

Wire-wound Ferrite Power Inductors LCRN series for Automotive Body & Chassis and Infotainment

■ RELIABILITY DATA

1. Operating Temperature Range	
Specified Value	-40~+125°C (Including self-generated heat)
Test Methods and Remarks	Including self-generated heat
2. Storage Temperature Range	
Specified Value	-40~+85°C
Test Methods and Remarks	-5 to 40°C 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 : 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 $\pm 10\%$
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 $\pm 10\%$
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 $\pm 10\%$
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 $\pm 10\%$
Test Methods and Remarks	1000 hours, 85 deg C Rated current

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10. Resistance to Solvents

Specified Value	Appearance : No significant abnormality in appearance.
Test Methods and Remarks	① Soak a test sample in isopropyl alcohol (IPA) at 25 ± 5 deg C for 3 to 3.5 minutes. ② Take the test sample out and brush 10 times using a brush soaked in IPA. ③ Repeat ① and ② twice more.

11. Mechanical Shock

Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within $\pm 10\%$
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 $\pm 10\%$
Test Methods and Remarks	5g ^r 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 $\pm 10\%$
Test Methods and Remarks	Reflow peak temperature: 250 ± 5 deg C Duration time: 30 ± 5 sec. Measure after inductors are kept at room temperature for 24 ± 4 hours.

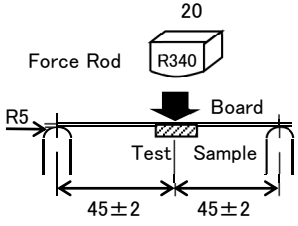
14. ESD

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

15. Solderability

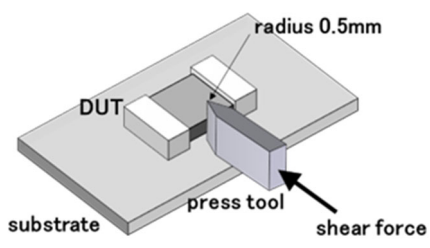
Specified Value	More than 90% of terminal electrode shall be covered with fresh solder.
Test Methods and Remarks	Per J-STD-002 a) Method B Solder at 235 ± 5 deg C for 5 sec. c) Method D Solder at 260 ± 5 deg C for 30 sec.

16. Board Flex

Specified Value	Appearance : No significant abnormality in appearance. Inductance change : Within $\pm 10\%$
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. 

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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°C 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°C of temperature, 65±5% relative humidity. Inductance is in accordance with our measured value.
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■ Derating of Rated Current

● LCRN series

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

