

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 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 μ A Nom.

Output Specifications

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

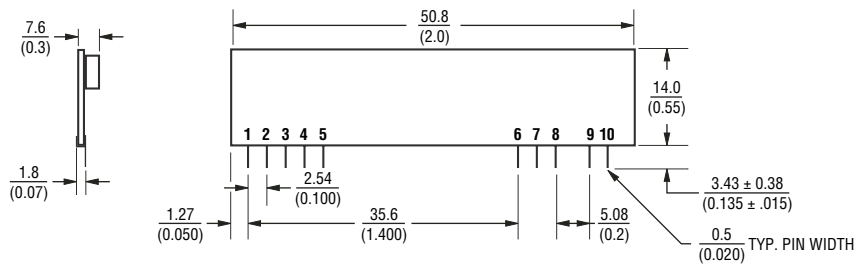
General Specifications

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



PIN DESCRIPTIONS:

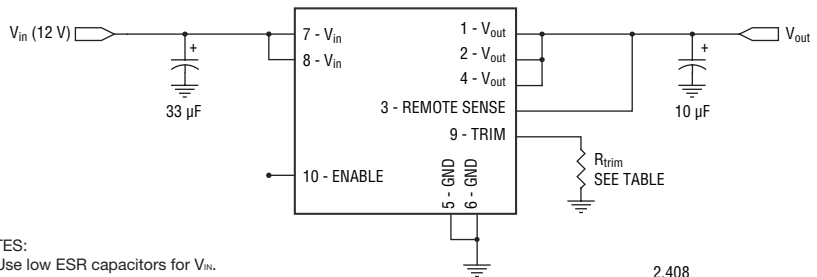
1 - Vout 5 - Gnd 9 - Trim
 2 - Vout 6 - Gnd 10 - Enable
 3 - Sense 7 - Vin
 4 - Vout 8 - Vin

DIMENSIONS = MILLIMETERS
 (INCHES)

TOLERANCES = (.xx) = $\pm .25$
 (.01)

(.xxx) = $\pm .13$
 (.005)

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.

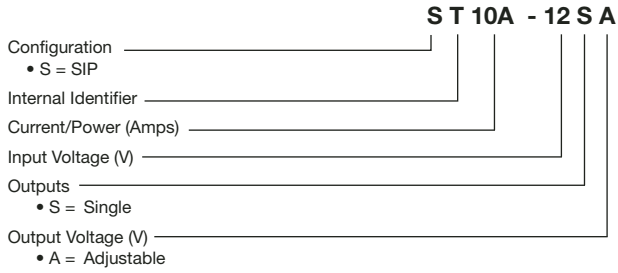
$$R_{trim} = \frac{2.408}{(V_{out} - 0.8)} - 0.887 (K)$$

VOUT	RTRIM (k Ω)
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

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

How to Order



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