General Information

The SLN10A adds a new meaning to low cost DC-DC converters. This non-isolated SIP uses a 5 V input to provide 10 Amps of output current at voltages ranging from 0.8 V to 2.5 V. The SLN10A output is adjustable by the user to provide any voltage within its range. Its extra low 0.8 V output will power even the latest in ASICs, microprocessors, and DSPs.

The SLN10A has an industry standard pin-out, is 2 inches long, and only 0.5 inches high. Its total footprint is a space saving 0.75 in². Features include Enable/Disable, output voltage trim, remote sense, short circuit protection with auto-restart, fast transient response, and high temperature operation. The SLN10A is one of the most cost-effective DC-DC converters available.

Input Specifications

Voltage .....................................4.5 VDC Min. 5 VDC Nom. 5.5 VDC Max.
Current .......................................10 A Nom.
Remote Enable
High = Disable 2.4 VDC Min.
Low = Enable 0.4 VDC max. (open = enable)
Enable/Disable Current ..........250 µA Nom.

Output Specifications

Current ............................................0 to 10 A
Current Limit .........................11 to 18 A
Voltage Setpoint Accuracy ..................±1 %Vnom (nominal) ±2 %Vnom (max.)
optional ..................±0.5 %Vnom (nominal) ±1 %Vnom (max.)
Line Regulation .....................±0.1 %Vnom
Load Regulation ...................±0.2 %Vnom
Ripple .............................................20 mV pp
Dynamic Response
50 to 100 % load .................40 mV Nom. 20 µs Nom.
100 to 50 % load .................40 mV Nom. 20 µs Nom.
Temperature Regulation ................±0.02 %Vout/°C Max.

General Specifications

MBTF .................................2,000 kHrs Nom.
(80 % load, 25 °C)
Operating Temperature.........-40 to +100 °C
Storage Temperature..............-55 to +125 °C
Switching Frequency..............300 kHz Nom.

Features

- Low output ripple
- 10 amp output current
- 92 % efficiency
- Low 0.5” profile
- Power good
- Remote sense
- Adjustable Vout
- Short-circuit protection with auto-restart
- Fast transient response
- High-temperature operation
- Remote enable
- Output precharge capability

Standard Options

<table>
<thead>
<tr>
<th>Nominal Input (V)</th>
<th>Input Voltage (V)</th>
<th>Output Voltage (V)</th>
<th>Output Current (A)</th>
<th>Ripple Max. (mV pp)</th>
<th>Efficiency Typ. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLN10A-5SA</td>
<td>5</td>
<td>4.5 to 5.5</td>
<td>0.8 to 3.5</td>
<td>10</td>
<td>40</td>
</tr>
</tbody>
</table>

Product Dimensions

<table>
<thead>
<tr>
<th>PIN DESCRIPTIONS</th>
<th>DIMENSIONS = MILLIMETERS</th>
<th>TOLERANCES = (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Vout</td>
<td>1.27 (0.050)</td>
<td>0.005</td>
</tr>
<tr>
<td>2 – Vout</td>
<td>1.6 (0.063)</td>
<td>0.005</td>
</tr>
<tr>
<td>3 – Remote Sense</td>
<td>5.08 (0.200)</td>
<td>0.015</td>
</tr>
<tr>
<td>4 – Vout</td>
<td>2.54 (0.100)</td>
<td>0.015</td>
</tr>
<tr>
<td>5 – Gnd</td>
<td>35.6 (1.400)</td>
<td>0.015</td>
</tr>
<tr>
<td>6 – Gnd</td>
<td>3.54 (0.140)</td>
<td>0.015</td>
</tr>
<tr>
<td>7 – Vin</td>
<td>50.8 (2.000)</td>
<td>0.015</td>
</tr>
<tr>
<td>8 – Vin</td>
<td>67.4 (2.660)</td>
<td>0.015</td>
</tr>
<tr>
<td>9 – Trim</td>
<td>7.6 (0.3)</td>
<td>0.01</td>
</tr>
<tr>
<td>10 – Enable</td>
<td>12.4 (0.49)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Product Schematic

1. Use low ESR capacitors for V_in and V_out bypassing.
2. Part is enabled when ENABLE (10) is left floating or grounded.
3. Apply 2.4 to 5 VDC to ENABLE (10) to disable (shut down) the part.
4. Use the table above to determine an Rtrim resistor for the desired voltage.
5. To get an intermediate voltage between 0.800 V and 3.500 V, use the equation at right.

\[
\text{V}_{\text{out}} = \frac{\text{R}_{\text{trim}}}{\left(\frac{\text{V}_{\text{in}}}{\text{V}_{\text{FB}}}ight) - 1} - \text{R}_{\text{f}}
\]

WHERE: 
\( R_{\text{f}} = 23.7 \text{K} \Omega \)
\( R_{\text{s}} = 80.6 \text{K} \Omega \)
\( \text{V}_{\text{FB}} = 0.800 \text{V} \)

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.
SLN10A-5SA Series – Power Module

Efficiency Curve

Temperature Derating

How to Order

Configuration
Internal Identifier
Current/Power (Amps)
Input Voltage (Volts)
Outputs
S = Single
A = Adjustable

SLN 10A - 5 SA

Reliable Electronic Solutions

Asia-Pacific: TEL +886-(0)2 25624117 • FAX +886-(0)2 25624116
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. 12/05
COPYRIGHT © 2005, BOURNS, INC. LITHO IN U.S.A., 2/05

OBSOLETE