cause serious harm to human life or have severe social ramifications.
   Therefore, any capacitors to be used in such equipment may require higher safety and reliability, and shall be clearly differentiated from them used in general purpose applications.

◆Operating Voltage (Verification of Rated voltage)

1. The operating voltage for capacitors must always be their rated voltage or less.
   If an AC voltage is loaded on a DC voltage, the sum of the two peak voltages shall be the rated voltage or less.
   For a circuit where an AC or a pulse voltage may be used, the sum of their peak voltages shall also be the rated voltage or less.
2. Even if an applied voltage is the rated voltage or less reliability of capacitors may be deteriorated in case that either a high frequency AC voltage or a pulse voltage having rapid rise time is used in a circuit.

2. PCB Design

Precautions

◆Pattern configurations (Design of Land-patterns)

1. When capacitors are mounted on PCBs, the amount of solder used (size of fillet) can directly affect the capacitor performance. Therefore, the following items must be carefully considered in the design of land patterns:
   (1) Excessive solder applied can cause mechanical stresses which lead to chip breaking or cracking. Therefore, please consider appropriate land-patterns for proper amount of solder.
   (2) When more than one component are jointly soldered onto the same land, each component's soldering point shall be separated by solder-resist.

◆Pattern configurations (Capacitor layout on PCBs)

After capacitors are mounted on boards, they can be subjected to mechanical stresses in subsequent manufacturing processes (PCB cutting, board inspection, mounting of additional parts, assembly into the chassis, wave soldering of the boards, etc.). For this reason, land pattern configurations and positions of capacitors shall be carefully considered to minimize stresses.

Technical considerations

◆Pattern configurations (Design of Land-patterns)

The following diagrams and tables show some examples of recommended land patterns to prevent excessive solder amounts.

(1) Recommended land dimensions for typical chip capacitors

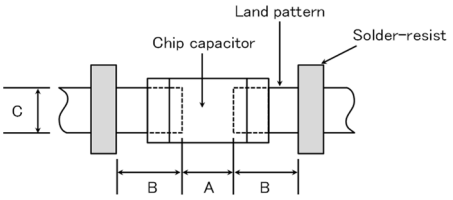
●Multilayer Ceramic Capacitors : Recommended land dimensions

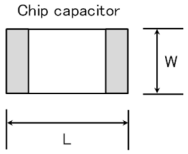
(unit: mm)

Wave-soldering

Type		1608	2012	3216	3225
Size	L	1.6	2.0	3.2	3.2
	W	0.8	1.25	1.6	2.5
A		0.8 to 1.0	1.0 to 1.4	1.8 to 2.5	1.8 to 2.5
B		0.5 to 0.8	0.8 to 1.5	0.8 to 1.7	0.8 to 1.7
C		0.6 to 0.8	0.9 to 1.2	1.2 to 1.6	1.8 to 2.5

Land patterns for PCBs





Reflow-soldering

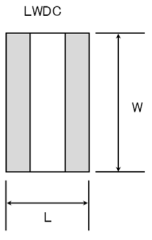
Type		0201	0402	0603	1005	1608	2012	3216	3225	4532
Size	L	0.25	0.4	0.6	1.0	1.6	2.0	3.2	3.2	4.5
	W	0.125	0.2	0.3	0.5	0.8	1.25	1.6	2.5	3.2
A		0.095～0.135	0.15～0.25	0.20～0.30	0.45～0.55	0.6～0.8	0.8～1.2	1.8～2.5	1.8～2.5	2.5～3.5
B		0.085～0.125	0.10～0.20	0.20～0.30	0.40～0.50	0.6～0.8	0.8～1.2	1.0～1.5	1.0～1.5	1.5～1.8
C		0.110～0.150	0.15～0.30	0.25～0.40	0.45～0.55	0.6～0.8	0.9～1.6	1.2～2.0	1.8～3.2	2.3～3.5

Note : Recommended land size might be different according to the allowance of the size of the product.

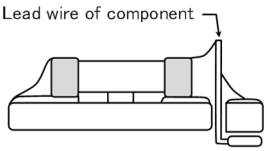
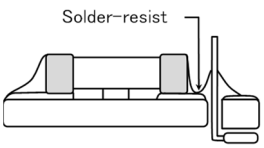
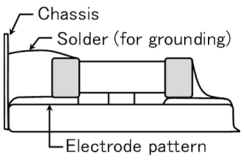
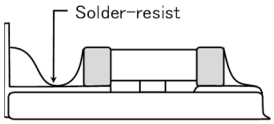
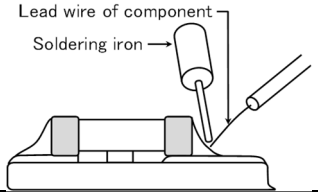
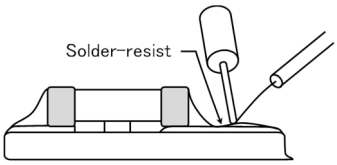
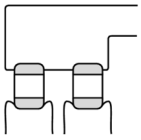
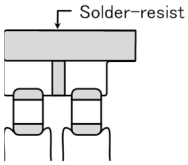
●LWDC: Recommended land dimensions for reflow-soldering

(unit: mm)

Type		0510	0816	1220
Size	L	0.52	0.8	1.25
	W	1.0	1.6	2.0
A		0.18～0.22	0.25～0.3	0.5～0.7
B		0.2～0.25	0.3～0.4	0.4～0.5
C		0.9～1.1	1.5～1.7	1.9～2.1

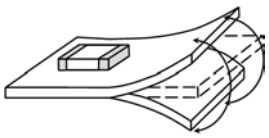
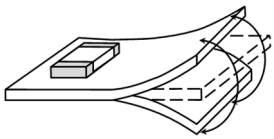


(2) Examples of good and bad solder application

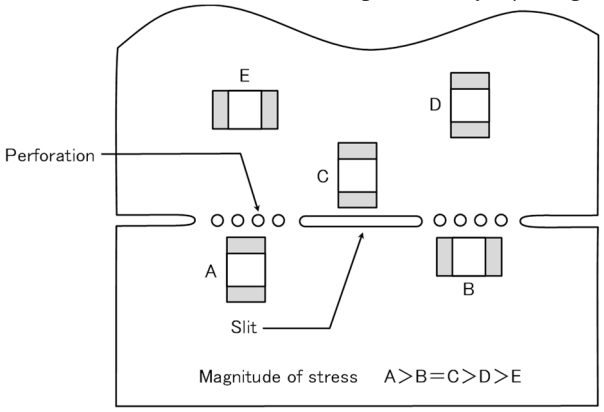
Item	Not recommended	Recommended
Mixed mounting of SMD and leaded components		
Component placement close to the chassis		
Hand-soldering of leaded components near mounted components		
Horizontal component placement		

◆Pattern configurations (Capacitor layout on PCBs)

1-1. The following is examples of good and bad capacitor layouts ; capacitors shall be located to minimize any possible mechanical stresses from board warp or deflection.

Items	Not recommended	Recommended
Deflection of board		 Place the product at a right angle to the direction of the anticipated mechanical stress.

1-2. The amount of mechanical stresses given will vary depending on capacitor layout. Please refer to diagram below.



1-3. When PCB is split, the amount of mechanical stress on the capacitors can vary according to the method used. The following methods are listed in order from least stressful to most stressful: push-back, slit, V-grooving, and perforation. Thus, please consider the PCB, split methods as well as chip location.

3. Mounting

Precautions

◆Adjustment of mounting machine

1. When capacitors are mounted on PCB, excessive impact load shall not be imposed on them.
2. Maintenance and inspection of mounting machines shall be conducted periodically.

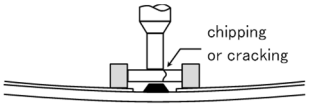
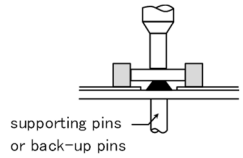
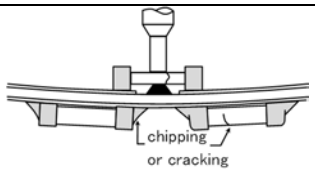
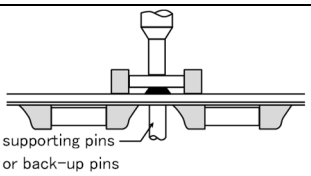
◆Selection of Adhesives

1. When chips are attached on PCBs with adhesives prior to soldering, it may cause capacitor characteristics degradation unless the following factors are appropriately checked : size of land patterns, type of adhesive, amount applied, hardening temperature and hardening period. Therefore, please contact us for further information.

Technical considerations

◆Adjustment of mounting machine

1. When the bottom dead center of a pick-up nozzle is too low, excessive force is imposed on capacitors and causes damages. To avoid this, the following points shall be considerable.
   (1) The bottom dead center of the pick-up nozzle shall be adjusted to the surface level of PCB without the board deflection.
   (2) The pressure of nozzle shall be adjusted between 1 and 3 N static loads.
   (3) To reduce the amount of deflection of the board caused by impact of the pick-up nozzle, supporting pins or back-up pins shall be used on the other side of the PCB. The following diagrams show some typical examples of good and bad pick-up nozzle placement:

Item	Improper method	Proper method
Single-sided mounting		
Double-sided mounting		

2. As the alignment pin is worn out, adjustment of the nozzle height can cause chipping or cracking of capacitors because of mechanical impact on the capacitors.
   To avoid this, the monitoring of the width between the alignment pins in the stopped position, maintenance, check and replacement of the pin shall be conducted periodically.

◆Selection of Adhesives

Some adhesives may cause IR deterioration. The different shrinkage percentage of between the adhesive and the capacitors may result in stresses on the capacitors and lead to cracking. Moreover, too little or too much adhesive applied to the board may adversely affect components. Therefore, the following precautions shall be noted in the application of adhesives.

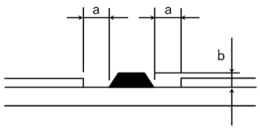
(1) Required adhesive characteristics
   a. The adhesive shall be strong enough to hold parts on the board during the mounting & solder process.
   b. The adhesive shall have sufficient strength at high temperatures.
   c. The adhesive shall have good coating and thickness consistency.
   d. The adhesive shall be used during its prescribed shelf life.
   e. The adhesive shall harden rapidly.
   f. The adhesive shall have corrosion resistance.
   g. The adhesive shall have excellent insulation characteristics.
   h. The adhesive shall have no emission of toxic gasses and no effect on the human body.

(2) The recommended amount of adhesives is as follows;

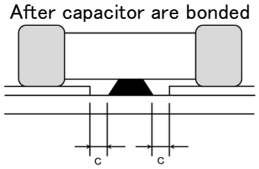
[Recommended condition]

Figure	2012/3216 case sizes as examples
a	0.3mm min
b	100 to 120 μm
c	Adhesives shall not contact land

Amount adhesive



After capacitor are bonded



4. Soldering

Precautions

◆Selection of Flux

Since flux may have a significant effect on the performance of capacitors, it is necessary to verify the following conditions prior to use;

(1) Flux used shall be less than or equal to 0.1 wt%(in Cl equivalent) of halogenated content. Flux having a strong acidity content shall not be applied.
(2) When shall capacitors are soldered on boards, the amount of flux applied shall be controlled at the optimum level.
(3) When water-soluble flux is used, special care shall be taken to properly clean the boards.

◆Soldering

Temperature, time, amount of solder, etc. shall be set in accordance with their recommended conditions.
Sn-Zn solder paste can adversely affect MLCC reliability.
Please contact us prior to usage of Sn-Zn solder.

Technical considerations

◆Selection of Flux

1-1. When too much halogenated substance(Chlorine, etc.) content is used to activate flux, or highly acidic flux is used, it may lead to corrosion of terminal electrodes or degradation of insulation resistance on the surfaces of the capacitors.
1-2. Flux is used to increase solderability in wave soldering. However if too much flux is applied, a large amount of flux gas may be emitted and may adversely affect the solderability. To minimize the amount of flux applied, it is recommended to use a flux-bubbling system.
1-3. Since the residue of water-soluble flux is easily dissolved in moisture in the air, the residues on the surfaces of capacitors in high humidity conditions may cause a degradation of insulation resistance and reliability of the capacitors. Therefore, the cleaning methods

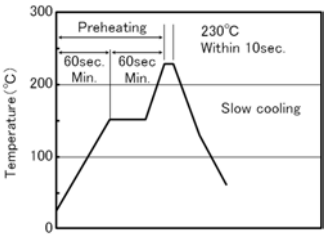
and the capability of the machines used shall also be considered carefully when water-soluble flux is used.

◆Soldering

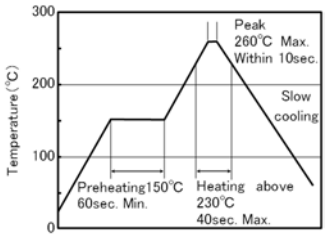
- Ceramic chip capacitors are susceptible to thermal shock when exposed to rapid or concentrated heating or rapid cooling.
- Therefore, the soldering must be conducted with great care so as to prevent malfunction of the components due to excessive thermal shock.
- Preheating : Capacitors shall be preheated sufficiently, and the temperature difference between the capacitors and solder shall be within 130℃.
- Cooling : The temperature difference between the capacitors and cleaning process shall not be greater than 100℃.

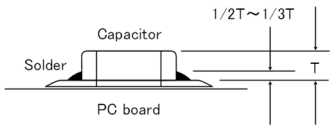
[Reflow soldering]

【Recommended conditions for eutectic soldering】



【Recommended condition for Pb-free soldering】





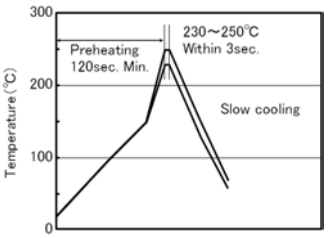
Caution

①The ideal condition is to have solder mass (fillet) controlled to 1/2 to 1/3 of the thickness of a capacitor.

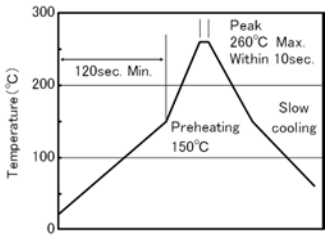
②Because excessive dwell times can adversely affect solderability, soldering duration shall be kept as close to recommended times as possible. soldering for 2 times.

[Wave soldering]

【Recommended conditions for eutectic soldering】



【Recommended condition for Pb-free soldering】

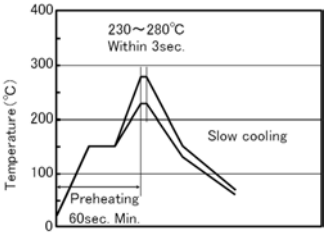


Caution

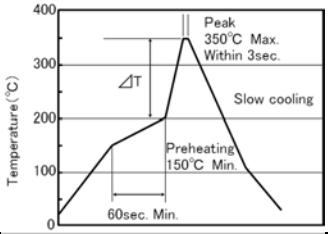
①Wave soldering must not be applied to capacitors designated as for reflow soldering only. soldering for 1 times.

[Hand soldering]

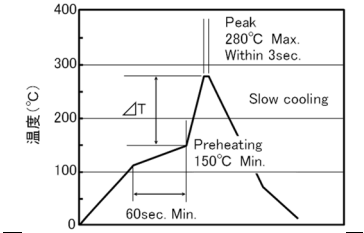
【Recommended conditions for eutectic soldering】



【Recommended condition for Pb-free soldering】



	⊿T
3216type or less	⊿T≦150℃



	⊿T
3225type or more	⊿T≦130℃

Caution

①Use a 50W soldering iron with a maximum tip diameter of 1.0 mm.

②The soldering iron shall not directly touch capacitors. soldering for 1 times.

5. Cleaning	
Precautions	◆Cleaning conditions 1. When PCBs are cleaned after capacitors mounting, please select the appropriate cleaning solution in accordance with the intended use of the cleaning. (e.g. to remove soldering flux or other materials from the production process.) 2. Cleaning condition shall be determined after it is verified by using actual cleaning machine that the cleaning process does not affect capacitor's characteristics.
Technical considerations	1. The use of inappropriate cleaning solutions can cause foreign substances such as flux residue to adhere to capacitors or deteriorate their outer coating, resulting in a degradation of the capacitor's electrical properties (especially insulation resistance). 2. Inappropriate cleaning conditions(insufficient or excessive cleaning) may adversely affect the performance of the capacitors. In the case of ultrasonic cleaning, too much power output can cause excessive vibration of PCBs which may lead to the cracking of capacitors or the soldered portion, or decrease the terminal electrodes' strength. Therefore, the following conditions shall be carefully checked; Ultrasonic output : 20 W/ℓ or les Ultrasonic frequency : 40 kHz or less Ultrasonic washing period : 5 min. or less

6. Resin coating and mold	
Precautions	1. With some type of resins, decomposition gas or chemical reaction vapor may remain inside the resin during the hardening period or while left under normal storage conditions resulting in the deterioration of the capacitor's performance. 2. When a resin's hardening temperature is higher than capacitor's operating temperature, the stresses generated by the excessive heat may lead to damage or destruction of capacitors. The use of such resins, molding materials etc. is not recommended.

7. Handling	
Precautions	◆Splitting of PCB 1. When PCBs are split after components mounting, care shall be taken so as not to give any stresses of deflection or twisting to the board. 2. Board separation shall not be done manually, but by using the appropriate devices. ◆Mechanical considerations Be careful not to subject capacitors to excessive mechanical shocks. (1)If ceramic capacitors are dropped onto a floor or a hard surface, they shall not be used. (2)Please be careful that the mounted components do not come in contact with or bump against other boards or components.

8. Storage conditions	
Precautions	◆Storage 1. To maintain the solderability of terminal electrodes and to keep packaging materials in good condition, care must be taken to control temperature and humidity in the storage area. Humidity should especially be kept as low as possible. ・Recommended conditions Ambient temperature : Below 30℃ Humidity : Below 70% RH The ambient temperature must be kept below 40℃. Even under ideal storage conditions, solderability of capacitor is deteriorated as time passes, so capacitors shall be used within 6 months from the time of delivery. ・Ceramic chip capacitors shall be kept where no chlorine or sulfur exists in the air. 2. The capacitance values of high dielectric constant capacitors will gradually decrease with the passage of time, so care shall be taken to design circuits. Even if capacitance value decreases as time passes, it will get back to the initial value by a heat treatment at 150℃ for 1hour.
Technical considerations	If capacitors are stored in a high temperature and humidity environment, it might rapidly cause poor solderability due to terminal oxidation and quality loss of taping/packaging materials. For this reason, capacitors shall be used within 6 months from the time of delivery. If exceeding the above period, please check solderability before using the capacitors.

※RCR-2335B(Safety Application Guide for fixed ceramic capacitors for use in electronic equipment)is published by JEITA.
Please check the guide regarding precautions for deflection test, soldering by spot heat, and so on.