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

■RELIABILITY DATA

1. Operating Temperature Range		
Specified Value	$-40 \sim +125 ^{\circ} \text{C} \text{ (Including self-generated heat)}$, End of part number "D" $\Rightarrow -55 \sim +150 ^{\circ} \text{C} \text{ (Including self-generated heat)}$	
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)	
rtomarto	moderating organization . 2 1001 (or too organizations)	
5. DC Resistance		
Specified Value	Refer to each specification.	
Test Methods and		
Remarks	Measuring equipment: HIOKI RM3545 (or its equivalent)	
6. High Temperatur	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.	
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7. Temperature Cyc		
Specified Value	Appearance: No abnormality 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	
Specified value	Inductance change: Within ±10%	
	Temperature: 85°C	
Test Methods and	Humidity: 85% RH.	
Remarks	Duration: 1000 hrs.	
	Unpowered Magazina office industrial area for the respective for 24 to 4. hours	
	Measure after inductors are kept at room temperature for 24±4 hours.	
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	Trouble trapposition of the portor mode.	

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	Tony priyoda amondo de alle apprisable de l'oc opcomedation	
12. Mechanical Shock		
12. Mechanical Sno	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 API - 12		
13. Vibration	Appearance: No abnormality	
Specified Value	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	
<u> </u>	Inductance change: Within ±10%	
Test Methods and	No pre-heat of samples Solder temperature: 260±5° C	
Remarks	Immersion time: 10±1 sec.	
Remarks	Measure after inductors are kept at room temperature for 24±4 hours.	
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15. ESD		
Specified Value	Appearance: No abnormality	
	Inductance change: Within ±10%	
Test Methods and Remarks	Per AEC-Q200-002	
Remarks		
16. Solderability		
Specified Value	More than 95% of terminal electrode shall be covered with fresh solder.	
	Per J-STD-002	
Test Methods and	a) Method B	
Remarks	Solder at 235±5° C for 5 sec.	
	c) Method D Solder at 260±5° C for 30 sec.	
	Solder at 200±5 C for 50 sec.	
17. Electrical Characterization		
Specified Value	Inductance at room temperature: Refer to detailed specification	
Test Methods and	Min, Max, Mean and Standard deviation at room temperature as well as Min and Max operating temperatures.	
Remarks	min, max, mean and Standard deviation at room temperature as wen as min and max operating temperatures.	
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	
	R-230	
	Board Warp	
	Deviation ± 1	
	45 45	
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	(Onic, min)	

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]