

## 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

## ST10A-12SA Series Power Module

### 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 in<sup>2</sup>. 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  $\mu$ A Nom.

### Output Specifications

Current .....0 to 10 A  
 Current Limit .....11 to 18 A  
 Voltage Setpoint Accuracy  
 ..... $\pm 1$  %Vnom  
 ..... $\pm 2$  %Vnom Max.  
 Optional ..... $\pm 0.5$  %Vnom  
 ..... $\pm 1$  %Vnom Max.  
 Line Regulation ..... $\pm 0.1$  %Vnom.  
 Load Regulation ..... $\pm 0.5$  %Vnom.  
 Ripple .....20 mV pp Nom. (Vout = 1.5 V)  
 Dynamic Response  
 50 to 100 % Load .....60 mV Nom.  
 .....50  $\mu$ s Nom.  
 100 to 50 % Load .....60 mV Nom.  
 .....50  $\mu$ s Nom.  
 Temperature Regulation  
 ..... $\pm 0.02$  %Vout/ $^{\circ}$ C Max.

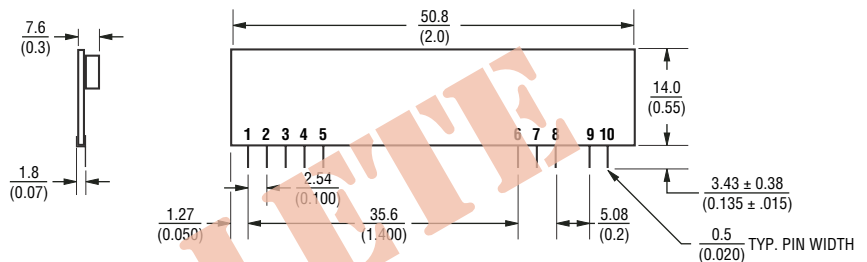
### General Specifications

MBTF ...2,000 kHrs Nom. (25  $^{\circ}$ C, 80 % Load)  
 Operating Temperature .....-40 to +100  $^{\circ}$ C  
 Storage Temperature .....-55 to +125  $^{\circ}$ C  
 Switching Frequency .....300 kHz Nom.

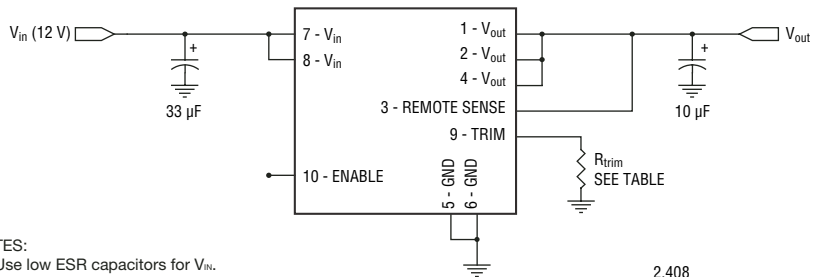
### Electrical Specifications

	Nominal Input (V)	Input Voltage (V)	Output Voltage (V)	Output Current (A)	Ripple Max. (mV pp)	Efficiency Typ. (%)
ST10A-12SA	12	10 to 14	0.8 to 3.5	10	20	90

### Product Dimensions



### Product Schematic



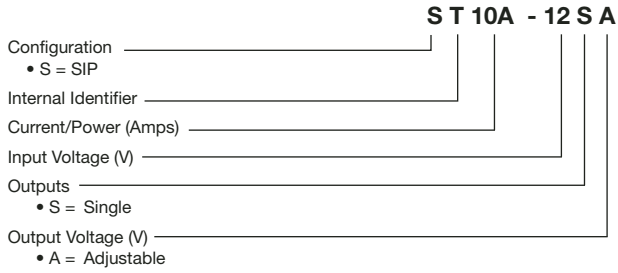
#### NOTES:

1. Use low ESR capacitors for Vin.
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.

$$R_{trim} = \frac{2.408}{(V_{out} - 0.8)} - 0.887 (K)$$

V <sub>OUT</sub>	R <sub>TRIM</sub> (k $\Omega$ )
3.3	.0768
2.5	.523
1.9	1.3
1.8	1.5
1.5	2.55
1.2	5.11
0.8	open

**How to Order**



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