Wire-wound Metal Power Inductors MCOIL™ LCDN series for Automotive Body & Chassis and Infotainment

■RELIABILITY DATA

1. Operating Temperature Range	
Specified Value	−40～＋125℃(Including self-generated heat)
Test Methods and Remarks	Including self-generated heat

2. Storage Temperature Range	
Specified Value	−40～＋85℃
Test Methods and Remarks	−5 to 40℃ for the product with taping.

3. Rated current	
Specified Value	Within the specified tolerance

4. Inductance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : LCR Meter (HP 4285A or equivalent) Measuring frequency : 1MHz, 1V (4040F:100kHz 1V)

5. DC Resistance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : DC ohmmeter (HIOKI 3227 or equivalent)

6. High Temperature Exposure (Storage)	
Specified Value	Appearance:No significant abnormality in appearance. Inductance change:Within ±10%
Test Methods and Remarks	1000 hours at 85 deg C Unpowered

7. Temperature Cycling	
Specified Value	Appearance:No significant abnormality in appearance. Inductance change:Within ±10%
Test Methods and Remarks	1000 cycles (−40 deg C to +85 deg C) 30 min. maximum dwell time at each temperature extreme. 1 min. maximum transition time.

8. Biased Humidity	
Specified Value	Appearance:No significant abnormality in appearance. Inductance change:Within ±10%
Test Methods and Remarks	1000 hours, 85 deg C/85% RH. Unpowered

9. Operational Life	
Specified Value	Appearance:No significant abnormality in appearance. Inductance change:Within ±10%
Test Methods and Remarks	1000 hours, 85 deg C Rated current

10. Resistance to Solvents	
Specified Value	Appearance : No significant abnormality in appearance.
Test Methods and Remarks	①Soak a test sample in isopropyl alcohol (IPA) at 25 ±5 deg C for 3 to 3. 5 minutes. ②Take the test sample out and brush 10 times using a brush soaked in IPA. ③Repeat ① and ② twice more.

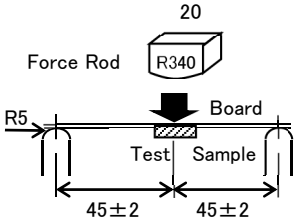
11. Mechanical Shock	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	Apply 3 shocks in each direction along 3 mutually perpendicular axes of the test specimen (18 shocks in total). Peak value: 100g Duration: 6ms Test pulse: Half-sine Velocity change: 3.7m/s.

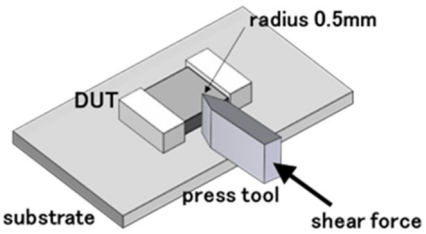
12. Vibration	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	5g's for 20 min., 12 cycles each of 3 orientations (36 cycles in total) Test from: 10 Hz to 2000 Hz

13. Resistance to Soldering Heat (Reflow)	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	Reflow peak temperature: 260±5 deg C Duration time: 10±1 sec. Measure after inductors are kept at room temperature for 24±4 hours.

14. ESD	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	Per AEC-Q200-002

15. Solderability	
Specified Value	More than 90% of terminal electrode shall be covered with fresh solder.
Test Methods and Remarks	Per J-STD-002 a) Method B Solder at 235±5 deg C for 5 sec.

16. Board Flex	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
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. 

17. Terminal Strength (SMD)	
Specified Value	Appearance : No significant abnormality in appearance.
Test Methods and Remarks	Apply a force of 17.7N for 60±5 sec. 

18. Standard condition	
Specified Value	Standard test condition : Unless otherwise specified, temperature is 20±15℃ and 65±20%of relative humidity. When there is any question concerning measurement result: In order to provide correlation data, the test shall be condition of 20±2℃ of temperature, 65±5% relative humidity. Inductance is in accordance with our measured value.

Derating of Rated Current

LCDN series

Derating of current is necessary for LCDN series depending on ambient temperature.
Please refer to the chart shown below for appropriate derating of current.