

Features

- SIP (Single In-line Package)
- Output voltage programmable from 0.75 V_{dc} to 3.6 V_{dc} via external resistor
- 5 A output current
- Up to 94 % efficiency
- Small size, low profile
- Cost-efficient
- Low output ripple and noise
- High reliability
- Remote on/off
- Output overcurrent protection (non-latching)

SX5A-3-5SA SIP Non-Isolated Power Module

Description

Bourns® SX5A-3-5SA is a non-isolated DC-DC converter offering designers a cost and space-efficient solution with standard features such as remote on/off, precisely regulated programmable output voltage and overcurrent protection.

Specifications

| Parameter | Min. | Nom. | Max. | Units | Notes |
|--------------------------------------------------------------------------------------------------|------|-----------|------------------------|------------------------------------|--------------------------------------------------------------------------|
| INPUT | | | | | |
| Voltage | 3.0 | | 5.5 | V _{dc} | V _{in} min. = V _o + 0.5 V for V _o > 2.5 V |
| Current | | | 5.0 | A _{dc} | |
| Remote ON/OFF: Low or Open = On High = Off | 2.4 | | 0.4 V _{in} | V _{dc} V _{dc} | 10 μA max. 1 mA max. |
| OUTPUT | | | | | |
| Voltage Adjustment Range | 0.75 | | 3.63 | V _{dc} | |
| Current | 0.0 | | 5.0 | A _{dc} | |
| Voltage Setpoint Accuracy | -2.0 | | 2.0 | % V _{o,set} | |
| Line Regulation | | 0.3 | | % V _{o,set} | |
| Load Regulation | | 0.4 | | % V _{o,set} | |
| Temperature Regulation | | 0.4 | | % V _{o,set} | |
| Ripple (pk-pk) (20 MHz Bandwidth) | | 40 | 50 | mVpk-pk | 1 μF ceramic//10 μF tantalum capacitors |
| Ripple (rms) | | 10 | 15 | mVrms | 1 μF ceramic//10 μF tantalum capacitors |
| Dynamic Load Response: 50 % to 100 % Load or 100 % to 50 % Load; (Δi/Δt = 2.5 A/μs; 25 °C) | | 130 25 | | mV μs | 1 μF ceramic//10 μF tantalum capacitors |
| 50 % to 100 % Load or 100 % to 50 % Load; (Δi/Δt = 2.5 A/μs; 25 °C) | | 50 50 | | mV μs | 2 x 150 μF polymer Capacitors |
| GENERAL | | | | | |
| MTBF | | 10,000 | | kHrs | |
| Operating Temperature | -40 | | +85 | °C | |
| Storage Temperature | -55 | | +125 | °C | |
| Switching Frequency | | 300 | | kHz | |
| Efficiency (V _{in} = 5 V _{dc} ; T _A = 25 °C, Full Load) | | 79.0 | | % | V _{o,set} = 0.75 V _{dc} |
| | | 85.0 | | % | V _{o,set} = 1.2 V _{dc} |
| | | 87.0 | | % | V _{o,set} = 1.5 V _{dc} |
| | | 88.5 | | % | V _{o,set} = 1.8 V _{dc} |
| | | 92.0 | | % | V _{o,set} = 2.5 V _{dc} |
| | | 94.0 | | % | V _{o,set} = 3.3 V _{dc} |

Applications

- Intermediate Bus architecture
- Distributed power applications
- Workstations and servers
- Telecom equipment
- Enterprise networks including LANs/WANs
- Latest generation ICs (DSP, FPGA, ASIC) and microprocessor powered applications

Output Voltage Programming

Via external trim resistor between Trim and GND:

$$R_{\text{trim}} = \left[\frac{21.07}{V_o - 0.7525} - 5.11 \right] \text{ k}\Omega$$

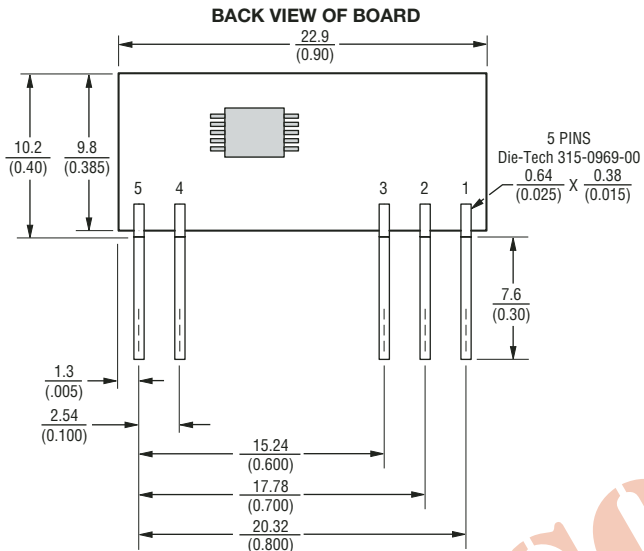
Via application of external voltage between Trim and GND:

$$V_{\text{trim}} = (0.7 - 0.1698 \times \{V_o - 0.7525\})$$

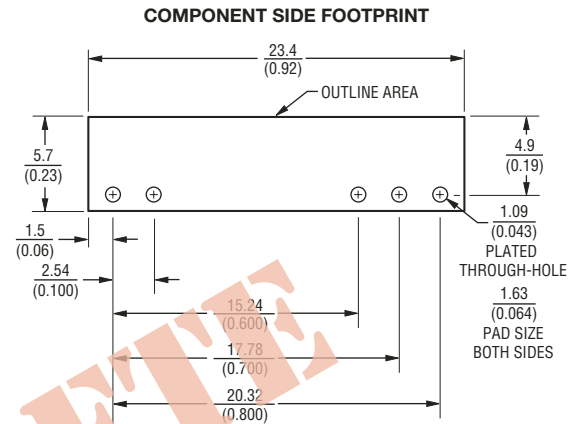
SX5A-3-5SA SIP Non-Isolated Power Module

BOURNS®

Product Dimensions



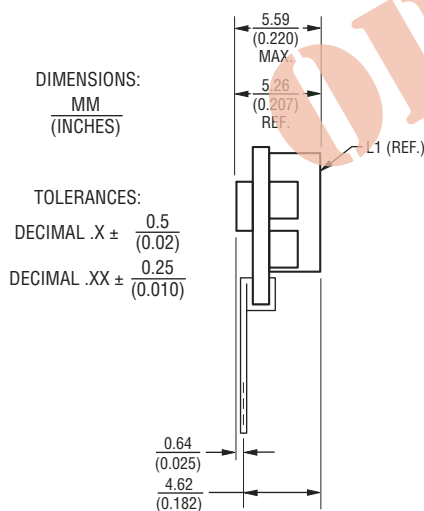
Recommended Hole Pattern



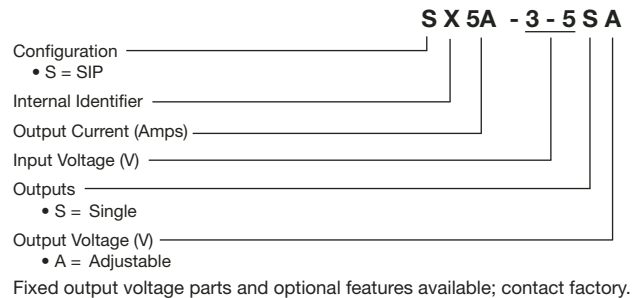
Pinout Detail

| PIN | FUNCTION |
|-----|----------|
| 1 | VOUT |
| 2 | TRIM |
| 3 | GND |
| 4 | VIN |
| 5 | ON/OFF |

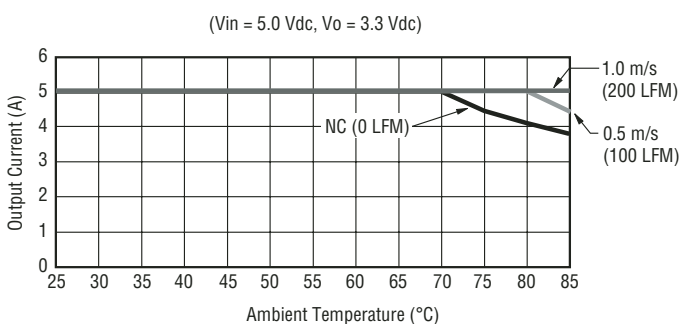
SIDE VIEW



How to Order



Derating Output Current vs. Local Ambient Temp & Airflow



Reliable Electronic Solutions

Asia-Pacific: Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116
Europe: Tel: +41-41 768 5555 • Fax: +41-41 768 5510
The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700
www.bourns.com

REV. B 08/06

Specifications are subject to change without notice.
 Customers should verify device performance in their specific applications.