

# Wire-wound Metal Power Inductors MCOIL™ LBDN series

## for Telecommunications Infrastructure and Industrial Equipment

Code in front of Series have been extracted from Part number, which describes the segment of products, such as kinds and characteristics.

REFLOW

PART NUMBER

\*Operating Temp. : -40~125°C (Including self-generated heat)

L	B	D	N	D	2	0	2	0	K	K	T	1	R	0	M	M										
①				②				③			④			⑤			⑥			⑦			⑧			⑨

## ① Series

Code (1)(2)(3)(4)	
LBDN	Wire-wound Metal Power Inductor for Telecommunications Infrastructure and Industrial Equipment

## (1) Product Group

Code	
L	Inductors

## (2) Category

Code	Recommended equipment	Quality Grade
B	Telecommunications Infrastructure and Industrial Equipment	2

## (3) Type

Code	
D	Metal Wire-wound (Drum type)

## (4) Features, Characteristics

Code	
N	Standard Power choke

## ② Features

Code	Feature
D	Bottom electrode (Ag × solder)

## ③ Dimensions (L × W)

Code	Dimensions (L × W) [mm]
2020	2.0 × 2.0
3030	3.0 × 3.0
4040	4.0 × 4.0

## ④ Dimensions (H)

Code	Dimensions (H) [mm]
KK	1.0
MK	1.2
WK	2.0

## ⑤ Packaging

Code	Packaging
T	Taping

## ⑥ Nominal inductance

Code (example)	Nominal inductance [μH]
R47	0.47
1R0	1.0
4R7	4.7

※R=Decimal point

## ⑦ Inductance tolerance

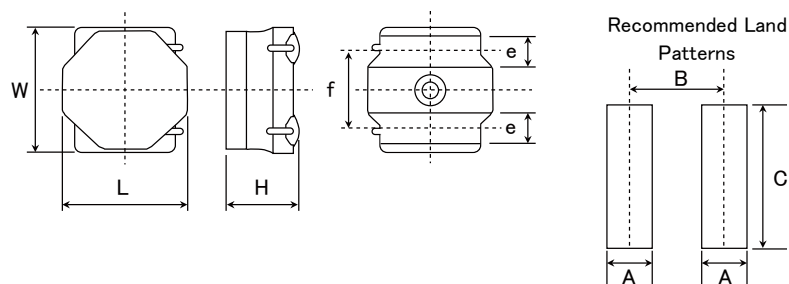
Code	Inductance tolerance
M	±20%
N	±30%

## ⑧ Special code

Code	Special code
F	Ferrite coating
M	Metal coating

## ⑨ Internal code

# STANDARD EXTERNAL DIMENSIONS



Type	A	B	C
2020	0.65	1.35	2.0
3030	0.8	2.2	2.7
4040	1.2	2.8	3.7

Unit: mm

Type	L	W	H	e	f	Standard quantity [pcs] Taping
2020KK	2.0±0.15 (0.079±0.006)	2.0±0.15 (0.079±0.006)	1.0 max (0.039 max)	0.50±0.2 (0.02±0.008)	1.25±0.2 (0.049±0.008)	2500
2020MK	2.0±0.15 (0.079±0.006)	2.0±0.15 (0.079±0.006)	1.2 max (0.047 max)	0.50±0.2 (0.02±0.008)	1.25±0.2 (0.049±0.008)	2500
3030KK	3.0±0.1 (0.118±0.004)	3.0±0.1 (0.118±0.004)	1.0 max (0.039 max)	0.90±0.2 (0.035±0.008)	1.9±0.2 (0.075±0.008)	2000
3030MK	3.0±0.1 (0.118±0.004)	3.0±0.1 (0.118±0.004)	1.2 max (0.047 max)	0.90±0.2 (0.035±0.008)	1.9±0.2 (0.075±0.008)	2000
4040MK	4.0±0.2 (0.157±0.008)	4.0±0.2 (0.157±0.008)	1.2 max (0.047 max)	1.1±0.2 (0.043±0.008)	2.5±0.2 (0.098±0.008)	1000
4040WK	4.0±0.2 (0.157±0.008)	4.0±0.2 (0.157±0.008)	2.0 max (0.079 max)	1.1±0.2 (0.043±0.008)	2.5±0.2 (0.098±0.008)	700

Unit: mm (inch)

## PART NUMBER

- All the Wire-wound Metal Power Inductors of the catalog lineup are RoHS compliant.

Notes)

- The exchange of individual specifications is necessary depending on your application and/or circuit condition. Please contact TAIYO YUDEN's official sales channel.
- The products are for Telecommunications infrastructure and Industrial equipment.

Please consult with TAIYO YUDEN's official sales channel for the details of the product specifications, etc., and please review and approve the product specifications before ordering.

## ● 2020KK type [Thickness: 1.0mm max]

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency [MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND2020KKTR47MM	MDKK2020TR47MM	8 0.47	±20%	0.046	3,500 (4,150)	2,200 (2,500)	1
LBDND2020KKTR68MM	MDKK2020TR68MM	8 0.68	±20%	0.060	3,200 (3,650)	2,000 (2,100)	1
LBDND2020KKT1R0MM	MDKK2020T1R0MM	8 1.0	±20%	0.085	2,900 (3,400)	1,700 (1,900)	1
LBDND2020KKT1R5MM	MDKK2020T1R5MM	8 1.5	±20%	0.133	1,900 (2,250)	1,350 (1,500)	1
LBDND2020KKT2R2MM	MDKK2020T2R2MM	8 2.2	±20%	0.165	1,650 (1,950)	1,200 (1,350)	1
LBDND2020KKT3R3MM	MDKK2020T3R3MM	8 3.3	±20%	0.275	1,300 (1,550)	940 (1,050)	1
LBDND2020KKT4R7MM	MDKK2020T4R7MM	8 4.7	±20%	0.435	1,050 (1,250)	750 (850)	1
LBDND2020KKT100MM	MDKK2020T100MM	8 10	±20%	0.690	750 (900)	630 (680)	1

Absolute maximum voltage: DC20V

## ● 2020MK type [Thickness: 1.2mm max]

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency [MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND2020MKTR47MM	MDMK2020TR47MM	8 0.47	±20%	0.046	4,200 (4,800)	2,300 (2,450)	1
LBDND2020MKTR68MM	MDMK2020TR68MM	8 0.68	±20%	0.058	3,500 (4,100)	2,000 (2,200)	1
LBDND2020MKT1R0MM	MDMK2020T1R0MM	8 1.0	±20%	0.064	2,550 (2,900)	1,900 (2,050)	1
LBDND2020MKT1R5MM	MDMK2020T1R5MM	8 1.5	±20%	0.086	2,000 (2,300)	1,650 (1,750)	1
LBDND2020MKT2R2MM	MDMK2020T2R2MM	8 2.2	±20%	0.109	1,750 (2,000)	1,450 (1,550)	1
LBDND2020MKT3R3MM	MDMK2020T3R3MM	8 3.3	±20%	0.178	1,350 (1,550)	1,150 (1,200)	1
LBDND2020MKT4R7MM	MDMK2020T4R7MM	8 4.7	±20%	0.242	1,150 (1,300)	950 (1,050)	1

Absolute maximum voltage: DC20V

## ● 3030KK type [Thickness: 1.0mm max]

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency [MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND3030KKTR47MM	MDKK3030TR47MM	8 0.47	±20%	0.039	5,400 (6,500)	3,900 (4,500)	1
LBDND3030KKT1R0MM	MDKK3030T1R0MM	8 1.0	±20%	0.086	4,400 (5,200)	2,400 (2,800)	1
LBDND3030KKT1R5MM	MDKK3030T1R5MM	8 1.5	±20%	0.100	3,000 (3,500)	2,100 (2,400)	1
LBDND3030KKT2R2MM	MDKK3030T2R2MM	8 2.2	±20%	0.144	2,500 (3,000)	1,900 (2,200)	1
LBDND3030KKT3R3MM	MDKK3030T3R3MM	8 3.3	±20%	0.248	2,000 (2,400)	1,350 (1,500)	1
LBDND3030KKT4R7MM	MDKK3030T4R7MM	8 4.7	±20%	0.345	1,700 (2,000)	1,150 (1,300)	1
LBDND3030KKT6R8MM	MDKK3030T6R8MM	8 6.8	±20%	0.437	1,400 (1,700)	1,000 (1,150)	1
LBDND3030KKT100MM	MDKK3030T100MM	8 10	±20%	0.575	1,100 (1,300)	850 (1,000)	1

Absolute maximum voltage: DC20V

## ● 3030MK type [Thickness: 1.2mm max]

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency [MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND3030MKTR30MM	MDMK3030TR30MM	8 0.30	±20%	0.020	7,600 (9,200)	5,500 (6,400)	1
LBDND3030MKTR33MM	MDMK3030TR33MM	8 0.33	±20%	0.020	6,400 (8,700)	5,500 (6,400)	1
LBDND3030MKTR47MM	MDMK3030TR47MM	8 0.47	±20%	0.027	6,300 (7,500)	4,700 (5,500)	1
LBDND3030MKT1R0MM	MDMK3030T1R0MM	8 1.0	±20%	0.050	4,300 (5,100)	3,300 (3,900)	1
LBDND3030MKT1R5MM	MDMK3030T1R5MM	8 1.5	±20%	0.074	3,400 (4,100)	2,500 (3,000)	1
LBDND3030MKT2R2MM	MDMK3030T2R2MM	8 2.2	±20%	0.112	2,800 (3,600)	2,100 (2,400)	1
LBDND3030MKT3R3MM	MDMK3030T3R3MM	8 3.3	±20%	0.173	2,100 (2,700)	1,650 (1,900)	1
LBDND3030MKT4R7MM	MDMK3030T4R7MM	8 4.7	±20%	0.263	1,800 (2,300)	1,350 (1,550)	1

Absolute maximum voltage: DC20V

※) The saturation current value (Idc1) is the DC current value having inductance decrease down to 30%. (at 20°C)

※1-1) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness: 1.0mm copper thickness: 0.035mm, board size: 110 × 30 × 1.0mm, land size: 12.6 × 19.6mm). (at 20°C)

※1-2) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness: 1.6mm copper thickness: 0.050mm, board size: 100 × 100 × 1.6mm, land size: 14.6 × 43mm). (at 20°C)

※1-3) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness: 1.6mm copper thickness: 0.050mm, board size: 100 × 100 × 1.6mm, land size: 44.5 × 90mm). (at 20°C)

※) The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

※1-1) 2020KK, 2020MK type

※1-2) 3030KK, 3030MK type

※1-3) 4040MK, 4040WK type

► This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification.

For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>).

■ PART NUMBER

● 4040MK F type 【Thickness:1.2mm max】

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H ]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency[kHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND4040MKTR47MF	MDMK4040TR47MF 8	0.47	±20%	0.029	7,500 (10,000)	4,600 (5,400)	100
LBDND4040MKT1R0MF	MDMK4040T1R0MF 8	1.0	±20%	0.047	5,200 (7,500)	3,500 (4,200)	100
LBDND4040MKT1R2MF	MDMK4040T1R2MF 8	1.2	±20%	0.047	4,200 (6,200)	3,500 (4,200)	100
LBDND4040MKT1R5MF	MDMK4040T1R5MF 8	1.5	±20%	0.065	3,700 (5,400)	3,300 (3,600)	100
LBDND4040MKT2R2MF	MDMK4040T2R2MF 8	2.2	±20%	0.092	3,200 (4,500)	2,500 (2,900)	100

Absolute maximum voltage: DC25V

● 4040MK type 【Thickness:1.2mm max】

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H ]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency[MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND4040MKTR68MM	MDMK4040TR68MM 8	0.68	±20%	0.029	6,700 (7,800)	5,000 (5,700)	1
LBDND4040MKT1R0MM	MDMK4040T1R0MM 8	1.0	±20%	0.036	5,000 (6,200)	4,500 (5,100)	1
LBDND4040MKT1R5MM	MDMK4040T1R5MM 8	1.5	±20%	0.065	4,500 (5,600)	3,200 (3,600)	1
LBDND4040MKT2R2MM	MDMK4040T2R2MM 8	2.2	±20%	0.079	3,800 (4,500)	2,800 (3,200)	1
LBDND4040MKT3R3MM	MDMK4040T3R3MM 8	3.3	±20%	0.130	3,200 (4,000)	2,200 (2,500)	1
LBDND4040MKT4R7MM	MDMK4040T4R7MM 8	4.7	±20%	0.160	2,500 (3,000)	1,900 (2,200)	1
LBDND4040MKT6R8MM	MDMK4040T6R8MM 8	6.8	±20%	0.230	1,900 (2,200)	1,600 (1,800)	1
LBDND4040MKT100MM	MDMK4040T100MM 8	10	±20%	0.330	1700 (2,000)	1,400 (1,600)	1

Absolute maximum voltage: DC25V

● 4040WK type 【Thickness:2.0mm max】

New part number	Old part number (for reference)	Nominal inductance [ $\mu$ H ]	Inductance tolerance	DC Resistance [ $\Omega$ ] (max.)	Rated current ※) [mA]		Measuring frequency[MHz]
					Saturation current Idc1 Max (Typ)	Temperature rise current Idc2 Max (Typ)	
LBDND4040WKTR56NM	MDWK4040TR56NM 8	0.56	±20%	0.016	9,000 (13,000)	6,500 (7,500)	1
LBDND4040WKTR68MM	MDWK4040TR68MM 8	0.68	±20%	0.016	8,000 (12,000)	7,300 (8,300)	1
LBDND4040WKT1R0MM	MDWK4040T1R0MM 8	1.0	±20%	0.027	7,000 (9,400)	5,100 (5,800)	1
LBDND4040WKT1R5MM	MDWK4040T1R5MM 8	1.5	±20%	0.041	7,000 (9,400)	4,100 (4,700)	1
LBDND4040WKT2R2MM	MDWK4040T2R2MM 8	2.2	±20%	0.054	5,400 (7,500)	3,500 (4,000)	1
LBDND4040WKT3R3MM	MDWK4040T3R3MM 8	3.3	±20%	0.075	3,700 (5,200)	3,000 (3,300)	1
LBDND4040WKT4R7MM	MDWK4040T4R7MM 8	4.7	±20%	0.107	3,500 (5,000)	2,500 (2,800)	1
LBDND4040WKT6R8MM	MDWK4040T6R8MM 8	6.8	±20%	0.158	2,900 (4,000)	2,000 (2,300)	1
LBDND4040WKT100MM	MDWK4040T100MM 8	10	±20%	0.194	2,200 (3,100)	1,600 (1,900)	1

Absolute maximum voltage: DC25V

※) The saturation current value (Idc1) is the DC current value having inductance decrease down to 30%. (at 20°C)

※1-1) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness:1.0mm copper thickness:0.035mm, board size:110×30×1.0mm, land size:12.6×19.6mm). (at 20°C)

※1-2) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness:1.6mm copper thickness:0.050mm, board size:100×100×1.6mm, land size:14.6×43mm). (at 20°C)

※1-3) The temperature rise current value (Idc2) is the DC current value having temperature increase by 40°C, when mounted in FR4 High heat dissipation board (board thickness:1.6mm copper thickness:0.050mm, board size:100×100×1.6mm, land size:44.5×90mm). (at 20°C)

※) The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

※1-1) 2020KK, 2020MK type

※1-2) 3030KK, 3030MK type

※1-3) 4040MK, 4040WK type

## Derating of Rated Current

### LBDN series

Derating of current is necessary for LBDN series depending on ambient temperature.

Please refer to the chart shown below for appropriate derating of current.

