

## SMT05E Series

### 12 V Non-Isolated DC-DC Converters

#### Data Sheet

**Total Power:** 16.5 W  
**Input Voltage:** 10 - 14 Vdc  
**# of Outputs:** Single

#### SPECIAL FEATURES

- 5 A current rating
- Input voltage range: 10 - 14 Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra-high efficiency: 91% @ 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. E174104  
UL60950 File No. E174104
- TÜV Product Service (EN60950) Certificate No. B 03 10 38572
- CB report and certificate to DE3-51686M1



The SMT05E series are non-isolated dc-dc converters packaged in a surface-mount footprint giving designers a cost-effective solution for conversion from a 12 V source. The SMT05E has a wide input range (10 - 14 Vdc) and offers a wide 0.8 - 3.63 Vdc output voltage range with a 5 A load, which allows for maximum design flexibility and a pathway for future upgrades. The SMT05E is designed for applications that include distributed power, workstations, optical network and wireless applications. Implemented using state of the art surface-mount technology and automated manufacturing techniques, the SMT05E offers compact size and efficiencies of up to 91%.

#### Electrical Specifications

Input		
Input voltage range		10 - 14 Vdc
Input current	No load (max.)	100 mA
Input current (max.)		1.85 A max. @ Io max. and Vout = 3.3 V
Input reflected ripple		30 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%
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise 5 Hz to 20 MHz		60 mV pk=pk 25 mV rms
Temperature co-efficient		±0.01%/ °C
Transient response		50 mV max. deviation 50 µs recovery within ±1%

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

### General Specifications

Efficiency		91%
Insulation voltage		Non-isolated
Switching frequency	Fixed	330 kHz typical
Approvals and standards		EN60950 UL/cUL60950
Material flammability		UL94V-0
Dimensions	L x W x H	20.32 x 11.43 x 5.97 mm 0.800 x 0.450 x 0.235 inches
Weight		3g (0.11 oz.)
Coplanarity		100 µm
MTBF	Telcordia SR-332	6,920,000 hours

### Environmental Specifications

Thermal performance	Operating ambient temperature	-40 °C to +100 °C
See Note 2	Non-operating temperature	-40 °C to +125 °C
<b>Protection</b>		
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
SMT05E-12W3V3J	16.5 W	10 - 14 Vdc	0.8 - 3.63 Vdc	0 A	5 A	91%	±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> SMT = Surface Mount	<b>05</b> 05 = 5 Amp	<b>E</b> E = Enhanced Performance	<b>12</b> 12 = 10 - 14 VDC	<b>W</b> S = Single W = Wide	<b>3V3</b> 0.8 - 3.63 Vdc	<b>TJ</b> No '-T' suffix = Pb-free RoHS 6/6 compliant (Trays) -TJ suffix = Pb-free RoHS 6/6 compliant (Tape and Reel)

### Output Voltage Adjustment

The ultra-wide output voltage trim range offers major advantages to users who select the SMT05E-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 to 3.63 Vdc.

When the SMT05E-12W3V3J converter leaves the factory, the output has been adjusted to the default voltage of 0.8 V.

#### Notes:

- The SMT05E features a 'Negative 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 SMT05E:

#### 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

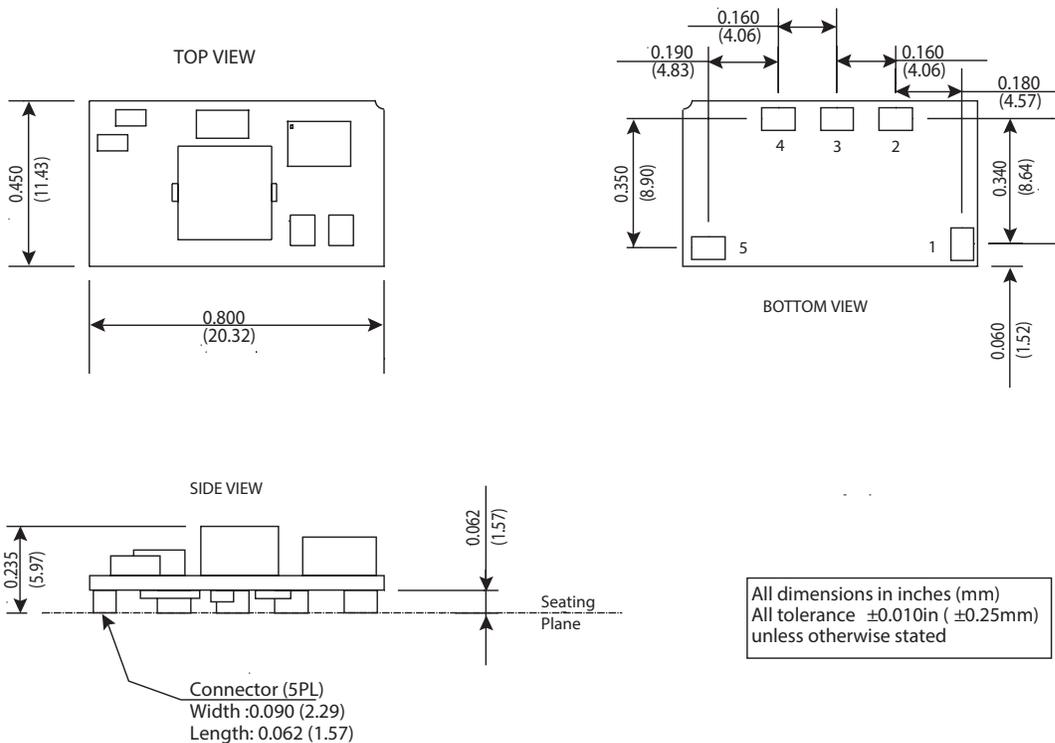
Unit is ON  
 Unit is OFF  
 Unit is ON

A 'Negative Logic' Remote ON/OFF version is also possible with this converter. To order please use part number SMT05E-12W3V3-RJ.

- Full derating curves available in both the Longform (Technical Reference) and Application Note.
- 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	Vout
3	Trim
4	Ground
5	Vin



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