ARTESYN SMT10E SERIES

13.2 Watts Non-Isolated DC-DC Converters



Advanced Energy's Artesyn SMT10E series of non-isolated DC-DC converters comprises five fixed output models offering voltages of 1.2 V, 1.5 V, 1.8 V, 2.5 V or 3.3 V, and one wide output trim model that can adjusted over the range 0.8 to 3.63 Vdc. All six models can deliver up to 10 amps output current. The 3.3 V fixed output model accepts a 4.5 to 5.5 Vdc input, while all other models accept a 3 to 5.5 Vdc input.

DATA SHEET

Total Power:

13.2 Watts

Input Voltage:

3.0 - 5.5 Vdc

# of Outputs:

Single

SPECIAL FEATURES

- 10 A current rating
- Input voltage range: 3.0 - 5.5 Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra-high efficiency: 96% @ 5 Vin and 3.3 Vout
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Designed in reliability: MTBF of >7 million 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. E186249
- TÜV Product Service (EN60950) Certificate No. B 08 05 51485 378
- CB report and certificate to DE3-51686M1

©2021 Advanced Energy Industries, Inc.

ELECTRICAL SPECIFICATIONS

Input		
Input voltage range		3.0 - 5.5 Vdc
Input current	No load	70 mA
Input current (max.)		8 A max. @ Io max. and Vout = 3.63 V
Input reflected ripple		110 mA rms
Remote ON/OFF		See Note 2
Start-up time		20 ms
Output		
Voltage adjustability (See Note 1)	Fixed output versions Wide trim version	±10% 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 0 to 20 MHz BW		50 mV pk=pk 25 mV rms max.
Temperature co-efficient		±0.01%/ °C
Transient response		60 mV max. deviation 50 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		See table
Insulation voltage		Non-isolated
Switching frequency	Fixed	300 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 MIL-HDBK-217F	7,042,000 hours 680,000 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-40 °C to +100 °C
See Note 3	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
SMT10E-05W3V3-J	36.3 W	4.5 - 5.5 Vdc	0.8 - 3.63 Vdc	0 A	10 A	96%	±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	10	E	-	05	W	3V3	-	J
SMT = Surface Mount	10 = 10 Amp	E = Enhanced Performance		05 = 3.0 - 5.5 Vdc	W = Wide	3.3 = 3.3 V		J = Pb-free RoHS 6/6 compliant

OUTPUT VOLTAGE ADJUSTMENT

The ultra-wide output voltage trim range offers major advantages to users who select the SMT10E-05W3V3J. 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-05W3V3J converter leaves the factory the output has been adjusted to the default voltage of 3.3V.

· When Vin >4.5 V, then Vout can be adjusted from 0.8 - 3.6 Vdc

· When Vin <4.5 V, then Vout can be adjusted from 0.8 - 2.75 Vdc

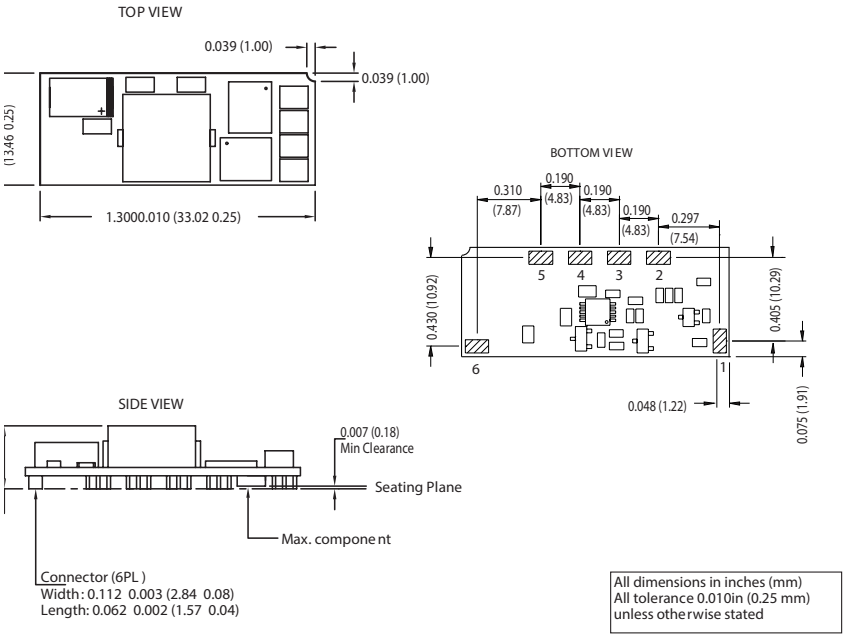
Notes:

1. When Vin ≥ 4.5 V, then Vout can be adjusted from 0.8 Vdc to 3.6 Vdc.
   When Vin < 4.5 V, then Vout can be adjusted from 0.8 Vdc to 2.75 Vdc.
2. The SMT10E 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.

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

   A 'Positive 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-05W3V3-RJ.
3. Full derating curves available in both the Longform (Technical Reference) and Application Note 168.
4. 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



All dimensions in inches (mm)
All tolerance 0.010in (0.25 mm)
unless otherwise stated

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

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

For international contact information,
visit advancedenergy.com.

powersales@aei.com (Sales Support)
productsupport.ep@aei.com (Technical Support)
+1 888 412 7832

Specifications are subject to change without notice. Not responsible for errors or omissions. ©2021 Advanced Energy Industries, Inc. All rights reserved. Advanced Energy®, AE® and Artesyn™ are U.S. trademarks of Advanced Energy Industries, Inc.

ENG-SMT10E_5-235-01 1.18