

BOURNS®

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

SPT5204Q SLIC Power Module

Input Specifications

Voltage	10 VDC Min. 12 VDC Nom. 15 VDC Max.
Current (at 12 Vin)	
No Load.....	.52 mA Nom. 60 mA Max.
IBAT1 = 100 mA860 mA Nom. 900 mA Max.
IBAT2 = 100 mA320 mA Nom. 350 mA Max.

Output Specifications

Power	7 W
VBAT1	
Voltage	-76 V Min. -72 V Nom. -69 V Max.
Current	0 to 100 mA 10 REN (2s on, 4s off) 120 mA Min. (trip < 150 ms)
Ripple Voltage40 mV Nom. (IBAT1 = 50 mA)
Temperature Coefficient (T -25 °C)	
.....	10 mV/°C Nom. 30 mV/°C Max.
VBAT2	
Voltage (Two Outputs).....	-25 V Min. -24 V Nom. -23 V Max.
Current	0 to 100 mA (50 mA each output)
Ripple Voltage20 mV (IBAT2 = 50 mA)
Temperature Coefficient (T -25 °C)	
.....	1.2 mV/°C Nom. 4 mV/°C Max.
VBAT2 Load Regulation (IBAT2 = 0 to 50 mA)	
.....	0.5 mV/mA Nom. 1 mV/mA Max.
VBAT2 Setpoint Accuracy	
.....	2 % Nom. 4 % Max.
Cross Regulation (IBAT1 = 0 to 100 mA)	
.....	0.1 mV/mA Nom. 0.2 mV/mA Max.

General Specifications

MBTF	1,570 kWhrs Nom. Bellcore TR332 (40 °C)
Operating Temperature	
0 LFM.....	-40 to +70 °C
100 LFM.....	-40 to +85 °C
Storage Temperature.....	-55 to +125 °C

General Information

The SPT5204Q 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 SPT5204Q 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 SPT5204Q 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 SPT5204Q, 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.

Fault Protection

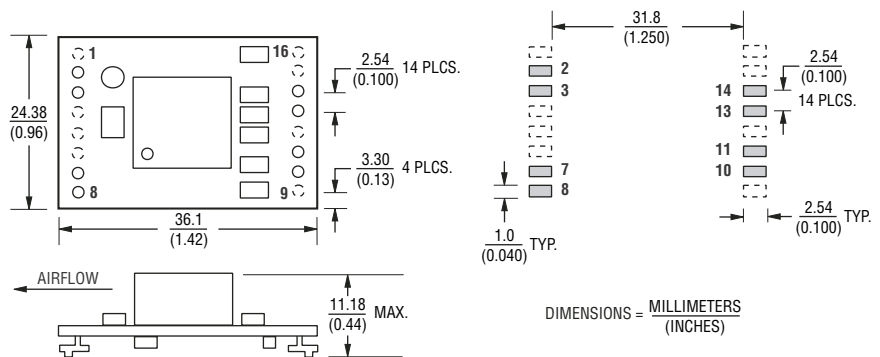
- F1 may be used in distributed systems to isolate single-board failures.
- F1 should be ≥ 2 A, $i^2t \geq 0.2$ A² sec, $R \geq 25$ mΩ.

Input Decoupling

Local input decoupling is recommended to reduce the apparent source impedance to the SPT5204Q.

- C2 0.1 µF, X7R ceramic
- C1 3 x 33 µF, 25 V, low ESR tantalum (AVX TPS series or Kemet T495 series).

Product Dimensions



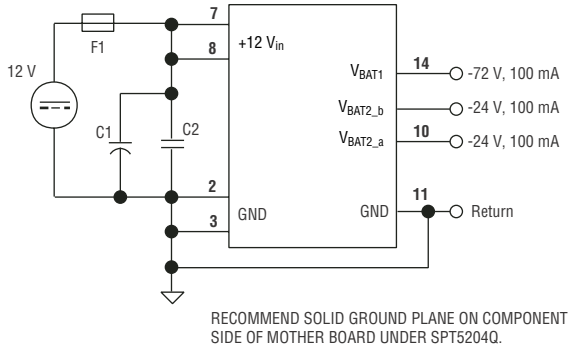
DIMENSIONS = MILLIMETERS
(INCHES)

TOLERANCES = (.xx) = ± .25
(.01)
(.xxx) = ± .13
(.005)

SPT5204Q SLIC Power Module



Product Schematic

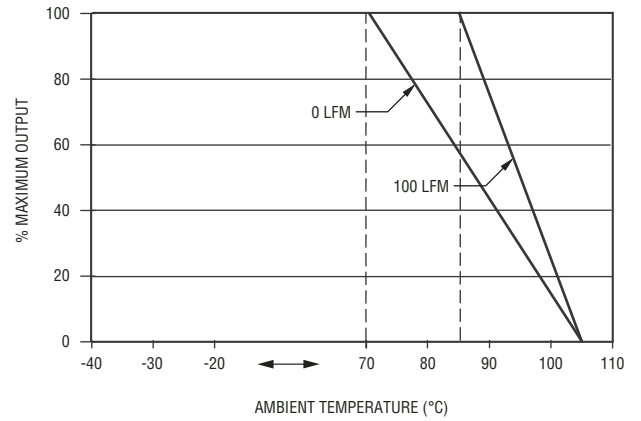


PIN DESCRIPTIONS:

12 Vin	10-15 VDC input, <2 A
Vbat	1-72 V, 100 mA
Vbat	2-24 V, 2 x 50 mA outputs
GND	Common input and output returns

Temperature Derating

$V_{in} = 12\text{ V}$; $V_{B1} = 15\text{ mA}$; $V_{B2} = 75\text{ mA}$ (3 off-hook, 1 ringing, 5 REN)
 or $V_{in} = 12\text{ V}$; $V_{B1} = 3\text{ mA}$; $V_{B2} = 100\text{ mA}$ (4 off-hook)



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