SPT5504CL SLIC Power Module

**Features**
- Powers ringing SLICs
- Overcurrent protection
- Surface mount design
- Non-isolated outputs
- Ultraquiet outputs
- Superior transient response
- 10 REN capability
- Compact design
- Simplifies assembly & test
- Fast time-to-market
- Remote inhibit
- Eliminates ALEL caps
- Patent 6,195,273

**Input Specifications**
- **Voltage**
  - 4.75 VDC Min.
  - 5 VDC Nom.
  - 5.25 VDC Max.
- **Current**
  - No Load: 120 mA Nom.
  - 140 mA Max.
  - IBAT1 = 100 mA: 1660 mA Nom.
  - 1700 mA Max.
  - IBAT2 = 100 mA: 750 mA Nom.
  - 780 mA Max.
  - Disabled: 20 mA Max.
- **Remote Enable**
  - Low = Enable: 0.4 VDC Max. (open = enable)
  - High = Disable: 4.0 VDC Min. (source ≤ 1 mA)

**Output Specifications**
- **Power**: 7 W
- **VBAT1**
  - Voltage: -65 V Min.
  - -63 V Nom.
  - -61 V Max.
  - Current: 100 mA
  - Ripple Voltage: 15 mV Nom.
  - Temperature Coefficient (T -25 °C)
    - -20 mV/°C Nom.
    - -40 mV/°C Max.
  - (IBAT1 = 50 mA)
- **VBAT2**
  - Voltage (Two 50 mA Outputs)
    - -25 V Min.
    - -24 V Nom.
    - -23 V Max.
  - Current
    - 0 to 100 mA
  - Ripple Voltage
    - 5 mA Nom.
    - 20 mA Max.
  - (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 Information**
- The SPT5504CL is a member of Bourns Switch Power SLIC Power module family. The output voltages provide low-noise operation for very quiet off-hook conditions and on-hook transmissions. The SPT5504CL is capable of 7 W total output power, with up to 100 mA available from each output rail. The SPT5504CL's easy to use surface mount design and compact footprint minimize the board space dedicated to power (less than 1.4 in²). Its robust design ensures reliable power and eliminates the need for Aluminum Electrolytic capacitors. 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/specifed operation of the SPT5504CL, 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 large cap values can substantially increase the start-up currents drawn from the 5 V source.

**Input Decoupling**
- Local input decoupling is recommended to reduce the apparent source impedance to the SPT5504CL.
  - C2: 0.1 µF, X7R ceramic
  - C1: 100 µF, 10 V, low ESR tantalum (AVX TPS series or Kemet T495 series).

**Fault Protection**
- F1 may be used in distributed systems to isolate single-board failures.
- F1 should be ≥ 2.5 A, i2t ≥ 0.2 A² sec, R ≤ 25 mΩ.

**Product Dimensions**

Customers should verify actual device performance in their specific applications.
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Product Schematic

PIN DESCRIPTIONS:
- **5 Vin**: 4.75-5.25 VDC input, <2.5 A
- **VBat1**: -63 V, 100 mA output
- **VBat2**: -24 V, 2 x 50 mA outputs
- **GND**: Common input and output returns
- **Inhibit**: Logic level remote inhibit (<4.0 V, source 1 mA). Enabled when open or <0.4 V.
- **NC**: No connection

RECOMMEND SOLID GROUND PLANE ON COMPONENT SIDE OF MOTHER BOARD UNDER SPT5504CL.

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