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
- Supports CAN-Bus, A2B and other IVN high speed differential signal lines (LVDS)

### Electrical Specifications @ 25°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>Leakage Inductance (nH) Max</th>
<th>IDC (A) Max</th>
<th>Isolation Resistance (MΩ) Min</th>
<th>Rated Voltage (V) Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-1210ACxxxxSTS</td>
<td>Operating Temperature Range -55°C to +155°C</td>
<td>300 550</td>
<td>11</td>
<td>+50/-30%</td>
<td>0.4</td>
<td>50</td>
<td>0.3</td>
<td>10 80</td>
</tr>
<tr>
<td>PE-1210ACxxxxSTS</td>
<td></td>
<td>500 1100</td>
<td>22</td>
<td>+50/-30%</td>
<td>0.5</td>
<td>70</td>
<td>0.25</td>
<td>10 80</td>
</tr>
<tr>
<td>PE-1210ACxxxxSTS</td>
<td></td>
<td>1000 2600</td>
<td>51</td>
<td>+50/-30%</td>
<td>0.7</td>
<td>150</td>
<td>0.2</td>
<td>10 80</td>
</tr>
<tr>
<td>PE-1210ACxxxxSTS</td>
<td></td>
<td>2200 5000</td>
<td>100</td>
<td>+50/-30%</td>
<td>1.5</td>
<td>180</td>
<td>0.15</td>
<td>10 80</td>
</tr>
<tr>
<td>PE-1812ACxxxxSTS</td>
<td>Operating Temperature Range -40°C to +125°C</td>
<td>300 600</td>
<td>11</td>
<td>+50/-30%</td>
<td>0.5</td>
<td>45</td>
<td>0.36</td>
<td>10 50</td>
</tr>
<tr>
<td>PE-1812ACxxxxSTS</td>
<td></td>
<td>600 1200</td>
<td>22</td>
<td>+50/-30%</td>
<td>0.6</td>
<td>50</td>
<td>0.31</td>
<td>10 50</td>
</tr>
<tr>
<td>PE-1812ACxxxxSTS</td>
<td></td>
<td>1500 3500</td>
<td>51</td>
<td>+50/-30%</td>
<td>1</td>
<td>150</td>
<td>0.23</td>
<td>10 50</td>
</tr>
<tr>
<td>PE-1812ACxxxxSTS</td>
<td></td>
<td>3000 7500</td>
<td>100</td>
<td>+50/-30%</td>
<td>2</td>
<td>200</td>
<td>0.2</td>
<td>10 50</td>
</tr>
</tbody>
</table>

### Mechanical

**Component Dimensions (mm)**

<table>
<thead>
<tr>
<th>Series</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>e (mm)</th>
<th>f (mm)</th>
<th>X (mm)</th>
<th>T (mm)</th>
<th>W (mm)</th>
<th>S (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1210 ACC</td>
<td>32+-0.20</td>
<td>25+-0.20</td>
<td>25 MAX</td>
<td>32+-0.20</td>
<td>32+-0.20</td>
<td>32+-0.20</td>
<td>4.40</td>
<td>2.40</td>
<td>3.00</td>
<td>120</td>
</tr>
<tr>
<td>1812 ACC</td>
<td>45+-0.20</td>
<td>32+-0.20</td>
<td>30 MAX</td>
<td>32+-0.20</td>
<td>32+-0.20</td>
<td>065+-0.05</td>
<td>0.70+-0.05</td>
<td>5.90</td>
<td>3.20</td>
<td>3.40</td>
</tr>
</tbody>
</table>

Solder Pad (mm): 120, 160
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<table>
<thead>
<tr>
<th>PE-1210ACCT10STS</th>
<th>PE-1210ACCT20STS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impedance vs Frequency</strong></td>
<td><strong>Temp vs DC Current</strong></td>
</tr>
<tr>
<td>- Common mode</td>
<td>- <strong>△T@25°C</strong></td>
</tr>
<tr>
<td></td>
<td>- ** Triangle**</td>
</tr>
<tr>
<td>Frequency (MHz)</td>
<td>IDC (A)</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>10.0</td>
<td>0.1</td>
</tr>
<tr>
<td>20.0</td>
<td>0.2</td>
</tr>
<tr>
<td>30.0</td>
<td>0.3</td>
</tr>
<tr>
<td>40.0</td>
<td>0.4</td>
</tr>
<tr>
<td>50.0</td>
<td>0.5</td>
</tr>
<tr>
<td>60.0</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Impedance (Ω)

11 µH
22 µH

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Impedance vs Frequency

Temp vs DC Current

PE-1210ACC510STS

Impedance vs Frequency

Temp vs DC Current

PE-1210ACC110STS
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**Impedance vs Frequency**

- **PE-1812ACC110STS**

**Impedance vs Frequency**

- **PE-1812ACC220STS**

**Temp vs DC Current**

- **PE-1812ACC110STS**

- **PE-1812ACC220STS**

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**Impedance vs Frequency**

- **PE-1812ACC510STS**

![Graph showing impedance vs frequency for PE-1812ACC510STS with common and differential modes.](image)

**Temp vs DC Current**

- **PE-1812ACC101STS**

![Graph showing temperature vs DC current for PE-1812ACC101STS.](image)
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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>
<tbody>
<tr>
<td>2. Temperature Cycling</td>
<td>JESD22 Method JA-104</td>
<td>1. Temperature: -55/40°C~+125/155°C 2. Number of cycles: 1000 cycle 3. Dwell time: 30 minutes</td>
<td>1. No mechanical and electrical damage 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>6. Physical Dimensions</td>
<td>JESD22 Method JB-100</td>
<td>Verify physical dimensions to the applicable product detail specification</td>
<td>Per product specification standard</td>
</tr>
<tr>
<td>7. Resistance to solvents</td>
<td>MIL-STD-202 Method 215</td>
<td>Immerse into solvent for 3±0.5 minutes &amp; brush 10 times for their cycles.</td>
<td>1. No body change in appearance 2. No marking blurred. 3. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>8. Vibration Test</td>
<td>MIL-STD-202 Method 204</td>
<td>1. Frequency and Amplified: 10-2000-10 Hz, 1.5mm 2. Direction: X, Y, Z 3. Test duration: 2 hours for each direction, 6 hours in total</td>
<td>1. No mechanical and electrical damage 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>10. Rated Current</td>
<td>MIL-STD-202 Method 330</td>
<td>Apply rated current for 5 seconds.</td>
<td>1. No mechanical and electrical damage 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>11. Temperature Rise</td>
<td>MIL-PRF-27</td>
<td>Apply rated current for 10 minutes.</td>
<td>1. No mechanical and electrical damage 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>12. Over load</td>
<td>MIL-PRF-27</td>
<td>Apply twice as rated current for 5 minutes.</td>
<td>1. No mechanical and electrical damage 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>16. Drop</td>
<td>JESD22-B111</td>
<td>Package &amp; Drop down from 1m. In 1 angle 1 ridge &amp; 2 surfaces orientation</td>
<td>1. No case deformation or change in appearance. 2. Inductance shall not change more than ±30%</td>
</tr>
<tr>
<td>17. Terminal Strength Test</td>
<td>JIS-C-6429</td>
<td>1. Apply push force to samples mounted on PCB. 2. Force of 1.8 kg for 60±1 seconds.</td>
<td>After test, inductors shall be on mechanical damage.</td>
</tr>
</tbody>
</table>
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Tape and Reel Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>Parts per Reel</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>W</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>H</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1210 ACC</td>
<td>2000</td>
<td>178</td>
<td>60</td>
<td>13.5</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>2.5</td>
<td>0.26</td>
</tr>
<tr>
<td>1812 ACC</td>
<td>500</td>
<td>178</td>
<td>60</td>
<td>13</td>
<td>17</td>
<td>14</td>
<td>12</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>0.35</td>
</tr>
</tbody>
</table>

III. Description:
- Ferrite drum core construction
- Magnetically shielded
- Enamelled copper wire: H class
- Product weight: 0.15g (ref.)
- Moisture sensitivity Level 1
- Products comply with RoHS’ requirements
- Halogen Free available

IV. General specification:
- Storage temp: -40°C to +125°C
- Operating temp: -40°C to +125°C (Temp. rise included)
- Resistance to solder heat: 250°C 10 secs.

Recommended Solder Heat Resistance Profile

For More Information:
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