SPT5504Q SLIC Power Module

**Features**
- Powers SLICs and RSLICs
- Overcurrent protection
- Surface mount design
- Non-isolated output
- Ultraquiet outputs
- Superb transient response
- 10 REN capability
- Compact design
- Simplifies assembly & test
- Fast time-to-market
- Eliminates ALEL caps
- U.S. patent 6,195,273
- RoHS compliant version available

**Input Specifications**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.75 VDC Min.</td>
<td>160 mA Typ.</td>
</tr>
<tr>
<td>5 VDC Typ.</td>
<td>180 mA Max.</td>
</tr>
<tr>
<td>5.25 VDC Max.</td>
<td>1,550 mA Typ.</td>
</tr>
<tr>
<td>IBAT1 = 100 mA</td>
<td>1,600 mA Max.</td>
</tr>
<tr>
<td>IBAT2 = 100 mA</td>
<td>800 mA Typ.</td>
</tr>
<tr>
<td></td>
<td>840 mA Max.</td>
</tr>
</tbody>
</table>

**Remote Enable**

- Disabled: 0.1 mA Typ. 20 mA Max.
- Low = Enable: 0.4 VDC Max. (open = enable)
- High = Disable: 3 VDC Min. (source ≤ 1 mA)

**Output Specifications**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBAT1</td>
<td>0 to 100 mA</td>
</tr>
<tr>
<td>VBAT2 (Two Outputs)</td>
<td>0 to 100 mA (50 mA each output)</td>
</tr>
<tr>
<td>Ripple Voltage</td>
<td>0.5 mV/mA Typ. 1 mV/mA Max.</td>
</tr>
<tr>
<td>VBAT1 (IBAT1 = 50 mA)</td>
<td>0.5 mV/mA Typ. 3.0 mV Max.</td>
</tr>
<tr>
<td>VBAT2 (IBAT2 = 50 mA)</td>
<td>0 mV Typ. 0.2 mV Max.</td>
</tr>
</tbody>
</table>

**Fault Protection**

F1 may be used in distributed systems to isolate single-board failures. F1 should be ≥ 2 A, i2t ≥ 0.2 A sec, R ≥ 25 mΩ.

**General Information**

The SPT5504Q is a member of Bourns’ ringing SLIC power module family. The output voltages provide low-noise operation for very quiet off-hook conditions and on-hook transmissions. The SPT5504Q is capable of 7 W total output power, with up to 100 mA available from each output rail. The part is available in a surface mount configuration. The compact design provides a small footprint, minimizing real estate usage on the main board. The SPT5504Q is a robust design that meets the electrical and environmental specifications for powering RSLICs. By integrating the entire power solution, the OEM customer saves time and money in engineering, debugging, purchasing hard-to-source components, test and inventory.

**Output Decoupling**

Although not specifically required for proper/specified operation of the SPT5504Q, external decoupling capacitors may be employed to reduce noise and interaction with adjacent circuits. Output decoupling can be achieved by placing 0.1 µf ceramic caps at the load. Note that larger cap values can substantially increase the startup currents drawn from the 5 V source.

**Fault Protection**

F1 may be used in distributed systems to isolate single-board failures. F1 should be ≥ 2 A, i2t ≥ 0.2 A sec, R ≥ 25 mΩ.

**Input Decoupling**

Local input decoupling is recommended to reduce the apparent source impedance to the SPT5504Q.
- C2: 0.1 µF, X7R ceramic
- C1: 100 µF, 10 V, low ESR tantalum (AVX TPS series or Kemet T495 series).

**Product Dimensions**

![Diagram of SPT5504Q dimensions]

**General Specifications**

- MBTF: 1,600 Khrs Typ. Bellcore TR332 (40 °C)
- Operating Temperature: 0 to +70 °C
- Storage Temperature: -55 to +125 °C

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.
**SPT5504Q SLIC Power Module**

**Product Schematic**

**Ordering Information**

Standard Part ....................SPT5504Q

Fully RoHS
Compliant Version ............SPT5504Q-LF

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**PIN DESCRIPTIONS:**

1. 5 Vin: 4.75-5.25 VDC input, <2 A
2. VBAT1: -60 V, 100 mA output
3. VBAT2: -24 V, 2 x 50 mA outputs
4. GND: Common input and output returns
5. Inhibit: Logic level remote inhibit (>3.0 V, source 1 mA). Enabled when open or <0.4 V.
6. NC: No connection

RECOMMEND SOLID GROUND PLANE ON COMPONENT SIDE OF MOTHER BOARD UNDER SPT5504Q.