

# Wire-wound Ferrite Inductors for Class D Amplifier LCXA 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~+125°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 125 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 $25 \pm 5$ 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 <sup>r</sup> 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	The test sample shall be exposed to reflow oven at 183°C for 90–120 seconds, with peak temperature at $250 \pm 5$ °C for $30 \pm 5$ seconds, 3 times. Measure after inductors are kept at room temperature for $24 \pm 4$ hours.

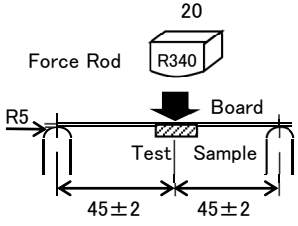
### 14. ESD

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

### 15. Solderability

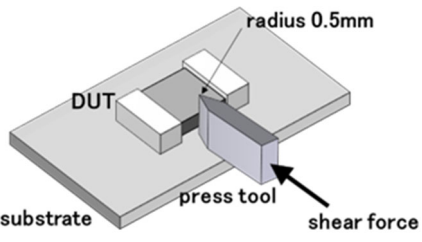
Specified Value	More than 90% of terminal electrode shall be covered with fresh solder.
Test Methods and Remarks	Per J-STD-002 a) Method B Solder at $235 \pm 5$ deg C for 5 sec. c) Method D Solder at $260 \pm 5$ deg C for 30 sec.

### 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	<p>Apply a force of 17.7N for 60±5 sec.</p>  <p>The diagram shows a 3D perspective of a shear test. A rectangular substrate is shown in light gray. On top of it, a small component labeled 'DUT' is mounted. A 'press tool' is shown in white, with a rounded tip labeled 'radius 0.5mm'. An arrow labeled 'shear force' points to the right, indicating the direction of the applied force on the terminal of the DUT.</p>

**18. Standard condition**

Specified Value	<p>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.</p>
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■ Derating of Rated Current

● LCXA

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

