Automotive Chip Choke®
EMI Suppression for CAN-Bus Networks
2-Line Common Mode Chokes

- Meets AEC-Q200 Requirements
- Suppression of common mode noise without attenuating the signal
- Magnetically shielded versions for lower Rdc and higher current
- USB 3.0 and other high speed differential signal lines (IEEE1394, LVDS)

Electrical Specifications @ 25°C - Operating Temperature -40°C to +125°C

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Common Mode Impedance (10MHz)</th>
<th>Inductance (uH)</th>
<th>Standard Tolerance</th>
<th>Rdc (Ω Max)</th>
<th>IDC (A Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-1812ACC110STS</td>
<td>300</td>
<td>600</td>
<td>11</td>
<td>+50/-30%</td>
<td>0.5</td>
</tr>
<tr>
<td>PE-1812ACC220STS</td>
<td>600</td>
<td>1200</td>
<td>22</td>
<td>+50/-30%</td>
<td>0.6</td>
</tr>
<tr>
<td>PE-1812ACC510STS</td>
<td>1500</td>
<td>3500</td>
<td>51</td>
<td>+50/-30%</td>
<td>1.0</td>
</tr>
<tr>
<td>PE-1812ACC101STS</td>
<td>3000</td>
<td>7500</td>
<td>100</td>
<td>+50/-30%</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Weight .....................120 grams/reel
Tape & Reel .............150/reel

Schematic

**PE-1812ACXXXSTS**

**Mechanical**

- Weight: 120 grams/reel
- Tape & Reel: 150/reel

USA 858 674 8100        Germany 49 7032 7806 0       Singapore 65 6287 8998       Shanghai 86 21 62787060       China 86 755 33966678       Taiwan 886 3 4356768
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2-Line Common Mode Chokes

**PE-1812ACC110STS**

**Impedance vs Frequency**

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Common mode</th>
<th>Differential mode</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
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</tr>
<tr>
<td>100</td>
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</tr>
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**Temp vs DC Current**

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<thead>
<tr>
<th>IDC (A)</th>
<th>ΔT@25°C</th>
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<tbody>
<tr>
<td>0.0</td>
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</tr>
<tr>
<td>0.2</td>
<td>10.0</td>
</tr>
<tr>
<td>0.4</td>
<td>20.0</td>
</tr>
<tr>
<td>0.6</td>
<td>30.0</td>
</tr>
<tr>
<td>0.8</td>
<td>40.0</td>
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**PE-1812ACC220STS**

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2-Line Common Mode Chokes

**Impedance vs Frequency**

- **PE-1812ACC510STS**
  - Common mode
  - Differential mode

**Temp vs DC Current**

- **PE-1812ACC101STS**
  - Common mode
  - Differential mode

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## Reliability Test

<table>
<thead>
<tr>
<th>Item</th>
<th>Reference documents</th>
<th>Test Condition</th>
<th>Test Specification</th>
</tr>
</thead>
</table>
2. Time: 96 hours                                     | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 2. Temperature Cycling              | JESD22 Method JA-104        | 1. Temperature: 40°C—125°C  
2. Number of cycles: 96 cycle  
3. Dwell time: 30 minutes                          | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
2. Time: 96 hours  
3. Humidity: 85±5% RH                               | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
2. Time: 96 hours  
3. Apply rated current                                  | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 6. Physical Dimensions              | JESD22 Method JB-100        | Verify physical dimensions to the applicable product  
detail specification                                  | Per product specification standard           |
| 7. Resistance to solvents           | MIL-STD-202 Method 215      | Immerse into solvent for 3±0.5 minutes & brush 10  
3 times for their cycles.                             | 1. No body change in appearance  
2. No marking blurred.  
3. Inductance shall not change more than ±30%         |
| 8. Vibration Test                   | MIL-STD-202 Method 204      | 1. Frequency and Amplified: 10-20000-10 Hz, 1.5mm  
2. Direction: X, Y, Z  
3. Test duration: 2 hours for each direction, 6 hours in total | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
2. Time: (temp.≥217°C) 60-150 Second  
3. IR reflow times: 3 times                          | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 10. Rated Current                   | MIL-STD-202 Method 330      | Apply rated current for 5 seconds.                   | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 11. Temperature Rise                | MIL-PRF-27                  | Apply rated current for 10 minutes.                  | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 12. Over load                       | MIL-PRF-27                  | Apply twice as rated current for 5 minutes.         | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
2. Peak temperature: 240±5°C  
3. Time: (temp.≥217°C) 60-150 Second  
4. IR reflow times: 1 time                          | The terminal shall be at least 95% covered with fresh solder.  
1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
2. Room Temperature: 25°C                            | 1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
| 15. Withstanding Voltage Test       | MIL-STD-202 Method 201      | 1. DV: 500V  
2. Time: 1 minute                                     | 1. During the test no breakdown.  
2. The characteristic is normal after test.         |
| 16. Drop                            | JESD22-B111                 | Package & Drop down from Im. In 1 angle 1 ridge  
& 2 surfaces orientation                            | 1. No case deformation or change in appearance.  
2. Inductance shall not change more than ±30%         |
| 17. Terminal Strength Test          | JIS-C-6429                  | 1. Apply push force to samples mounted on PCB.  
2. Force of 1.8 kg for 60±1 seconds.                  | After test, inductors shall be on mechanical damage.  
1. No mechanical and electrical damage  
2. Inductance shall not change more than ±30%         |
III. Description:

a. Ferrite drum core construction
b. Magnetically shielded
c. Enamelled copper wire: H class
d. Product weight: 0.15g (ref.)
e. Moisture sensitivity Level 1
f. Products comply with RoHS’ requirements
g. Halogen Free available

IV. General Specification:

a. Storage temp: -40°C to +125°C
b. Operating temp: -40°C to +125°C
   (Temp. rise included)