

SMT15E-12M Series

12 Vin single output

Total Power: 49.5W
Input Voltage: 10-14 Vdc
of Outputs: Single

Special Features

- 15 A current rating
- Input voltage range: 10-14 V
- Output voltage range: 0.8-3.63 V
- Ultra high efficiency: 92% @ 12 Vin and 3.3 Vout
- Built-in I2C™ bus interface provides open-architecture control approach
- I2C programmable features include precision setting of both the output voltage and voltage margining facilities
- An Evaluation Kit is available to demonstrate the functionality of the SMT15E-12M, including the I2C™ interface capability
- 2 year warranty

Safety

UL/cUL CAN/CSA 22.2 No. TBD
UL 60950 File No. TBD

TÜV Product Service (EN60950)
Certificate No. TBD

CB report and certificate to TBD

The SMT15E-12M significantly extends current non-isolated dc-dc converter power management features by integrating a programmable active DC output control function. During product development, the converter's voltage set-point can be programmed – via the built-in I2C™ interface – to a very high degree of accuracy, and the active control function will maintain this setting very precisely during normal operation, by automatically compensating for different load conditions. The same function is used when performing voltage margining during production test, to ensure accurate results and prevent devices being over-stressed. Each converter is supplied pre-programmed to standard default values stored in non-volatile memory and only requires additional programming by customers if they wish to change an operational function.



Specifications

Rev.11.15.07
SMT15E_12M
2 of 5

All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

OUTPUT SPECIFICATIONS

Voltage adjustability (See Notes 2 and 3)	With external trim resistor	0.8-3.63 V
Setpoint accuracy		±0.75% typ.
Line regulation		±1.0% typ.
Load regulation		±1.0% typ.
Total error band		±2.0% typ.
Minimum load		0 A
Overshoot/undershoot	(See Note 2)	None
Ripple and noise	5 Hz to 20 MHz	40 mV pk-pk 25 mV rms
Temperature co-efficient		±0.01%/°C
Transient response		100 mV max. deviation 100 µs recovery to within ±1.0%
Remote sense		10% Vo compensation

INPUT SPECIFICATIONS

Input voltage range		10-14 Vdc
Input current	No load	100 mA
Input current (max.)		5.5 A max. @ Io max. and Vout = 3.3 V
Input reflected ripple		100 mA rms
Remote ON/OFF		(See Note 1)
Start-up time		5 ms

EMC CHARACTERISTICS

Electrostatic discharge	EN61000-4-2, IEC801-2
Conducted immunity	EN61000-4-6
Radiated immunity	EN61000-4-3

GENERAL SPECIFICATIONS

Efficiency	(12 Vin @ 3.3 Vout)	92% typ.
Insulation voltage		Non-isolated
Switching frequency	Fixed	200 kHz typ.
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	(LxWxH)	33.02 x 13.46 x 8.21 mm 1.3 x 0.53 x 0.323 inches
Weight		6.3 g (0.22 oz)
Coplanarity		100 µm
MTBF	Telcordia SR-332	TBD hours min.

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient, temperature	-40 °C to +85 °C
	Non-operating	-40 °C to +125 °C

PROTECTION

Short-circuit	Continuous
Thermal	Automatic recovery

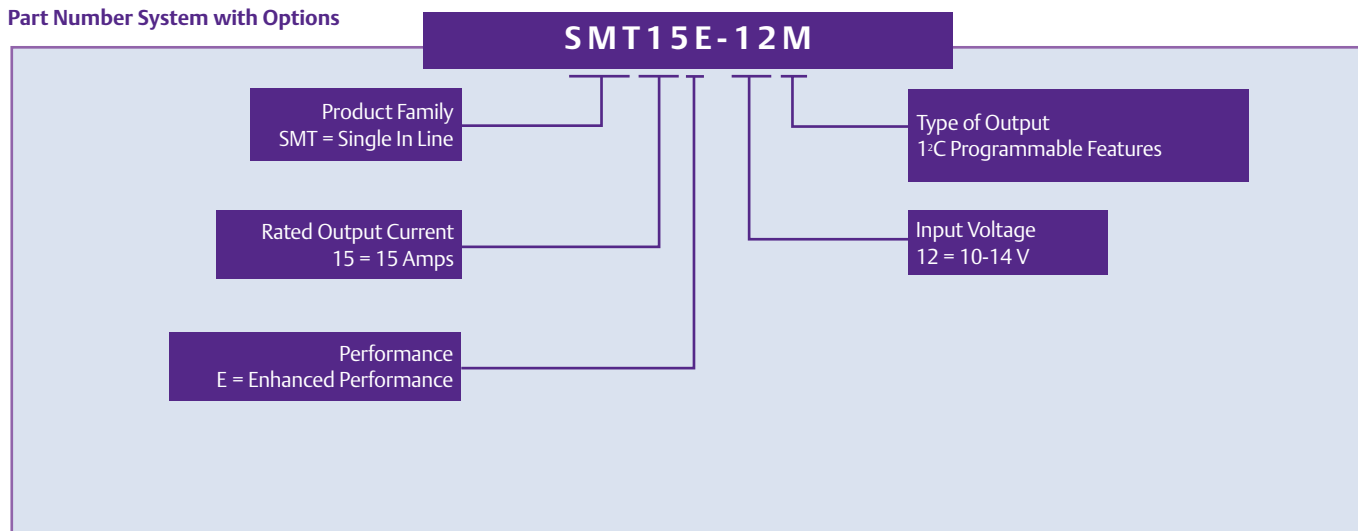
Specifications

Rev.11.15.07
SMT15E_12M
3 of 5

All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE ^(2,3)	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGULATION		MODEL NUMBER ^(1,4)
						LINE	LOAD	
49.5 W	10-14 V	0.8-3.63 V	0 A	15 A	92%	±1.0%	±1.0%	SMT15E-12M001

Part Number System with Options



Notes

- 1 The SMT15E-12M features a 'Positive Logic' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF pin is referenced to ground.

The following conditions apply for the SMT15E-12M:

Configuration

Remote pin open circuit
Remote pin pulled low [Von/off <0.8 V]
Remote pin pulled high [Von/off >1.6 V]

Converter Operation

Unit is ON

Unit is OFF
Unit is ON

A 'Negative Logic' Remote ON/OFF version is also possible with this converter. To order please place the Suffix '-R' at the end of the model number, e.g. SMT15E-12M001-R.

- 2 To avoid over-shoot on start-up the appropriate trim resistor must be placed on the trim pin. See Figure 3 on page 3.
- 3 Output voltage setpoint is set to 1.8 V. To change the nominal setpoint value the unit will have to be reprogrammed and in addition an appropriate trim resistor placed on the trim pin.
- 4 An evaluation kit is available to demonstrate the functionality of the SMT15E-12M, including the I²C interface capability. To apply for an evaluation kit you need to fill out an on-line request form.

Specifications

All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

Drawing to be included
in the next revision

Figure 1 - Derating Curve (See Note A)
V_{in} = 12 V; V_{out} = 3.3 V

Drawing to be included
in the next revision

Figure 2 - Efficiency Curve
V_{in} = 12 V

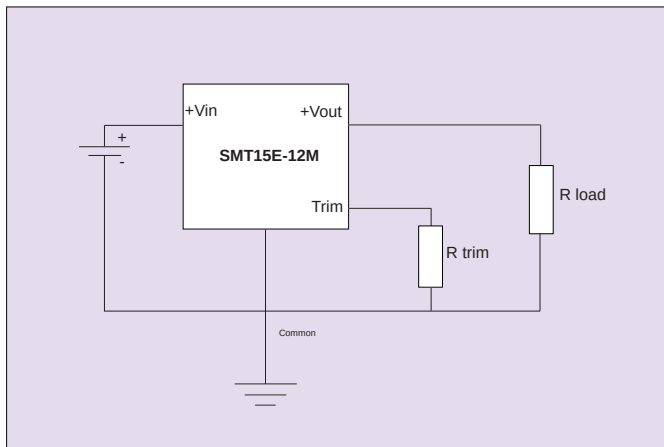


Figure 3 - Output Trim-up Resistor to Ground

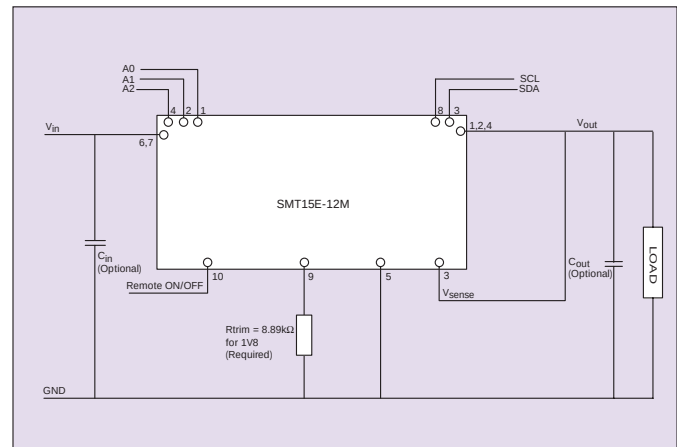
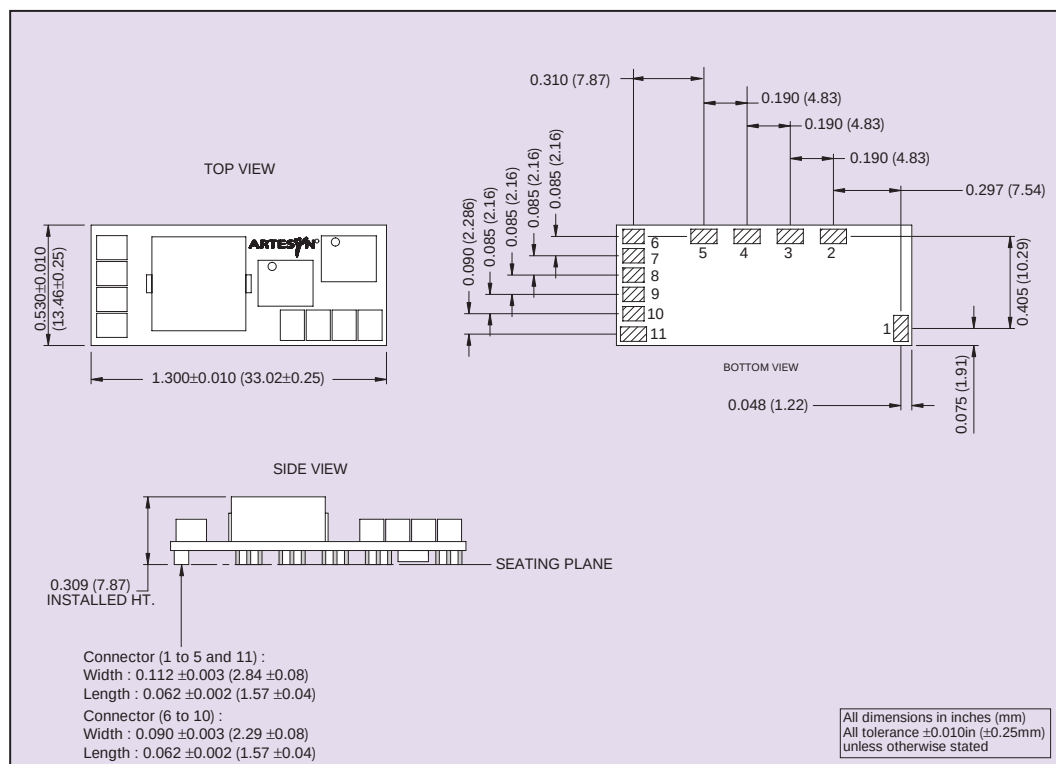


Figure 4 - Standard Application

Notes

- A The derating curve represents the conditions at which internal components are within the Artesyn de-rating guidelines.



PIN CONNECTIONS	
PIN NUMBER	FUNCTION
1	Remote ON/OFF
2	Remote Sense+
3	Trim
4	+Vout
5	Ground
6	SDA
7	SCL
8	A2
9	A1
10	A0
11	+Vin

Americas

5810 Van Allen Way
Carlsbad, CA 92008
USA
Telephone: +1 760 930 4600
Facsimile: +1 760 930 0698

Europe (UK)

Waterfront Business Park
Merry Hill, Dudley
West Midlands, DY5 1LX
United Kingdom
Telephone: +44 (0) 1384 842 211
Facsimile: +44 (0) 1384 843 355

Asia (HK)

16th - 17th Floors, Lu Plaza
2 Wing Yip Street, Kwun Tong
Kowloon, Hong Kong
Telephone: +852 2176 3333
Facsimile: +852 2176 3888

For global contact, visit:

www.powerconversion.com

technicalsupport@powerconversion.com

While every precaution has been taken to ensure accuracy and completeness in this literature, Emerson Network Power assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

Emerson Network Power.

The global leader in enabling business-critical continuity.

- AC Power
- Connectivity
- DC Power
- Embedded Power**
- Inbound Power
- Integrated Cabinet Solutions
- Outside Plant
- Precision Cooling
- Site Monitoring and Services

EmersonNetworkPower.com

Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co.
©2007 Emerson Electric Co.