ARTESYN SIL30E SERIES

E-Class Non-Isolated



Advanced Energy's Artesyn SIL30E 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 93% 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 through-hole vertical mount module with a single-in-line footprint of just 0.3 x 2 inches (7.8 x 50.8 mm), it has an installed height of 0.5 inch (12.7 mm).

DATA SHEET

Total Power:

99 Watts

Input Voltage:

8 - 14 Vdc

# of Outputs:

Single

SPECIAL FEATURES

- 30 A current rating
- Input voltage range: 8 - 14Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra high efficiency: 93% @ 12 Vin and 3.3 Vout
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Designed in reliability: MTBF of >9.2 million hours per Telcordia SR-332
- Ideal solution where board space is at a premium or tighter card pitch is required
- RoHS compliant
- Two year warranty

SAFETY

- UL, cUL 60950-1 File No. 186249-A16-UL-1
- TÜV Product Service (EN60950) Certificate No. B07 07 13890 259
- CB report and certificate to IEC60950

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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
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise	5 Hz - 20 MHz	50 mV max.; 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%
Remote sense		10% Vo compensation

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

GENERAL SPECIFICATIONS

Efficiency	@12 Vin, 3.3 Vout	93%
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	50.84 x 7.80 x 12.70 mm 2 x 0.307 x 0.5 inches
Pin length		0.140 in (3.56 mm)
Weight		7.0 g (0.25 oz)
MTBF (@40 °C; 50% stress; ground benign)	Telcordia SR-332	9,200,000 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
	Non-operating temperature	-40 °C to +125 °C
Protection		
Short-circuit	Continuous	
Thermal	Automatic recovery	

ORDERING INFORMATION

Model Number [2]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SIL30E-12W3V3-VJ	99W	8 - 14 Vdc	0.8 - 3.63 V	0 A	30 A	93%	±0.2%	±1.5%

PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current	Performance		Input Voltage	Number of Outputs	Output Voltage		Mounting Option	Packaging Options
SIL	30	E	-	12	W	ADJ	-	V	J
SIL = Single In Line	30 = 30 Amps	E = Enhanced performance		12 = 8 - 14 Vdc	W = Wide	ADJ = Adjustable Ouput		V = Vertical H = Horizontal	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 SIL30E-12W3V3. 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 SIL30E-12W3V3converter leaves the factory the output has been adjusted to the default voltage of 0.8 V.

Notes:

1. The SIL30E 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 SIL30E:

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)

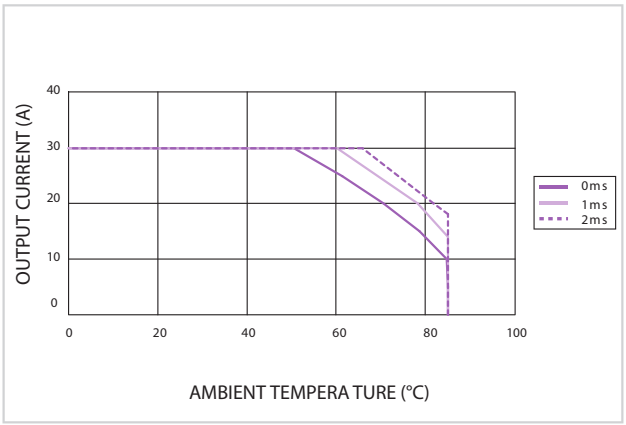


Figure 1 - Derating Curve
Vin = 12 V, Output Voltage = 1.5 V (See Note A)

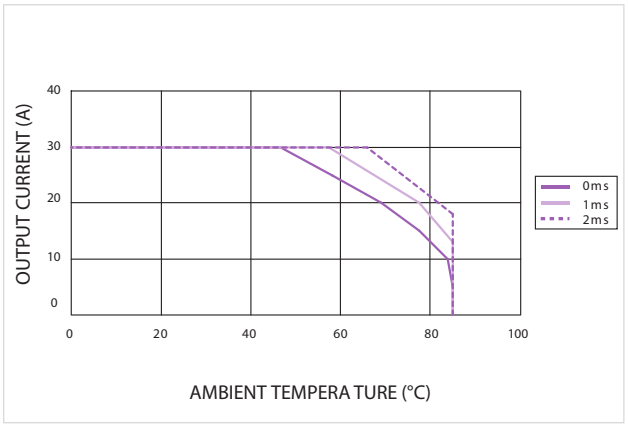


Figure 2 - Derating Curve
Vin = 12 V, Output Voltage = 1.8 V (See Note A)

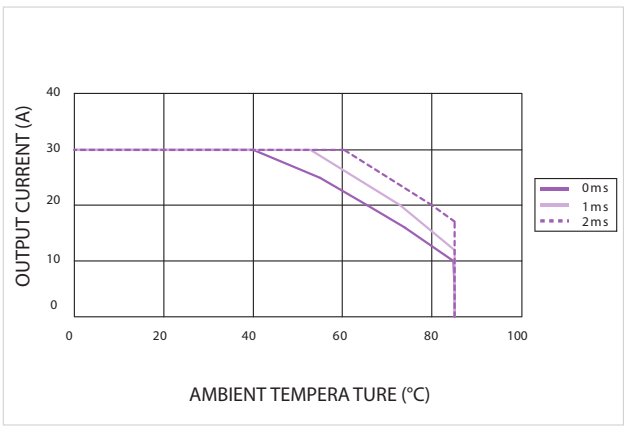


Figure 3 - Derating Curve
Vin = 12 V, Output Voltage = 2.5 V (See Note A)

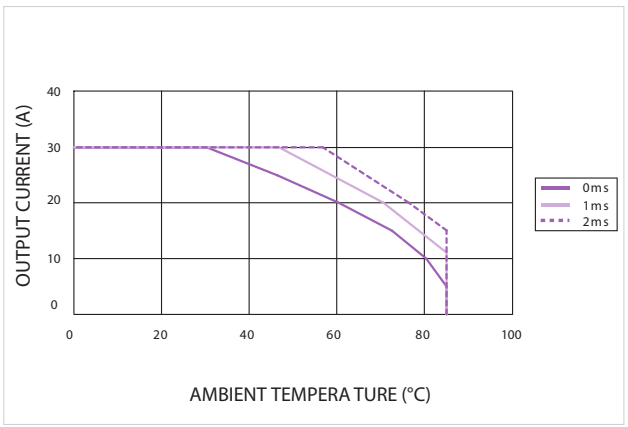


Figure 4 - Derating Curve
Vin = 12 V, Output Voltage = 3.3 V (See Note A)

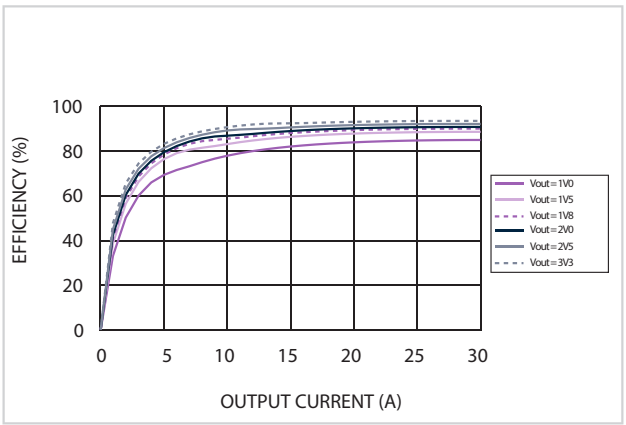


Figure 5 - Efficiency vs Load Current
Vin = 12 V (See Note B)

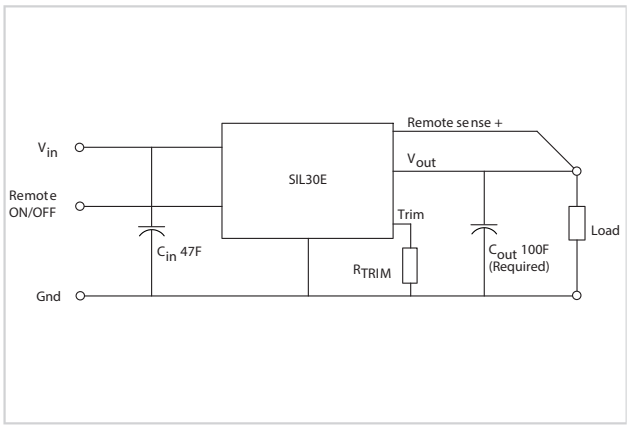
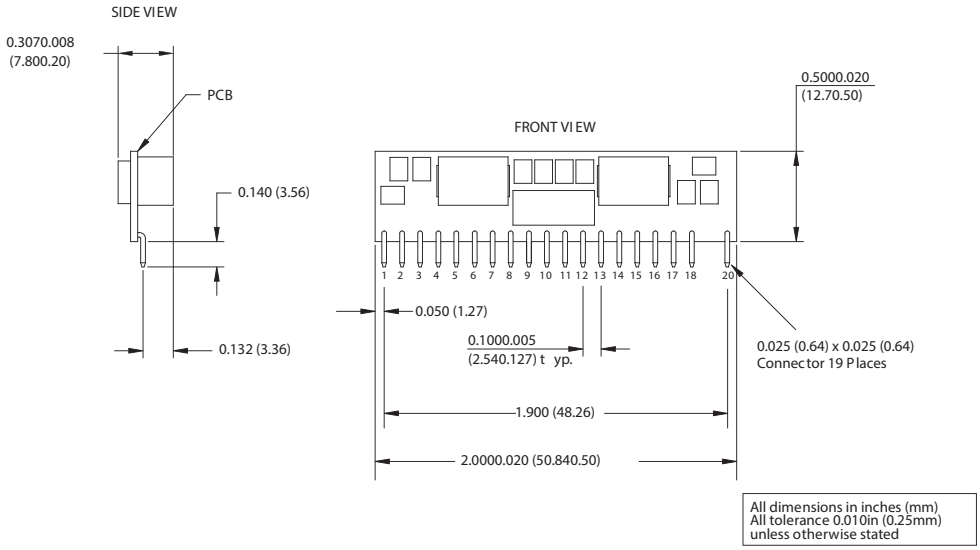


Figure 6 - Standard Application

MECHANICAL DRAWINGS



Pin Assignments	
Pin	Function
1	Vin
2	Vin
3	Ground
4	Ground
5	Trim
6	Remote Sense +
7	Ground
8	Ground
9	Vout
10	Vout
11	Vout
12	Vout
13	Remote ON/OFF
14	Ground
15	Ground
16	Ground
17	Ground
18	Vin
19	N/C
20	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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