Multilayer Metal Power Inductors MCOIL[™] LCCN series for Automotive Body & Chassis and Infotainment

■RELIABILITY DATA

1. Operating Temperature Range		
Specified Value	$-40 \sim +125 ^{\circ} C$ (Including self-generated heat) , End of part number "D" $\Rightarrow -55 \sim +150 ^{\circ} C$ (Including self-generated heat)	
2. Storage Tempera		
Specified Value	-40~ $+85$ °C , End of part number "D"⇒ -55 ~ $+110$ °C	
3. Rated Current		
Specified Value	Idc1: The decreasing-rate of inductance value is within 30 %	
	Idc2: The temperature of the element is increased within 40°C	
4. Inductance		
Specified Value	Refer to each specification.	
Test Methods and	Measuring frequency : 1MHz	
Remarks	Measuring equipment : E4991 (or its equivalent)	
ricinario	modesuring equipment . E-1001 (or its equivalent)	
5. DC Resistance		
Specified Value	Refer to each specification.	
Test Methods and		
Remarks	Measuring equipment: HIOKI RM3545 (or its equivalent)	
6. High Temperature	e Exposure (Storage)	
Specified Value	Appearance: No abnormality	
Specified value	Inductance change: Within ±10%	
	Temperature: Maximum operating temperature	
Test Methods and	Duration: 1000 hours at	
Remarks	Unpowered	
	Measure after inductors are kept at room temperature for 24±4 hours.	
7 T 0	P	
7. Temperature Cyc	Appearance: No abnormality	
Specified Value	Inductance change: Within ±10%	
	Temperature: Minimum operating temperature to Maximum operating temperature	
	Number of cycles: 1000 cycles	
Test Methods and	Maximum dwell time at each temperature extreme: 30 min	
Remarks	Maximum transition time: Within 1 min.	
	Measure after inductors are kept at room temperature for 24 ± 4 hours.	
8. Biased Humidity		
Specified Value	Appearance: No abnormality	
Opecified Value	Inductance change: Within ±10%	
Test Methods and Remarks	Temperature: 85°C	
	Humidity: 85% RH.	
	Duration: 1000 hrs. Unpowered	
	Measure after inductors are kept at room temperature for 24±4 hours.	
	measure after madetors are kept at 100m temperature for 24±4 modes.	
9. Operational Life		
•	Appearance: No abnormality	
Specified Value	Inductance change: Within ±10%	
Test Methods and Remarks	Temperature: 85°C, End of part number "D"⇒110°C	
	Duration: 1000 hours,	
	Rated current	
	Measure after inductors are kept at room temperature for 24 ± 4 hours.	
10. External Visual		
Specified Value	No abnormality	
Test Methods and	Visual inspection shall be performed.	
Remarks		

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/).

11. Physical Dimension		
Specified Value	Refer to detailed specification	
Test Methods and	Verify physical dimensions to the applicable device specification.	
Remarks	To my priyotest amonotone to the approach control approach	
10 M 1 10 1		
12. Mechanical Sho	Appearance: No abnormality	
Specified Value	Inductance change: Within ±10%	
Test Methods and Remarks	Apply 3 shocks in each direction along 3 mutually perpendicular axes of the test specimen (18 shocks in total).	
	Peak value: 1500g	
	Duration: 0.5ms	
	Test pulse: Half-sine	
	Velocity change: 4.7m/s.	
40.1/1		
13. Vibration	Annayana Ma aknayanalibu	
Specified Value	Appearance: No abnormality Inductance change: Within ±10%	
Test Methods and	5g's for 20 min., 12 cycles each of 3 orientations (36 cycles in total)	
Remarks	Test from: 10 Hz to 2000 Hz	
14. Resistance to Soldering Heat		
Specified Value	Appearance: No abnormality	
	Inductance change: Within ±10%	
	No pre-heat of samples	
Test Methods and	Solder temperature: 260±5° C	
Remarks	Immersion time: 10±1 sec.	
Measure after inductors are kept at room temperature for 24±4 hours.		
15. ESD		
0 :0 17/1	Appearance: No abnormality	
Specified Value	Inductance change: Within ±10%	
Test Methods and	Per AEC-Q200-002	
Remarks	1 61 / 120 420 402	
16 Caldarahilitur		
16. Solderability Specified Value	More than 95% of terminal electrode shall be covered with fresh solder.	
Opcomed value	Per J-STD-002	
	a) Method B	
Test Methods and	Solder at 235±5° C for 5 sec.	
Remarks	c) Method D	
	Solder at 260±5° C for 30 sec.	
17. Electrical Chara Specified Value		
Test Methods and	Inductance at room temperature: Refer to detailed specification	
Remarks	Min, Max, Mean and Standard deviation at room temperature as well as Min and Max operating temperatures.	
- Tomario		
18. Board Flex		
Specified Value	Appearance: No abnormality	
Test Methods and Remarks	Solder the test samples to the test boards by the reflow soldering.	
	Apply a force in a downward direction until amount of deflection reaches 2mm. The 2-mm deflection shall be held for 60 sec.	
	Test board dimensions: 100mm × 40mm × 1.6mm	
	20	
	Board R-230 Warn	
	Board Warp	
	△ Deviation±1 △	
	45 45	
	(Unit:mm)	

19. Terminal Strength Specified Value Appearance: No abnormality Per AEC-Q200-006 Solder test samples to the test boards shown in Fig $1\dots$ Apply a force of 17.7N for 60 ± 5 sec. radius 0.5mm Test Methods and $Size(L \times W)$ b Remarks 1.6×0.8 1.0 3.0 1.2 1.2 4.0 1.65 2.0×1.25 shear force Unit[mm]

LCCN series

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

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



