

# ARTESYN SMT10E SERIES

13.2 Watts Non-Isolated DC-DC Converters



Advanced Energy's Artesyn SMT10E\_12V series non-isolated DC-DC converter accepts a 10 to 14 Vdc input and produces an output that can be trimmed over a very wide 0.8 to 3.63 Vdc range to satisfy a broad diversity of semiconductor power needs. Rated at 33 watts, the converter has a typical efficiency of 94% and can deliver up to 10 amps output current. Standard features include remote On/Off and comprehensive protection against short-circuit and overtemperature conditions. Packaged as a low profile surface-mount module, it has a footprint of 0.53 x 1.3 inch (13.5 x 33 mm) and an installed height of only 0.32 inch (8.2mm).

## SPECIAL FEATURES

- 10 A current rating
- Input voltage range: 10 - 14 Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra-high efficiency:  
94% @ 12 Vin and 3.3 Vout
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Designed in reliability:  
MTBF of >6,920,000 hours per  
Telcordia SR-322
- Ideal solution where board space is  
at a premium or tighter card pitch is  
required
- Industry standard surface-mount  
footprint
- Available RoHS compliant
- Two year warranty

## SAFETY

- UL/cUL CAN/CSA 22.2 No. 60950-1-03/UL60950-1, File No. E174104
- TÜV Product Service (EN60950)  
Certificate No. B03 10 38572 037
- CB report and certificate to IEC60950,  
Certificate No. DE3-51686M1

## DATA SHEET

### Total Power:

13.2 Watts

### Input Voltage:

10 - 14 Vdc

### # of Outputs:

Single



**ELECTRICAL SPECIFICATIONS**

Input		
Input voltage range		10 - 14 Vdc
Input current	No load (max.)	100 mA
Input current (max.)		3 A max. @ Io max. and Vout = 3.63 V
Input reflected ripple		100 mA rms
Remote ON/OFF		See Note 1
Start-up time		20 ms
Output		
Voltage adjustability		0.8 - 3.63 Vdc
Setpoint accuracy		±0.4%
Line regulation		±0.2%
Load regulation		±1.0%
Total error band		±3.0% typical
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise 5 to 20 MHz		60 mV pk=pk 25 mV rms max.
Temperature co-efficient		±0.01%/ °C
Transient response		100 mV max. deviation 100 µs recovery to within ±1.0%
Remote sense		10% Vo compensation

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

**GENERAL SPECIFICATIONS**

Efficiency		94%
Insulation voltage		Non-isolated
Switching frequency	Fixed	320 kHz typical
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	L x W x H	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)
MTBF	Telcordia SR-332	6,920,000 hours

### ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-40 °C to +85 °C
See Note 2	Non-operating temperature	-40 °C to +125 °C
Protection		
Short-circuit	Continuous	
Thermal	Automatic recovery	

### EMC CHARACTERISTICS

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

### ORDERING INFORMATION

Model Number <sup>(3,4)</sup>	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SMT10E-12W3V3-J	33 W	10 - 14 Vdc	0.8 - 3.63 Vdc	0 A	10 A	94%	±0.2%	±1.0%

### PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current	Performance	Input Voltage	Type of Output	Output Voltage	Packaging Options
<b>SMT</b>	<b>10</b>	<b>E</b>	<b>12</b>	<b>W</b>	<b>3V3</b>	<b>J</b>
SMT = Surface Mount	10 = 10 Amp	E = Enhanced Performance	12 = 10 - 14 Vdc	W = Wide	0.08 - 3.63 Vdc	No '-T' suffix = Pb-free RoHS 6/6 compliant parts in trays -TJ = Pb-free RoHS 6/6 compliant parts in tape and reel

OUTPUT VOLTAGE ADJUSTMENT

The ultra-wide output voltage trim range offers major advantages to users who select the SMT10E-12W3V3J. It is no longer necessary to purchase a variety of modules in order to cover different output voltages. The output voltage can be trimmed in a range of 0.8 Vdc to 3.63 Vdc. When the SMT10E-12W3V3J converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Notes:

1. The SMT10E 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.

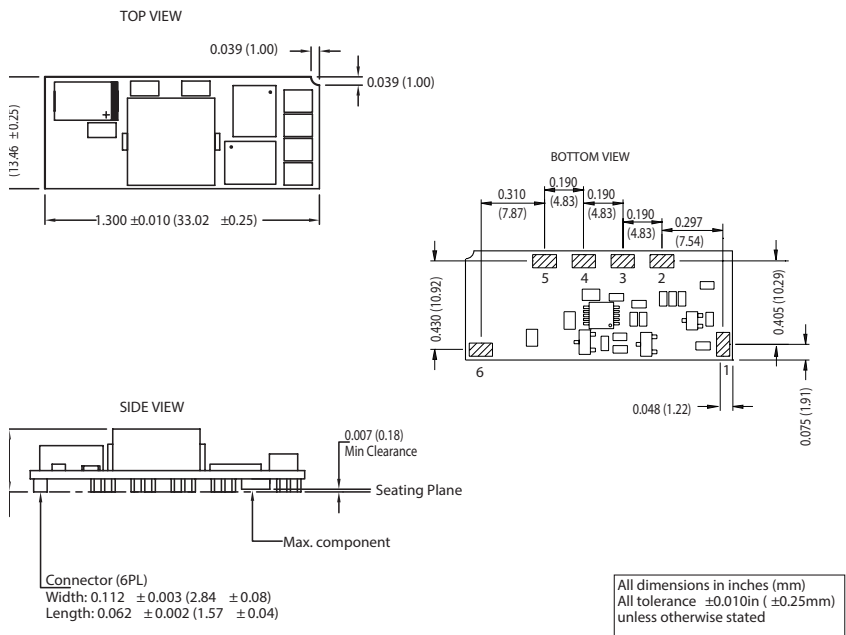
Configuration	Converter Operation
Remote pin open circuit	Unit is ON
Remote pin pulled low [Von/off < 0.8 V]	Unit is OFF
Remote pin pulled high [Von/off > 1.2 V]	Unit is ON

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. SMT10E-12W3V3-RJ.

2. Full derating curves available in both the Longform (Technical Reference) and Application Note.

3. NOTICE: Some models do not support all options. Please contact your local Artesyn Embedded Power representative or use the on-line model number search tool at <http://www.artesyn.com> to find a suitable alternative.

MECHANICAL DRAWINGS



Pin Assignments	
Pin	Function
1	Remote ON/OFF
2	Remote Sense +*
3	Trim*
4	+Vout
5	Ground
6	+Vin

\*The sense function and the trim function are customer specified options. Please consult factory for details.



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## ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE

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