

# RL696948 Series



## 1. Features of RL696948 Series :

- Ferrite-Based Resonant Inductors or Chokes.
- The inductance tolerance of 5% and 10%.
- Inductance range:9.5uH to 106.0uH,custom values are welcomed.
- High current output chokes, up to 13.0Amp with approx. 30% roll off.
- Maximum footprint: 17.5 x 12.5 mm, with a maximum height of 17.5 mm.
- Rated voltage: 600V<sub>AC</sub>, 1000V<sub>DC</sub>.
- Dielectric strength:4500V<sub>DC</sub>(winding to core).
- Operating temperature range: -55 °C to +130 °C, RoHs & HF compliant.



## 2. Electrical Characteristic of RL696948 Series:

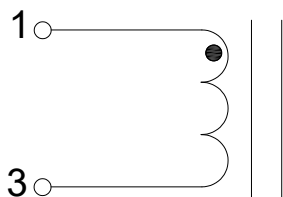
| ITG Part Number | OCL <sup>1</sup><br>(μH)<br>@25°C | OCL<br>Tolerance | DCR <sup>2</sup><br>(mΩ)<br>±15% | ACR <sup>3</sup><br>(mΩ)<br>Typ. | Isat1 <sup>4</sup><br>(A)<br>@25°C | Isat2 <sup>4</sup><br>(A)<br>@75°C | Isat3 <sup>4</sup><br>(A)<br>@100°C | Irms <sup>5</sup><br>(A)<br>@25°C |
|-----------------|-----------------------------------|------------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|-------------------------------------|-----------------------------------|
| RL696948A-9R5J  | 9.5                               | ±5%              | 7.0                              | 60                               | 13.0                               | 12.0                               | 11.0                                | 12.0                              |
| RL696948A-130K  | 13.0                              | ±10%             | 7.0                              | 70                               | 9.5                                | 8.5                                | 8.0                                 | 12.0                              |
| RL696948A-150J  | 15.0                              | ±5%              | 12.5                             | 90                               | 11.0                               | 9.5                                | 9.0                                 | 8.0                               |
| RL696948A-200K  | 20.0                              | ±10%             | 12.5                             | 110                              | 8.0                                | 7.0                                | 6.5                                 | 8.0                               |
| RL696948A-210K  | 21.0                              | ±10%             | 7.0                              | 120                              | 5.5                                | 5.0                                | 4.5                                 | 12.0                              |
| RL696948A-330K  | 33.0                              | ±10%             | 12.5                             | 210                              | 4.5                                | 4.0                                | 3.5                                 | 8.0                               |
| RL696948A-480J  | 48.0                              | ±5%              | 45.8                             | 270                              | 6.0                                | 5.0                                | 4.5                                 | 4.5                               |
| RL696948A-630K  | 63.0                              | ±10%             | 45.8                             | 320                              | 4.5                                | 4.0                                | 3.5                                 | 4.5                               |
| RL696948A-111K  | 106.0                             | ±10%             | 45.8                             | 570                              | 2.5                                | 2.2                                | 2.0                                 | 4.5                               |

### Notes:

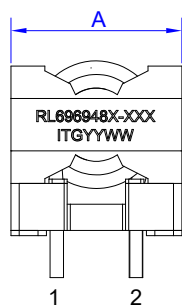
1. Open Circuit Inductance (OCL) test condition: 200kHz,0.25Vrms,0Adc ,at 25 °C.
2. DCR test conditions: Ta=25°C.
3. ACR test conditions: 200kHz ,3.00Vrms , 0Adc , Ta=25°C. The ACR represents the equivalent resistance of an inductor, and its value is influenced by factors such as conversion frequency, coil design, core material, and air gap. Refer to the 'ACR vs Frequency Curve' for additional Information.
4. Isat1,Isat2 & Isat3 : DC current that will cause inductance to drop approximately by30%.
5. Irms : DC current for an approximate temperature rise of 40°C without core loss , Derating is necessary for AC currents. PCB pad layout , trace thickness and width , air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 130 °C under worst case operating conditions verified in the end application.

## 3. Mechanical Dimension(Unit : mm):

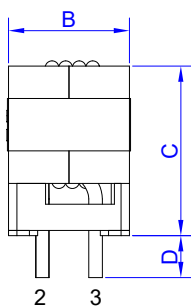
| ITG Part Number | A<br>Max. | B<br>Max. | C<br>Max. | D<br>± 0.5 | E1<br>± 0.5 | E2<br>± 0.5 | F1<br>±0.3 | F2<br>±0.15 | PCB<br>Layout<br>Fig. |
|-----------------|-----------|-----------|-----------|------------|-------------|-------------|------------|-------------|-----------------------|
| RL696948A-9R5J  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.40       | 1.0         | 1                     |
| RL696948A-130K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.40       | 1.0         | 1                     |
| RL696948A-150J  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 0.75       | 1.0         | 3                     |
| RL696948A-200K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 0.75       | 1.0         | 3                     |
| RL696948A-210K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.40       | 1.0         | 1                     |
| RL696948A-330K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 0.75       | 1.0         | 3                     |
| RL696948A-480J  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.10       | 1.0         | 2                     |
| RL696948A-630K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.10       | 1.0         | 2                     |
| RL696948A-111K  | 17.5      | 12.5      | 17.5      | 4.0        | 7.5         | 5.0         | 1.10       | 1.0         | 2                     |



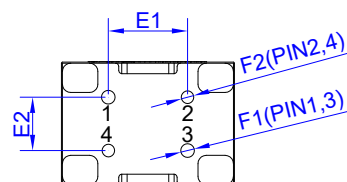
Schematic



Front View



Side View



Bottom View

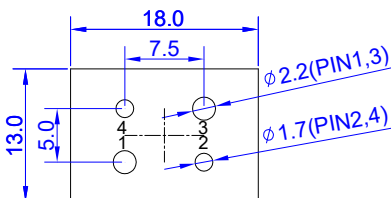


Fig.1

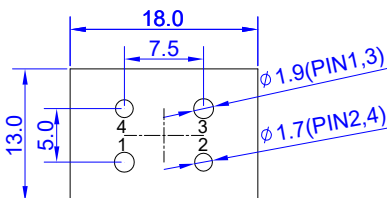


Fig.2

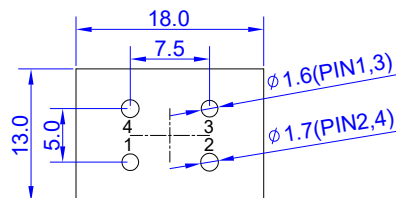


Fig.3

### Suggested PCB Layout

Part Marking:

RL696948X-XXX: Part Number.

ITGYYWW:ITG is Company Name,YYWW is Date Code

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 ● Japan 81 568 85 2830 ● Shenzhen 86 755 8418 6263 ● Shanghai 86 21 5424 5141 ● Hong Kong 852 9688 9767  
 ● [sales@ITG-Electronics.com](mailto:sales@ITG-Electronics.com) ● [www.ITG-Electronics.com](http://www.ITG-Electronics.com) Revision A.1:Nov 21, 2025

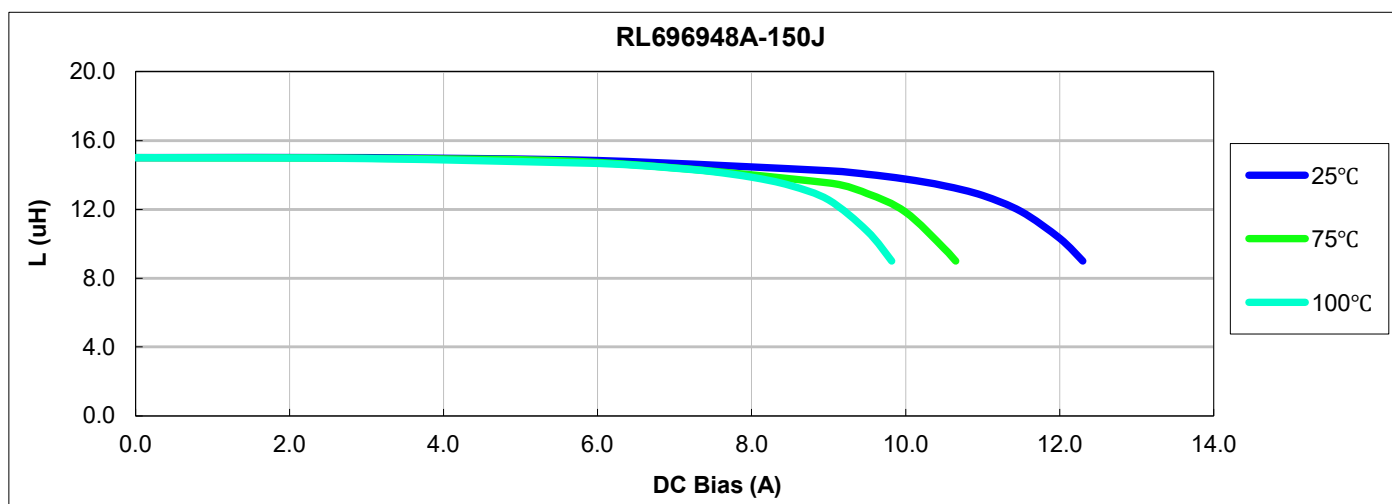
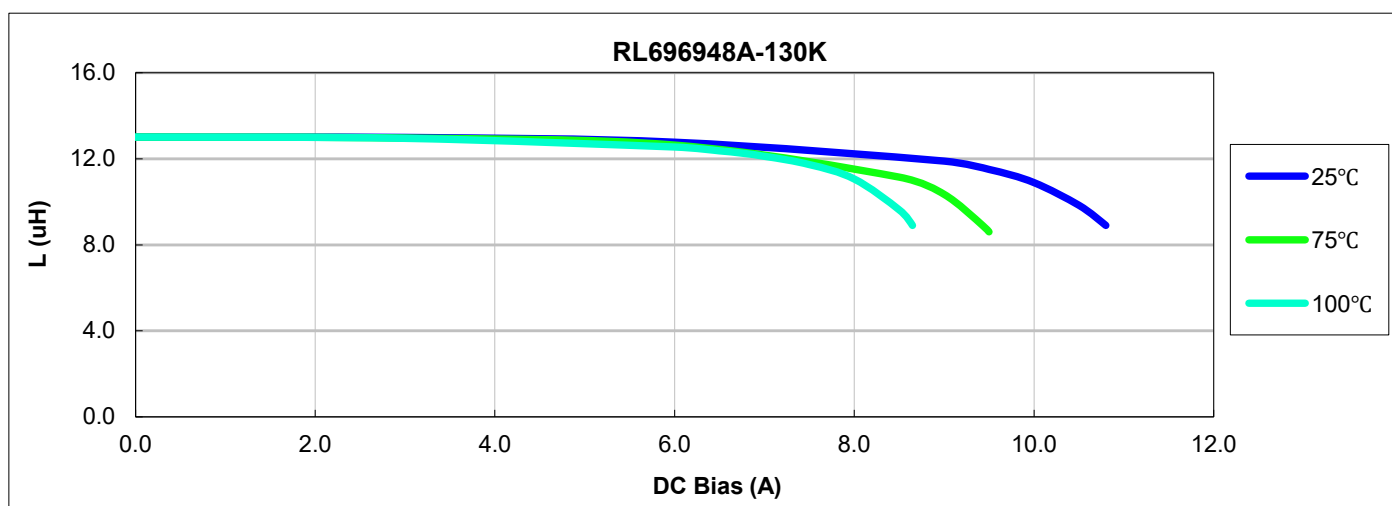
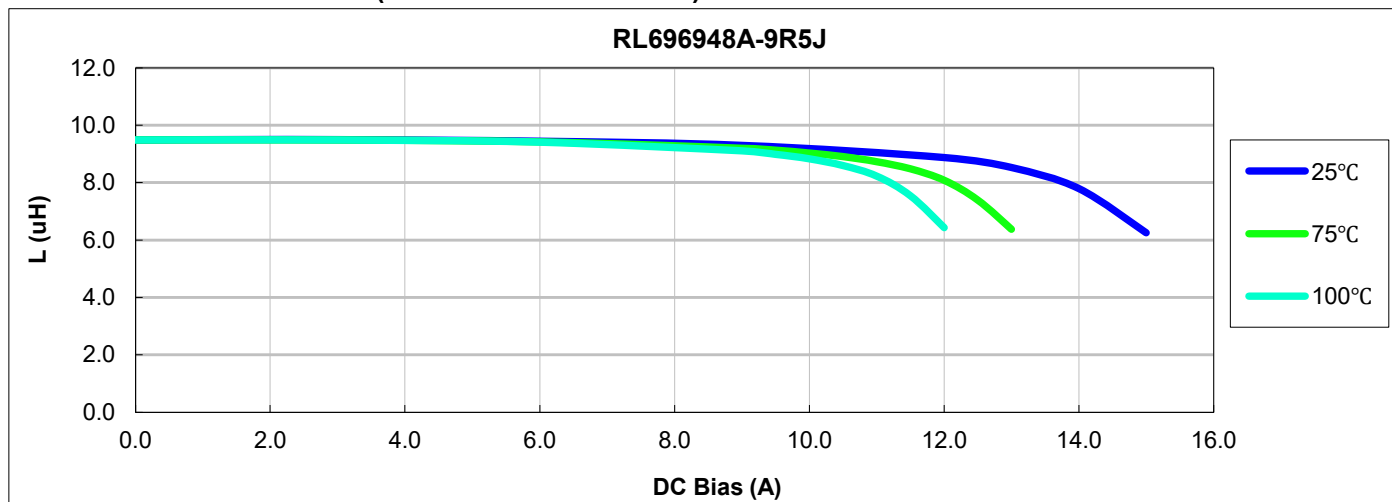
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# RL696948 Series



## 4. Inductance Characteristics (Inductance vs Current):



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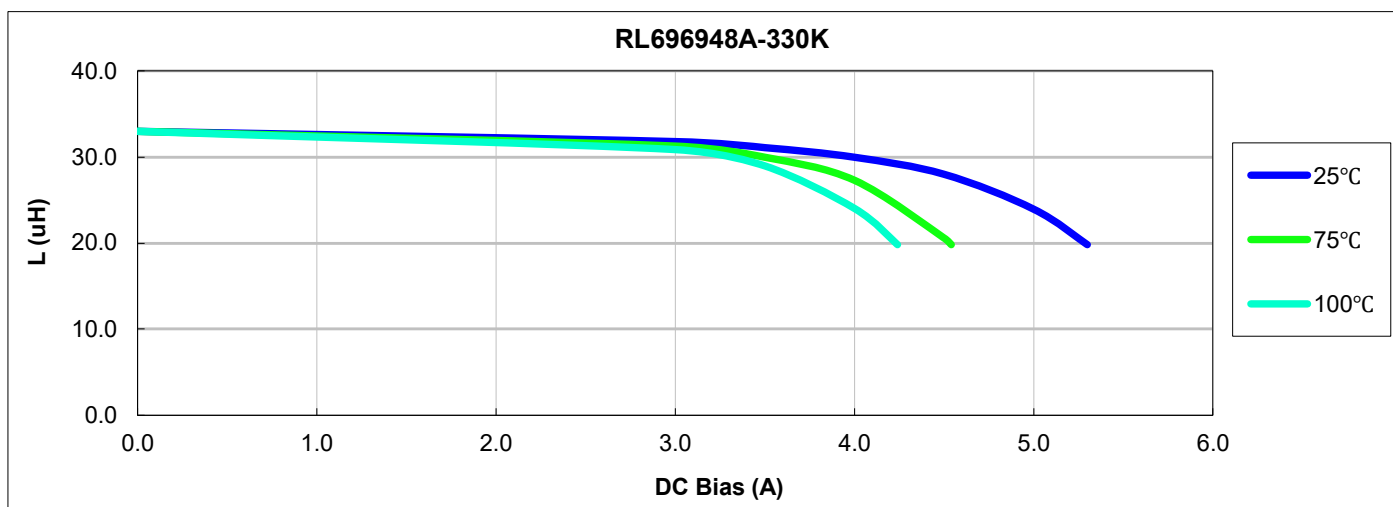
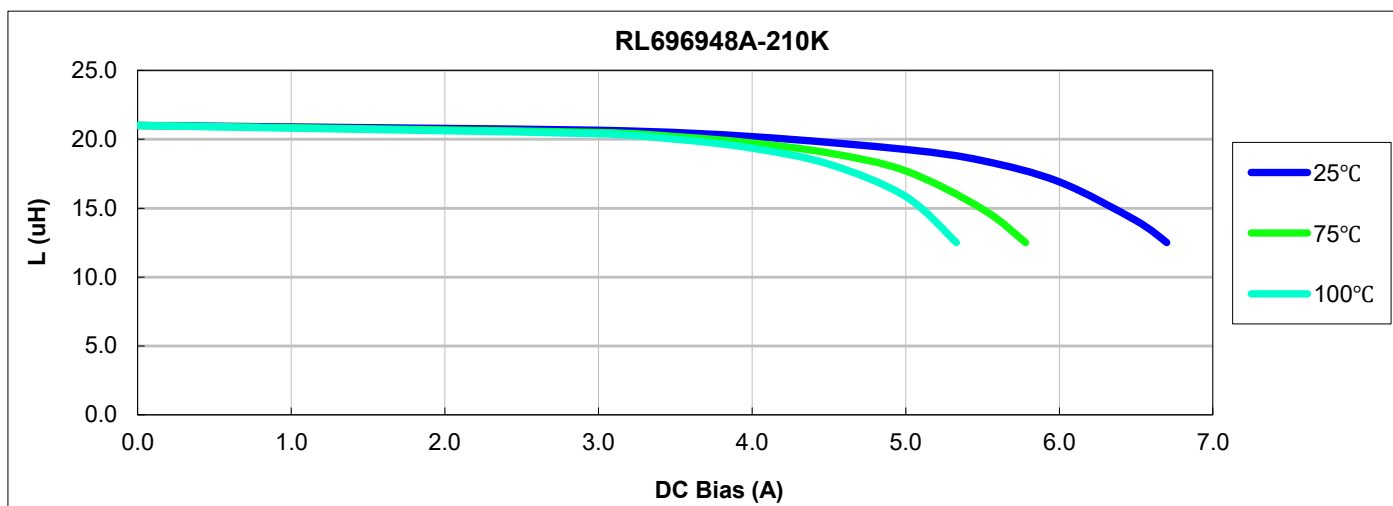
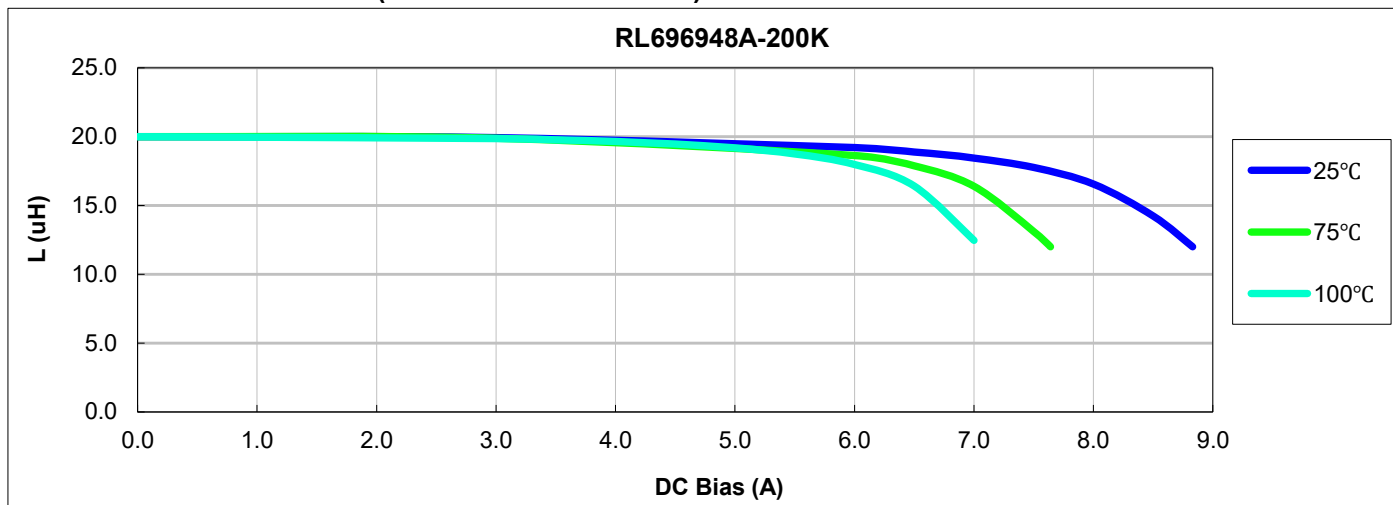
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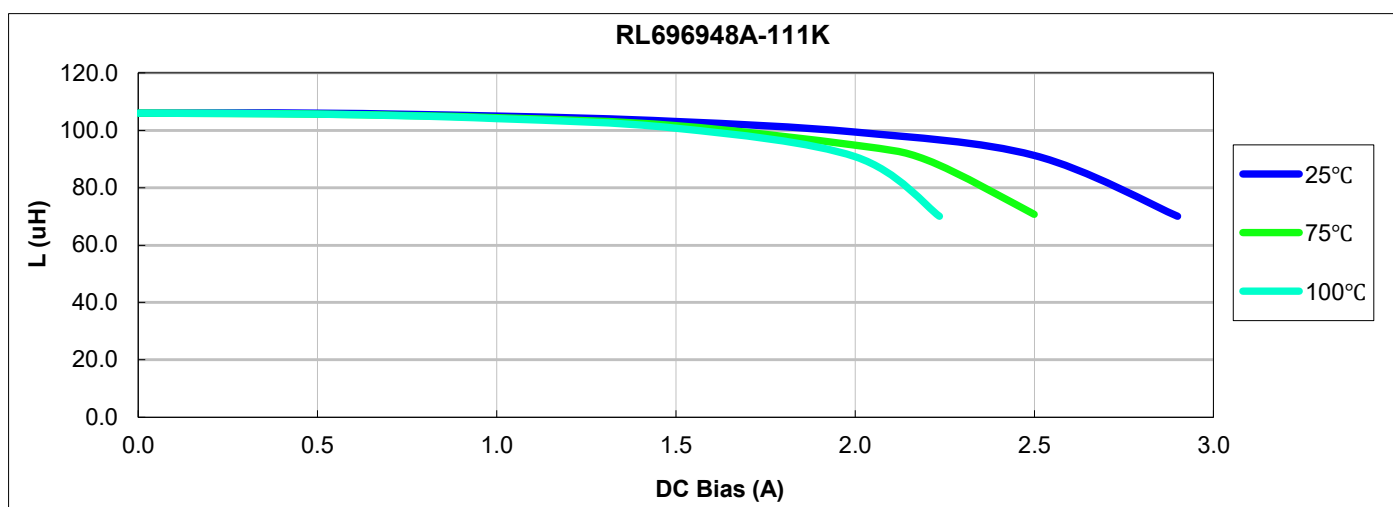
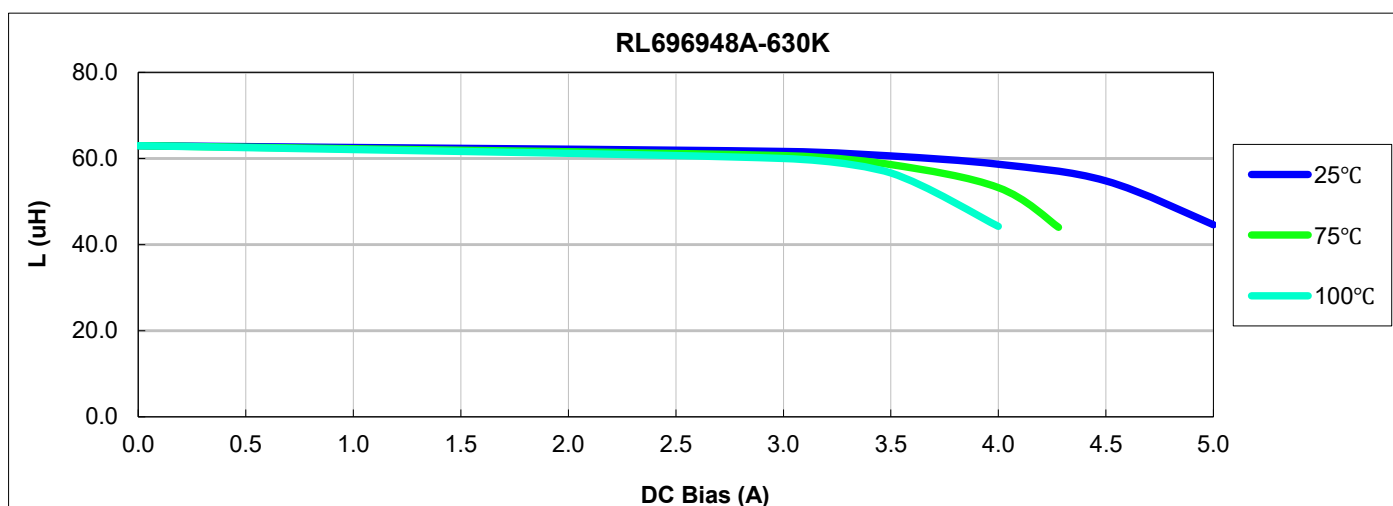
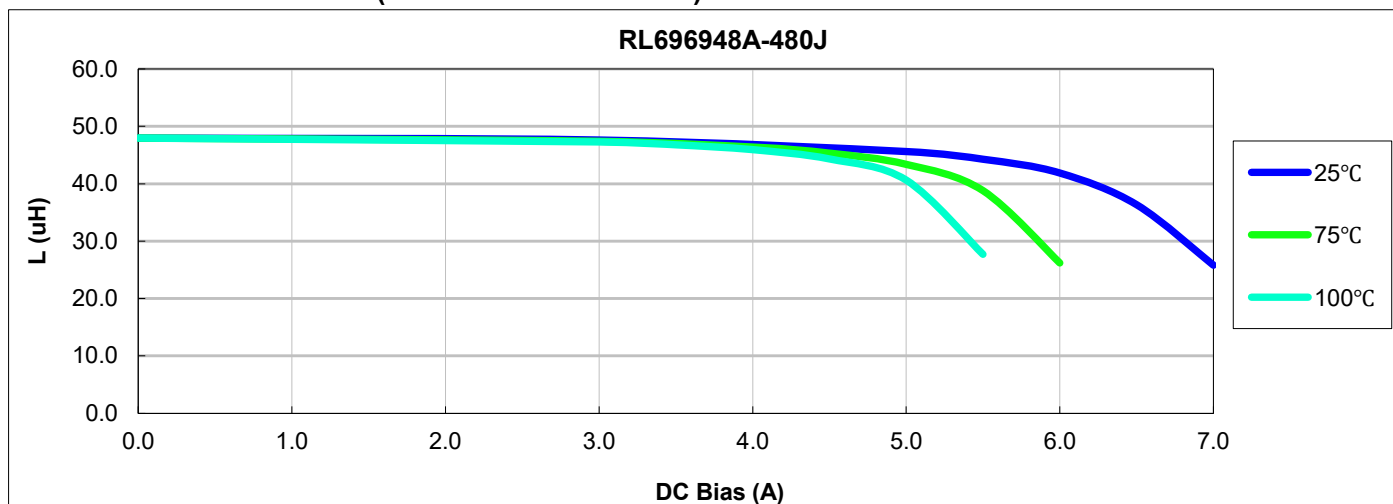


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Halogen Free

## 4. Inductance Characteristics (Inductance vs Current):

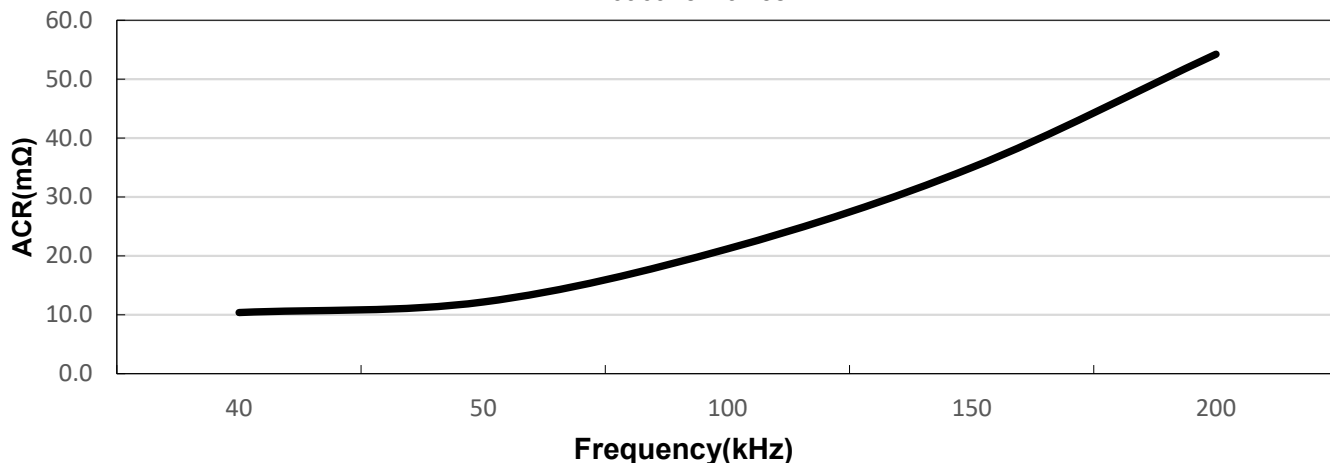


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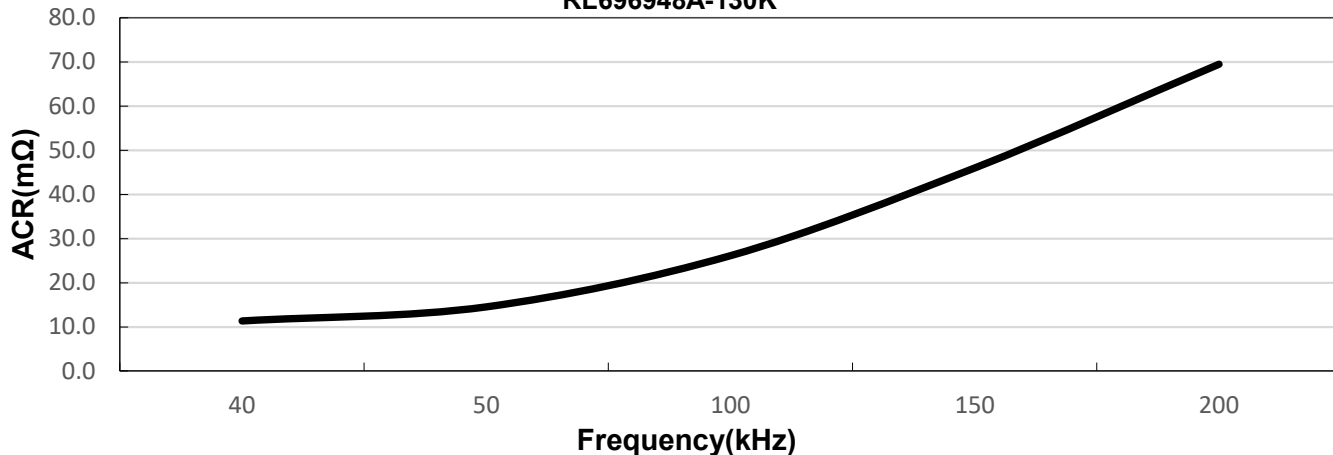
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## 5. Inductance Characteristics (ACR vs Frequency):

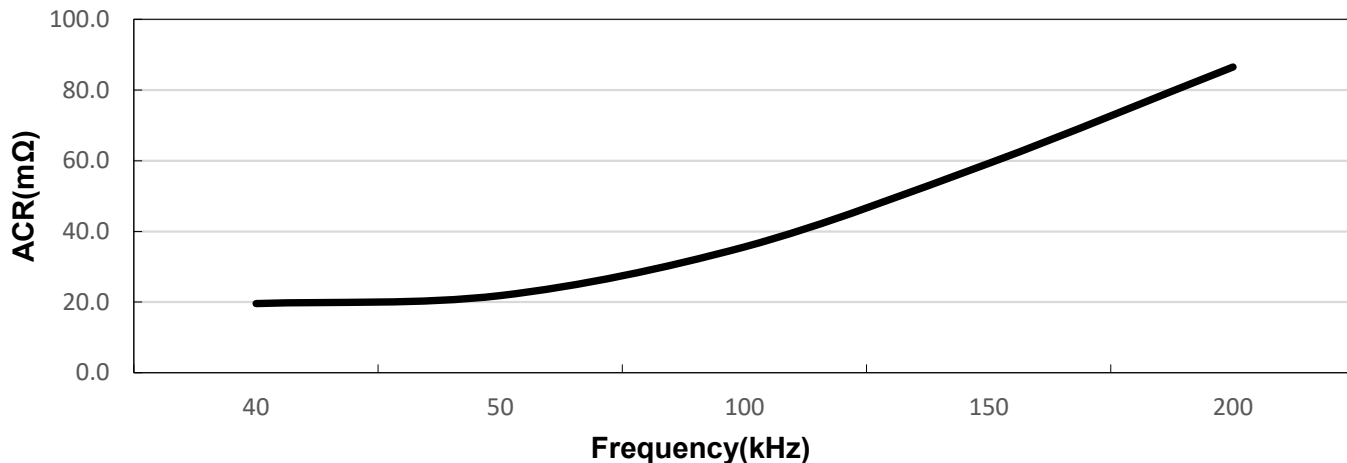
RL696948A-9R5J



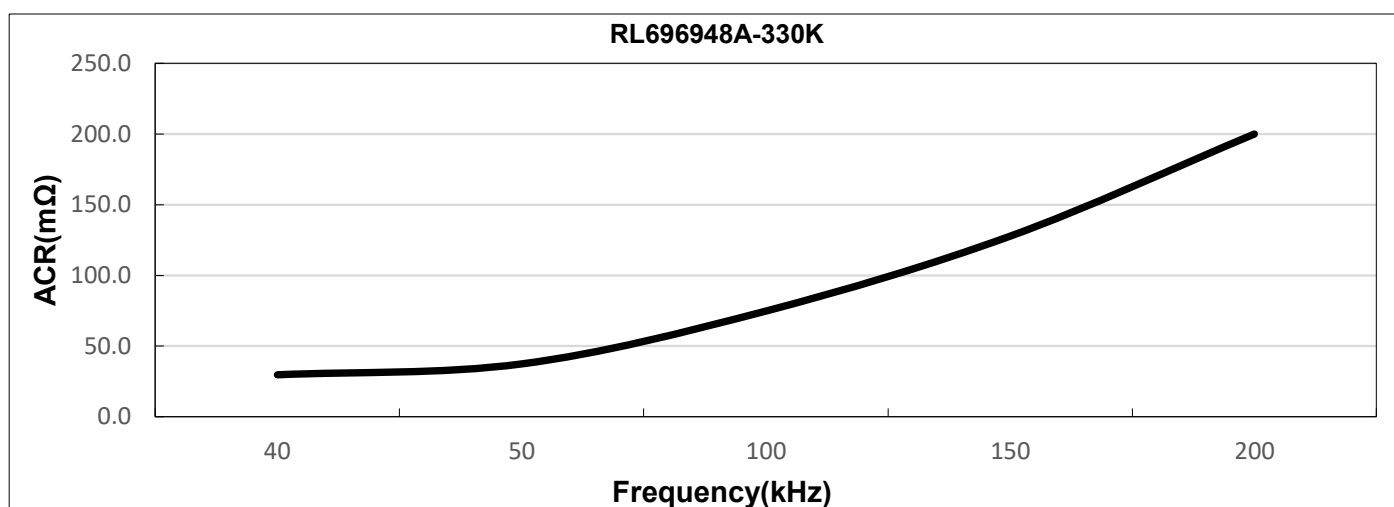
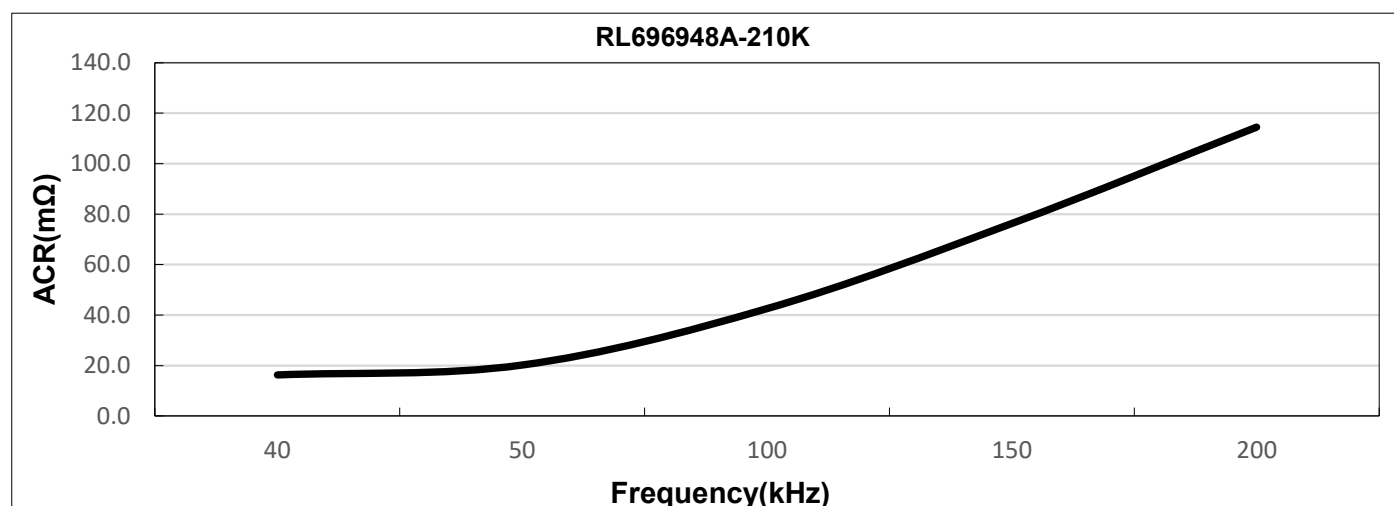
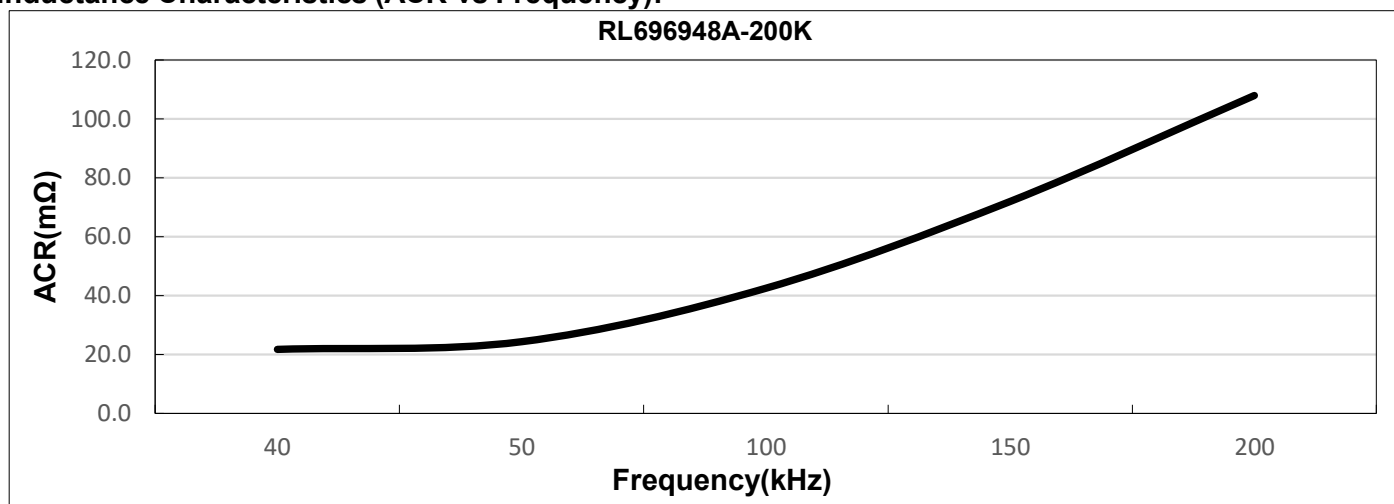
RL696948A-130K



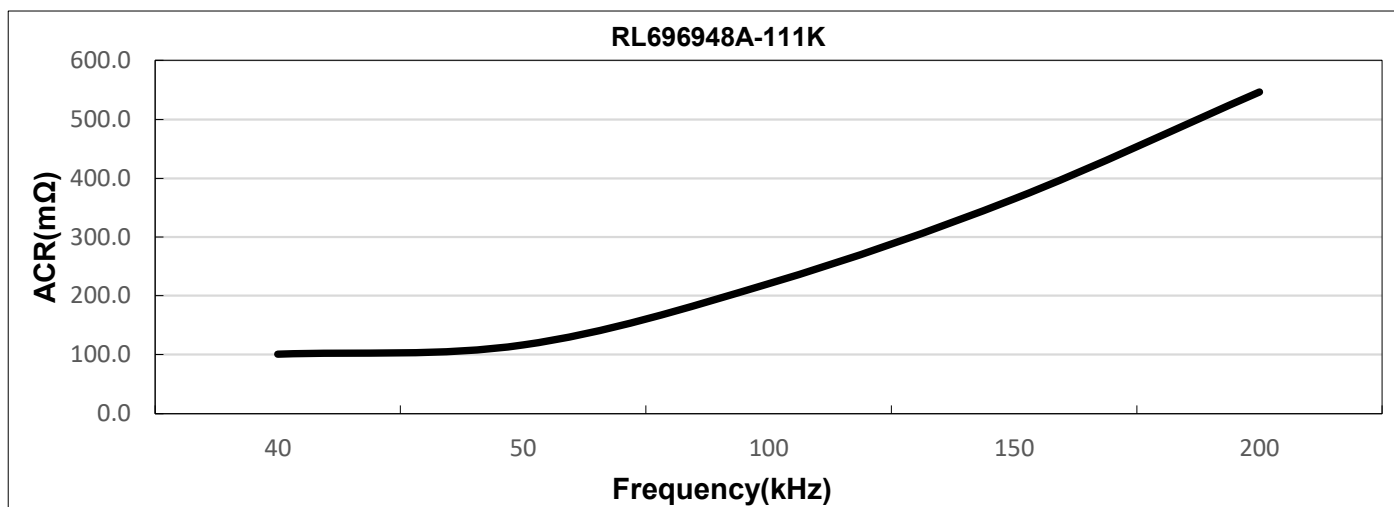
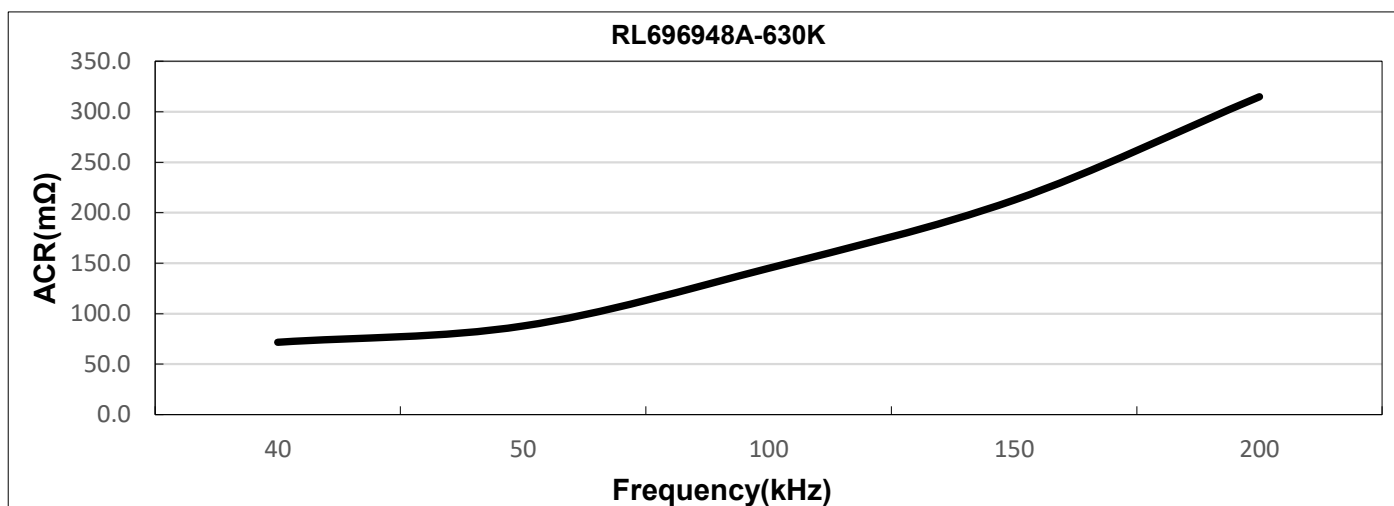
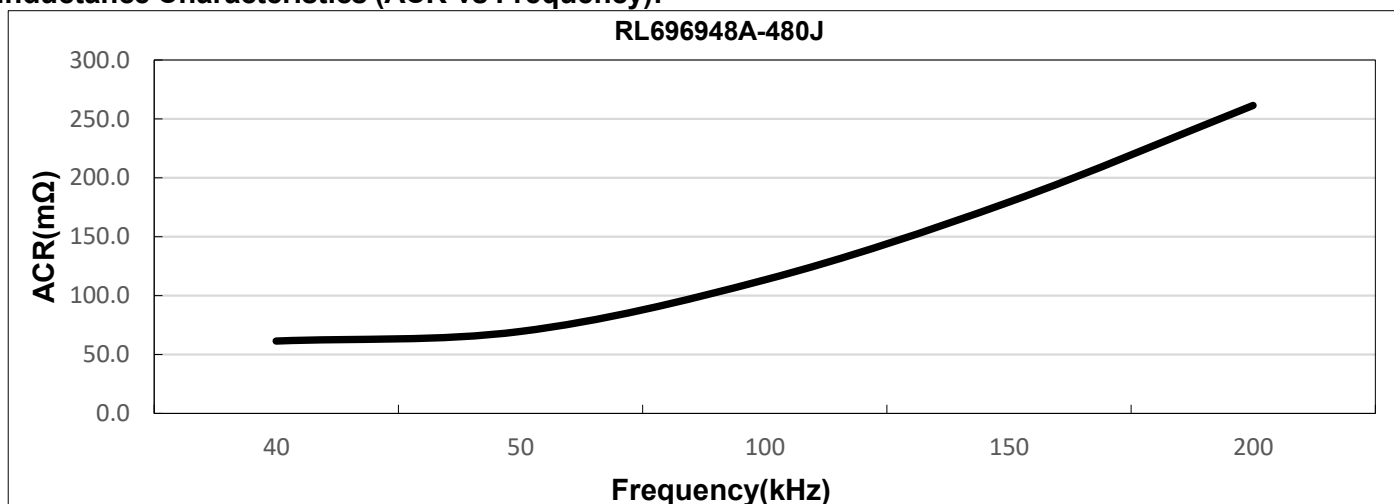
RL696948A-150J



## 5. Inductance Characteristics (ACR vs Frequency):

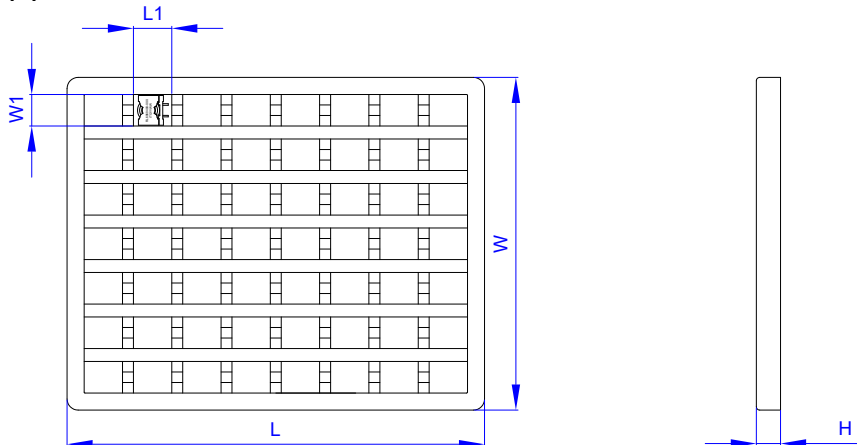


## 5. Inductance Characteristics (ACR vs Frequency):



## 1.RELIABILITY TEST:

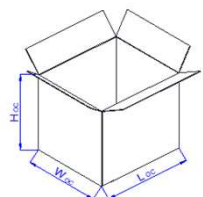
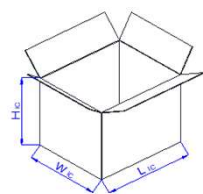
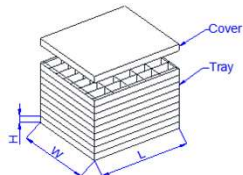
### (1).ENCAPSULATION MODE:



### (2).DIMENSION(mm):

| Dimension | L<br>(mm) | W<br>(mm) | H<br>(mm) | L1<br>(mm) | W1<br>(mm) | Quantity per<br>tray | Material |
|-----------|-----------|-----------|-----------|------------|------------|----------------------|----------|
| Tolerance | Typ.      | Typ.      | Typ.      | Typ.       | Typ.       | pcs.                 | /        |
| Value     | 245       | 195       | 14.2      | 22.5       | 18.5       | 56                   | PET      |

### (3).PACKAGE MODE:



### (4).PACKAGING LIST:

#### 1.Tray

| /         | L<br>(mm) | W<br>(mm) | H<br>(mm) | Quantity<br>per tray | No.<br>of tray | Material |
|-----------|-----------|-----------|-----------|----------------------|----------------|----------|
| Tolerance | Typ.      | Typ.      | Typ.      | pcs.                 | pcs.           | /        |
| Value     | 245       | 195       | 14.2      | 56                   | 13             | PET      |

#### 2.Inner Carton

| /         | L <sub>IC</sub><br>(mm) | W <sub>IC</sub><br>(mm) | H <sub>IC</sub><br>(mm) | Toyal<br>quantity | Material   |
|-----------|-------------------------|-------------------------|-------------------------|-------------------|------------|
| Tolerance | Typ.                    | Typ.                    | Typ.                    | pcs.              | /          |
| Value     | 260                     | 210                     | 217                     | 728               | Paper(A=B) |

#### 3.Inner Carton

| /         | L <sub>OC</sub><br>(mm) | W <sub>OC</sub><br>(mm) | H <sub>OC</sub><br>(mm) | Toyal<br>quantity | Material   |
|-----------|-------------------------|-------------------------|-------------------------|-------------------|------------|
| Tolerance | Typ.                    | Typ.                    | Typ.                    | pcs.              | /          |
| Value     | 275                     | 232                     | 255                     | 728               | Paper(A=A) |

(5).WEIGHT: N.W: 9.20g/pcs TOTAL 6.7Kg(APPROX),G.W:TOTAL 8.2Kg (APPROX).

(6).Storage conditions: -10°C~40°C, 70%RH (Max.).

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## 1.RELIABILITY TEST:

| TEST ITEMS                  | SPECIFICATIONS                                                                            | TEST METHOD AND REMARKS                                                                                                                                                                                                                                                                                      |
|-----------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solderability               | The electrodes shall be at least 95% covered with new solder coating                      | According to IEC68-2-20 Method T(Tb)<br>1. Soldering temperature:260±5°C<br>2. Solder: 99.3%Sn/0.7%Cu<br>3. Flux: Rosin<br>4. Immersion time:5±1Sec                                                                                                                                                          |
| Resistance to solder heat   | 1. Appearance : no damage<br>2. Inductance change:within±10%of initial value              | According to MIL-STD-202Method210<br>1. Preheat temperature150°C<br>2. Preheat time:1min<br>3. Solder temperature260±5°C<br>4. Dipping time:10±1Sec<br>5. Measured at room temperature after placing for 24hours                                                                                             |
| Humidity resistance         | 1. Appearance : no damage<br>2. All Electrical and mechanical parameters within tolerance | According to IEC68-2-3 Method Ca<br>1. Temp:40±2°C<br>2. Humidity:93 +2/-3%RH<br>3. Test time:500±2H<br>4. The component should be stabilized at normal condition for24 Hours before test                                                                                                                    |
| High temperature resistance | 1. Appearance : no damage<br>2. All Electrical and mechanical parameters within tolerance | According to IEC68-2-2 Method B(Bd)<br>1. Temperature:85±3°C<br>2. Test time:500+24H/-0H<br>3. The component should be stabilized at normal condition for 24hours before test                                                                                                                                |
| Low Temperature resistance  | 1. Appearance : no damage<br>2. All Electrical and mechanical parameters within tolerance | According to IEC68-2-1 Method A(Ad);<br>1. Temperature:-40±3°C<br>2. Test time:500+24H/-0H<br>3. The component should be stabilized at normal condition for 24hours before test                                                                                                                              |
| Temperature cycles          | 1. Appearance : no damage<br>2. All Electrical and mechanical parameters within tolerance | According to IEC68-2-14 Method N(Nb);<br>1. Low-temp:-40±3°C duration 30min<br>2. room -temp:25±2°C duration 3H<br>3. High-temp:85±3°C duration 30min<br>4. room-temp:25±2°C duration3H<br>5. Number of cycle:10 cycles<br>6. The component should be stabilized at normal condition for 24hours before test |

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## Wave Soldering Chart

| Stage          | Precaution                                                                                                                                                                                                                                                                                                               | Recommended temperature profile                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wave soldering | <p>Temperature profile can be referenced after confirming of adhesion , temperature of resistance to soldering heat , component size , soldering etc. sufficient .</p> <p><b>Note:</b><br/>Refer to the EN 61760-1:2020.<br/>You can adjust the temperature and time parameters to get a more suitable installation.</p> | <p>The graph plots Temperature (°C) on the y-axis (20 to 260) against Time (S) on the x-axis (0 to 240). It shows three curves: typical (black), minimum (green), and maximum (blue). The process includes a preheat area (0-70s), a first wave (70-85s) with a peak of 235-260°C, a second wave (85-100s) with a peak of 250-260°C, and a cooling area (100-240s). Key parameters include a maximum contact time of 10s per wave (5s per wave) and cooling rates of ca. 3.5K/s, ca. 2K/s, and ca. 5K/s. A temperature difference of ΔT &lt; 150K is noted between the first and second waves.</p> |

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