ST10A-12SA Series Power Module

Features
- Low cost
- 10 amp output current
- 92% efficiency
- Low 0.55” profile
- Remote sense
- Adjustable Vout
- Short-circuit protection with auto-restart
- Fast transient response
- High temperature operation
- Remote enable
- Output precharge capability

General Information
This non-isolated SIP uses a 12 V input to provide 10 Amps of output current at voltages ranging from 0.8 V to 3.5 V. The ST10A 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 ST10A has an industry standard pin-out, is 2 inches long, and only 0.55 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 ST10A is one of the most cost-effective DC-DC converters available.

Input Specifications
- Voltage: 10 VDC Min. 12 VDC Nom. 14 VDC Max.
- Current: 4 A Nom.
- Remote Enable: Low = Enable 0.4 VDC Max. High = Disable 2.4 VDC Min. (Open = Enable)
- E/D Current: 250 µA Nom.

Output Specifications
- Current: 0 to 10 A
- Current Limit: 11 to 18 A
- Voltage Setpoint Accuracy: ±1% Vnom ±2% Vnom Max.
- Line Regulation: ±0.5% Vnom ±1% Vnom Max.
- Ripple: 20 mV pp Nom. (Vout = 1.5 V)
- Dynamic Response:
  - 50 to 100% Load: 60 mV Nom. 50 µs Nom.
  - 100 to 50% Load: 60 mV Nom. 50 µs Nom.
- Temperature Regulation: ±0.02% Vout/°C Max.

General Specifications
- MTBF: 200,000 khrs Nom. (25 °C, 80% Load)
- Operating Temperature: -40 to +100 °C
- Storage Temperature: -55 to +125 °C
- Switching Frequency: 300 kHz Nom.

Electrical Specifications

<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>ST10A-12SA</td>
<td>12</td>
<td>10 to 14</td>
<td>0.8 to 3.5</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Product Dimensions

Pin Descriptions:
1 - Vout
2 - Vout
3 - Sense
4 - Vout
5 - Gnd
6 - Gnd
7 - Vin
8 - Vin
9 - Trim
10 - Enable

Dimensions - MILLIMETERS (INCHES)
TOLERANCES = (xx) ± 0.25
(XXX) ± 0.13

NOTES:
1. Use low ESR capacitors for V IN.
2. Part is enabled when ENABLE (10) is left floating or pulled low.
3. Part is disabled when ENABLE (10) is pulled high.
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.

VOUT = VTRIM (KΩ)
3.3 = 0.768
2.5 = 0.523
1.9 = 1.3
1.8 = 1.5
1.5 = 2.55
1.2 = 5.11
0.8 = open

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

<table>
<thead>
<tr>
<th>Configuration</th>
<th>S = SIP</th>
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<tr>
<td>Internal Identifier</td>
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<tr>
<td>Current/Power (Amps)</td>
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<tr>
<td>Input Voltage (V)</td>
<td></td>
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<tr>
<td>Outputs</td>
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<tr>
<td>• S = Single</td>
<td></td>
</tr>
<tr>
<td>• A = Adjustable</td>
<td></td>
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<tr>
<td>Output Voltage (V)</td>
<td></td>
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