Wire-wound Metal Power Inductors MCOIL™ LCEN series
for Automotive Body/Infotainment & High Reliability (AEC-Q200 Qualified)

■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	0 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 4294A or equivalent) Measuring frequency : 1MHz, 0.5V

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 125 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 +125 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, 105 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.

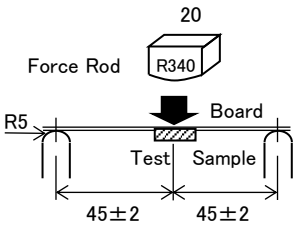
11. Mechanical Shock	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	Apply 3 shocks in each direction along 3 mutually perpendicular axes of the test specimen (18 shocks in total). Peak value: 100g Duration: 6ms Test pulse: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

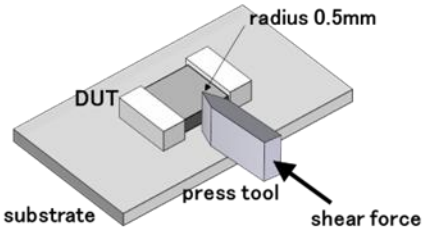
12. Vibration	
Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within ±10%
Test Methods and Remarks	5g's for 20 min., 12 cycles each of 3 orientations (36 cycles in total) Test from: 10 Hz to 2000 Hz

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: 250+0/−5 deg C Duration time: 30 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. c) Method D Solder at 260±5 deg C for 30 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.