High Current Power Inductor  
-CSB0650 Series

Outline:
产品概要
- Magnetic shielded structure: excellent resistance to electro magnetic interference(EMI)  
磁屏蔽结构：抗电磁干扰(EMI)性能强
- Flat wire winding, achieve a low D.C. Resistance.  
扁平线绕组，实现极低的直流电阻。
- Low loss, high efficiency, wide application frequency and application scope.  
低损耗，高效率，应用频率宽，适用范围广。
- Lightweight design, save space, suitable for high density SMT.  
轻薄型设计，节省空间，适合高密度贴装。
- Operating temperature : -40°C ～ +125°C  
(INCLUDING coil's temperature rise)  
工作温度：-40°C ～ +125°C (包含线圈发热)

1 Appearance and dimensions (mm)
外形尺寸

2 Marking
印字标识

3 Reference land pattern (mm)
参考基板尺寸

4 Schematic
原理图
### 5 Electrical characteristic

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Inductance (μH)</th>
<th>D.C.R. (mΩ)</th>
<th>Saturation current (A)</th>
<th>Temperature rise current (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>±20%</td>
<td>Typical</td>
<td>Max</td>
<td>Typical</td>
</tr>
<tr>
<td>CSB0650-R24M</td>
<td>0.24</td>
<td>1.00</td>
<td>1.10</td>
<td>28.0</td>
</tr>
<tr>
<td>CSB0650-R47M</td>
<td>0.47</td>
<td>1.35</td>
<td>1.49</td>
<td>20.0</td>
</tr>
<tr>
<td>CSB0650-R76M</td>
<td>0.76</td>
<td>2.25</td>
<td>2.48</td>
<td>15.0</td>
</tr>
<tr>
<td>CSB0650-1R1M</td>
<td>1.10</td>
<td>3.15</td>
<td>3.47</td>
<td>13.0</td>
</tr>
<tr>
<td>CSB0650-1R5M</td>
<td>1.50</td>
<td>4.30</td>
<td>4.73</td>
<td>11.0</td>
</tr>
<tr>
<td>CSB0650-2R2M</td>
<td>2.20</td>
<td>5.85</td>
<td>6.44</td>
<td>9.00</td>
</tr>
<tr>
<td>CSB0650-3R3M</td>
<td>3.30</td>
<td>9.00</td>
<td>9.90</td>
<td>8.00</td>
</tr>
<tr>
<td>CSB0650-4R9M</td>
<td>4.90</td>
<td>14.5</td>
<td>16.0</td>
<td>6.50</td>
</tr>
<tr>
<td>CSB0650-6R5M</td>
<td>6.50</td>
<td>21.5</td>
<td>23.7</td>
<td>6.00</td>
</tr>
<tr>
<td>CSB0650-7R6M</td>
<td>7.60</td>
<td>28.2</td>
<td>31.0</td>
<td>4.80</td>
</tr>
<tr>
<td>CSB0650-8R5M</td>
<td>8.50</td>
<td>30.5</td>
<td>33.6</td>
<td>4.50</td>
</tr>
<tr>
<td>CSB0650-100M</td>
<td>10.0</td>
<td>33.0</td>
<td>36.3</td>
<td>4.00</td>
</tr>
</tbody>
</table>

- All data is tested based on 25°C ambient temperature.
- Inductance measurement condition at 100kHz, 0.1V.
- D.C.R. testing condition of 100kHz, 0.1V.
- Saturation current: the actual value of DC current when the inductance decreases 30% of its initial value.
- Temperature rise current: the actual value of DC current when the temperature rise is ΔT50°C(Ta=25°C).
- Special remind: Circuit design, component placement, PWB size and thickness, cooling system and etc. all will affect the product temperature. Please verify the product temperature in the final application.

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6 Saturation current VS temperature rise current curve
饱和电流 VS 温升电流曲线

- CSB0650-1R5ML(μH) ΔT(°C)
- CSB0650-2R2ML(μH) ΔT(°C)
- CSB0650-3R3ML(μH) ΔT(°C)
- CSB0650-4R9ML(μH) ΔT(°C)
- CSB0650-7R6M ΔT(°C)
- CSB0650-8R5ML ΔT(°C)
- CSB0650-100ML(μH) ΔT(°C)
- CSB0650-R24ML(μH) ΔT(°C)
- CSB0650-R47ML(μH) ΔT(°C)
- CSB0650-R76ML(μH) ΔT(°C)

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7 Packing specification

7.1 Carrier tape dimensions (mm)

<table>
<thead>
<tr>
<th>Component</th>
<th>End Feeding direction Unreeling direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>No component</td>
<td>160mm Min.</td>
</tr>
<tr>
<td>Component</td>
<td>100mm Min.</td>
</tr>
</tbody>
</table>

| Cover tape peel force shall be 0.1 to 1.3N. 盖带剥离力为 0.1～1.3N。 |
| Reference peel speed 300±10mm/min. 参考剥离速度 300±10mm/分钟。 |

※ Packing is referred to the international standard IEC 60286-3.
包装参照国际标准 IEC 60286-3。
7.4 Reel dimensions (mm)
卷盘尺寸

7.5 Carton dimensions and packing quantity
包装箱尺寸和包装数量

<table>
<thead>
<tr>
<th>Product Series</th>
<th>Quantity / Reel</th>
<th>Inner Carton Quantity</th>
<th>Out Carton Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSB0650</td>
<td>1000pcs</td>
<td>(1000×3) = 3000pcs</td>
<td>(3000×3) = 9000pcs</td>
</tr>
</tbody>
</table>

7.6 Label making
标签标识

The following items will be marked on the reel of product label and shipping label.
以下项目将明确标识于产品卷盘标签以及运输标签上。

**Production Label**
产品标签
- Part No.
- Electrical Information
- Quantity
- Packing No.

**Shipping Label**
运输标签
- Customer Name
- Customer Part No.
- Supplier Part No.
- Supplier Name
- Country of origin
8 Soldering specification
焊接规格

8.1 Reflow profile for SMT components
SMT 回流焊温度曲线

8.2 Classification of peak package body temperature (T_p)
封装体峰值温度（T_p）分类

<table>
<thead>
<tr>
<th>Package Thickness</th>
<th>Package Volume</th>
<th>Package Volume</th>
<th>Package Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;350 mm³</td>
<td>350~2000 mm³</td>
<td>&gt;2000 mm³</td>
</tr>
<tr>
<td>PB-Free Assembly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1.6mm</td>
<td>260°C</td>
<td>260°C</td>
<td>260°C</td>
</tr>
<tr>
<td>1.6~2.5mm</td>
<td>260°C</td>
<td>250°C</td>
<td>245°C</td>
</tr>
<tr>
<td>≥2.5mm</td>
<td>250°C</td>
<td>245°C</td>
<td>245°C</td>
</tr>
</tbody>
</table>

※ Reflow is referred to standard IPC/JEDEC J-STD-020D.
回流焊参照标准 IPC/JEDEC J-STD-020D。