

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

SPT5504Q SLIC Power Module

Input Specifications

Voltage	4.75 VDC Min. 5 VDC Typ. 5.25 VDC Max.
Current	
No Load	160 mA Typ. 180 mA Max.
IBAT1 = 100 mA	1,550 mA Typ. 1,600 mA Max.
IBAT2 = 100 mA	800 mA Typ. 840 mA Max.
Remote Enable	
Disabled	10 mA Typ. 20 mA Max.
Low = Enable	0.4 VDC Max. (open = enable)
High = Disable	3 VDC Min. (source ≤ 1 mA)

Output Specifications

Power	7 W Max.
Voltage	
VBAT1	-63 V Min. -60 V Typ. -58 V Max.
VBAT2 (Two Outputs)	-25 V Min. -24 V Typ. -23 V Max.
Ripple Voltage	
VBAT1 (IBAT1 = 50 mA)	15 mV Typ. 30 mV Max.
VBAT2 (IBAT2 = 50 mA)	5 mV Typ. 20 mV Max.
Current	
IBAT1	0 to 100 mA 10 REN (2 s on, 4 s off) 120 mA Min. (trip < 150 ms)
IBAT2	0 to 100 mA (50 mA each output)
VBAT2 Load Regulation	
(IBAT2 = 0 to 50 mA)	0.5 mV/mA Typ. 1 mV/mA Max.
VBAT2 Setpoint Accuracy	2 % Typ. 4 % Max.
Cross Regulation (IBAT1 = 0 to 100 mA)	
.....	0.1 mV/mA Typ. 0.2 mV/mA Max.
Temperature Coefficient (T -25 °C)	
VBAT1	-20 mV/°C Typ. -40 mV/°C Max.
VBAT2	1.2 mV/°C Typ. 4 mV/°C Max.

General Specifications

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

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 start-up currents drawn from the 5 V source.

Fault Protection

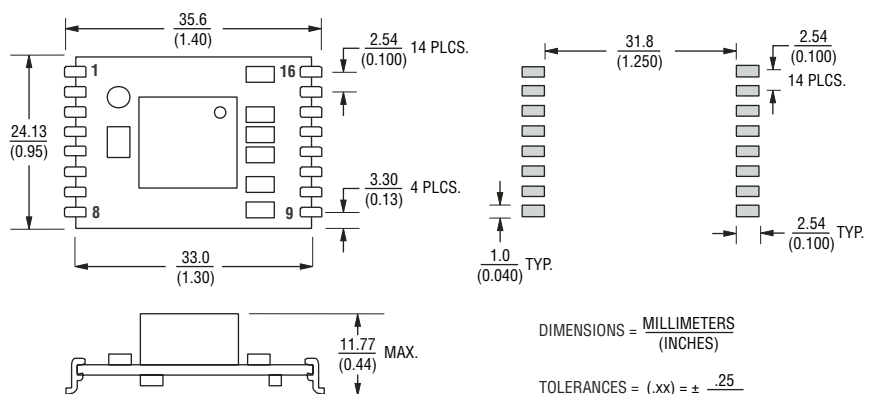
- F1 may be used in distributed systems to isolate single-board failures.
- F1 should be ≥ 2 A, $i^2t \geq 0.2 \text{ A}^2 \text{ sec}$, $R \geq 25 \text{ m}\Omega$.

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



DIMENSIONS = $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

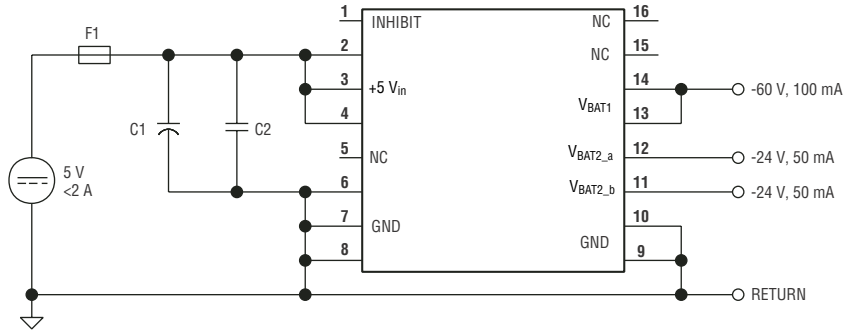
TOLERANCES = (.xx) = ± $\frac{.25}{(.01)}$

(.xxx) = ± $\frac{.13}{(.005)}$

SPT5504Q SLIC Power Module

BOURNS®

Product Schematic



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

PIN DESCRIPTIONS:

5 V _{in}	4.75-5.25 VDC input, <2 A
V _{BAT1}	-60 V, 100 mA output
V _{BAT2}	-24 V, 2 x 50 mA outputs
GND	Common input and output returns
Inhibit	Logic level remote inhibit (>3.0 V, source 1 mA). Enabled when open or <0.4 V.
NC	No connection



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