ARTESYN SMT30E SERIES

E-Class Non-Isolated

Advanced Energy's Artesyn SMT30E series non-isolated DC-DC converter accepts an 8 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 99 watts, the converter has a typical efficiency of 91% and can deliver up to 30 amps. Standard features include remote On/Off, remote sense and comprehensive protection against short-circuit and overtemperature conditions. Packaged as a low profile surface-mount module, it has a 0.53 x 1.3 inch (13.5 x 33 mm) footprint and an installed height of only 0.32 inch (8.2 mm).

DATA SHEET

Total Power:

99 Watts

Input Voltage:

8 - 14 Vdc

# of Outputs:

Single

RoHS 6/6 COMPLIANT

SPECIAL FEATURES

- 30 A current rating
- Input voltage range: 8 - 14Vdc
- 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 >3.2 million hours per Telcordia SR-332
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard surface-mount footprint
- RoHS compliant
- Two year warranty

SAFETY

- UL, cUL CAN/CSA 22.2 No. EI74104
- UL 60950-1 File No. EI74104
- TÜV Product Service (EN60950) Certificate No. B05 06 38572 055
- CB report and certificate to IEC60950

ELECTRICAL SPECIFICATIONS

Input		
Input voltage range		8 - 14 Vdc
Input current	No load (max.)	250 mA
Input current (max.)		9.2 A max. @ Io max. and Vout = 3.3 V
Input reflexted ripple		220 mA rms
Remote ON/OFF		See Note 1
Start-up time		20 ms
Output		
Voltage adjustability		0.8 to 3.63 Vdc
Setpoint accuracy		±1.3% typical
Line regulation		±0.2% typical
Load regulation		±1.5% typical
Total error band		±3.0% typical
Overshoot/undershoot		None
Ripple and noise	5 Hz - 20 MHz	60 mV pk-pk 25 mV rms
Temperature coefficient		±0.01%/ °C
Transient response	Vout = 1.5 V	50% - 75% load step
Slew rate = 0.5 A µs		3% max. deviation; 10 µs recovery to within ±1%

All specifications are typical 12 Vin and 1.5 Vout, full load at 25 °C unless otherwise stated. Cout = 100 µF

GENERAL SPECIFICATIONS

Efficiency	@12 Vin, 3.3 Vout	91%
Insulation voltage		Non-isolated
Switching frequench	Fixed	1.3 MHz
Approvals and standards		EN60950, UL/cUL60950
Material flammability		UL94V-0
Dimensions	L x W x H	33.02 x 13.46 x 8.10 mm 1.3 x 0.53 x 0.319 inches
Weight		6.3 g (0.22 oz)
MTBF	Telcordia SR-332	3,289,053 hours

EMC CHARACTERISTICS

Electrostatic discharge	EN61000-4-2, IBC801-2
Conducted immunity	EN61000-4-6
Radiated immunity	EN61000-4-3

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-40 °C to +85 °C
(See Note 8)	Non-operating temperature	-40 °C to +125 °C
MSL		Level 3
Protection		
Short-circuit	Continuous	
Thermal	Automatic recovery	

ORDERING INFORMATION

Model Number	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SMT30E-12W3V3-J	99 W	8 - 14 Vdc	0.8 - 3.63 V	0 A	30 A	91%	±0.2%	±1.5%

PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current	Performance		Input Voltage	Type of Output		Output Voltage	Packaging Options
SMT	**30**	**E**	-	**12**	**W**	-	**3V3**	**J**
SMT = Surface mount	30 = 30 Amp	E = Enhanced performance		12 = 8 - 14 Vdc	W = Wide		0.8 - 3.63 Vdc	No “T” suffix = Pb-free RoHS 6/6 compliant in trays -TJ - Pb-free RoHS 6/6 compliant in tape and reel

OUTPUT VOLTAGE ADJUSTMENT

The ultra-wide output voltage trim range offers major advantages to users who select the SMT30E-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 SMT30E-12W3V3Jconverter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Notes:

1. The SMT30E 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 SMT30E:

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 >2.8 V]	Unit is ON

   A 'Negative Logic' Remote ON/OFF version is also possible with this converter. Please consult the factory for details.
2. NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at http://www.artesyn.com to find a suitable alternative.

A. The derating curve represents the condition at which internal components are within the Artesyn derating guidelines.
B. Characteristic data has been developed from actual products tested at 25 °C. This data is considered typical data for the converter.

OUTPUT VOLTAGE ADJUSTMENT (CONTINUED)

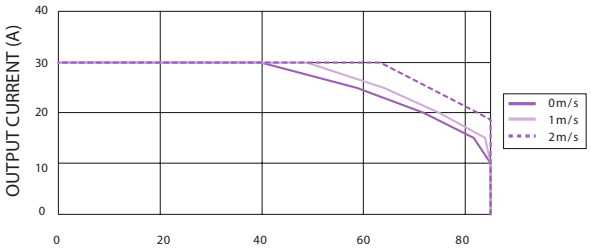


Figure 1 - Derating Curve
Vin = 12 V, Output Voltage = 1.0 V (See Note A)

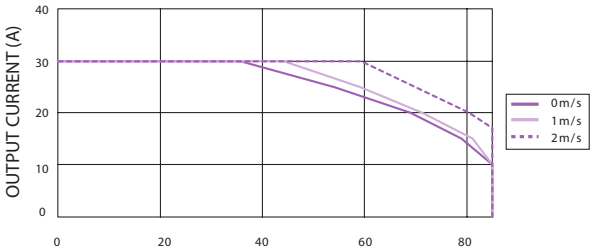


Figure 2 - Derating Curve
Vin = 12 V, Output Voltage = 1.5 V (See Note A)

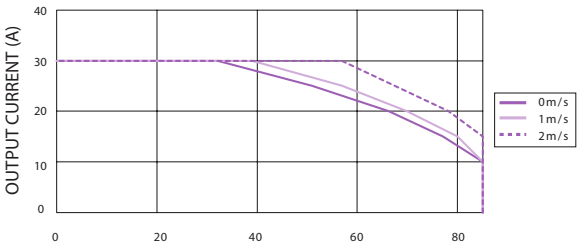


Figure 3 - Derating Curve
Vin = 12 V, Output Voltage = 1.8 V (See Note A)

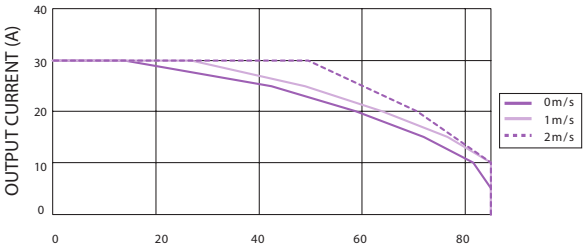


Figure 4 - Derating Curve
Vin = 12 V, Output Voltage = 2.5 V (See Note A)

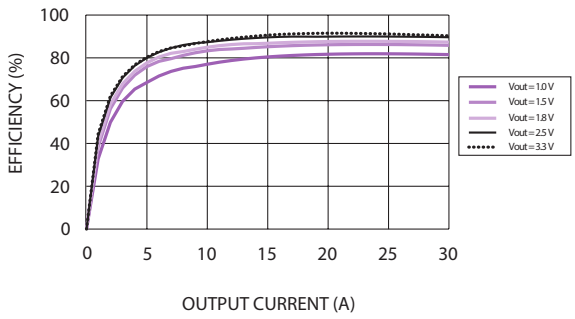


Figure 5 - Efficiency vs Load Current
Vin = 12 V (See Note B)

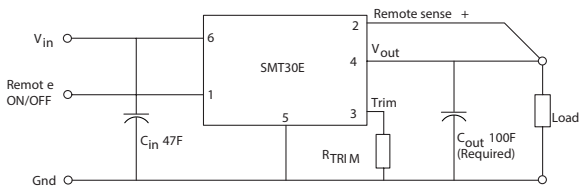
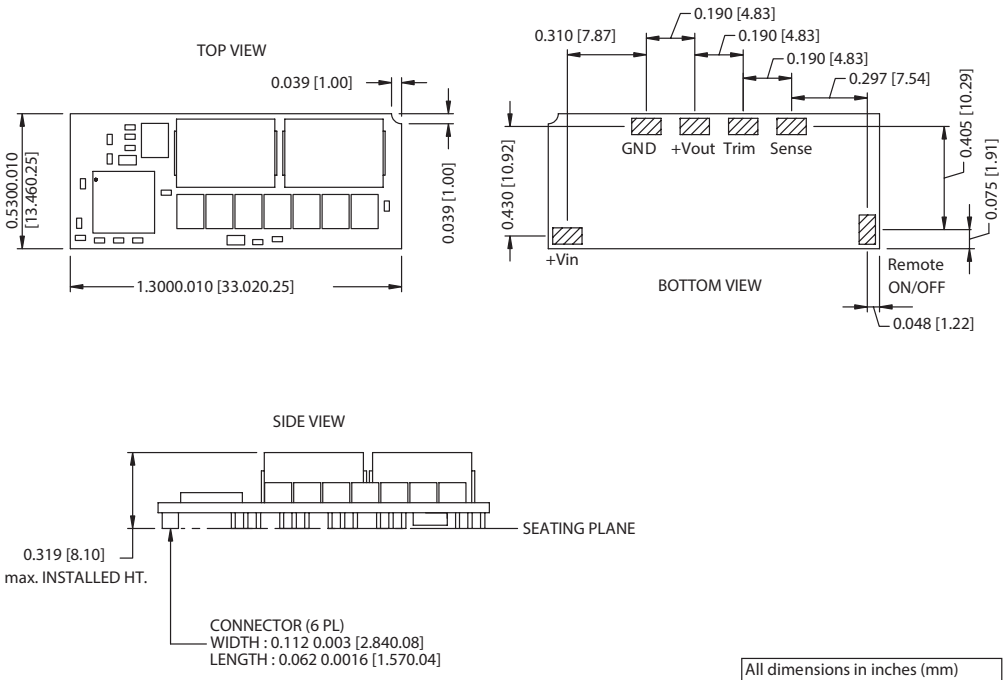


Figure 6 - Standard Application

MECHANICAL DRAWINGS



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.

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