

SMT05E Series

12 V Non-Isolated DC-DC Converters

Data Sheet

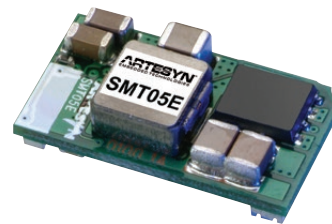
Total Power: 16.5 W
Input Voltage: 10 - 14 Vdc
of Outputs: Single

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 |
| 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 ^(3,4) | 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 |
|-----------------------------------|-------------------------|--------------------------------------|-------------------------------|------------------------------------|------------------------------|---|
| SMT SMT = Surface Mount | 05 05 = 5 Amp | E E = Enhanced Performance | 12 12 = 10 - 14 VDC | W S = Single W = Wide | 3V3 0.8 - 3.63 Vdc | TJ 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

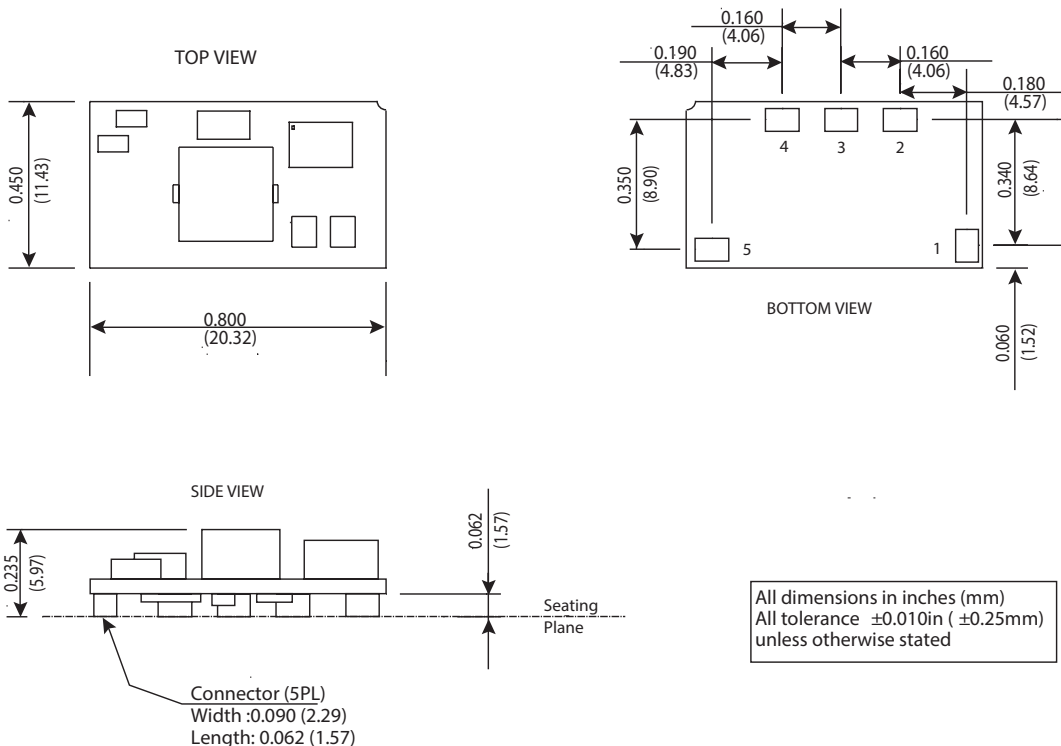
Unit is ON
Unit is OFF
Unit is ON

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 Technologies representative or use the on-line model number search tool at <http://www.Artesyn.com/power> 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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