ARTESYN SIL15C SERIES

C-Class Non-Isolated



XXXXX

DATA SHEET

Total Power:

75 Watts

Input Voltage:

4.5 - 5.5 Vdc or
10.2 - 13.8 Vdc

# of Outputs:

Single

RoHS 6/6 COMPLIANT

SPECIAL FEATURES

- 15 A current rating
- Input voltage range: 4.5 - 5.5 Vdc or 10.2 - 13.8 Vdc
- Output voltage: 0.9 - 5.0 V
- Industry-leading value
- Cost optimized design
- Excellent transient response
- Output voltage adjustability
- Path for future upgrades
- Supports silicon voltage migration
- Reduced design-in and qual time
- Designed-in reliability: MTBF of >7 million hours per Telcordia SR-332
- Available RoHS compliant
- Two year warranty

SAFETY

- UL, cUL CAN/CSA 22.2 No. E139421
- UL6950 File No. E139421
- TÜV Product Service (EN60950)
- Certificate No. B 04 08 19870 228
- CB report and certificate to US/6415C/UL

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ELECTRICAL SPECIFICATIONS

Input		
Input voltage range	5 V input model 12 V input model	4.5 - 5.5 Vdc 10.2 - 13.8 Vdc
Input current	Minimum load Remote OFF	65 mA 20 mA
Input current (max.) (See Note 3)	5 V input model 12 V input model	11.5 A @ Io max. 8.1 A @ Io max.
Input reflected ripple (See Note 4)	5 V input model 12 V input model	200 mA (pk-pk) 200 mA (pk-pk)
Remote ON/OFF Logic compatibility ON OFF		 Active high >2.4 Vdc <0.8 Vdc
Start-up time (See Note 9)	Power up Remote ON/OFF	<20 ms <20 ms
Turn ON threshold	5 Vin 12 Vin	4.5 Vdc 9.0 Vdc
Turn OFF threshold	5 Vin 12 Vin	4.3 Vdc 7.5 Vdc
Output		
Voltage adjustability (See Note 5)	5 V input model 12 V input model	0.9 - 3.3 Vdc 0.9 - 5.0 Vdc
Output setpoint accuracy	with 1.0% trim resistors	±2.5%
Line regulation	Low line to high line	±0.2%
Load regulation	Full load to min. load	±0.5%
Min/Max load		0 A/15 A
Overshoot (at turn on)	5 V input model 12 V input model	3.0% max. 1.0% max.
Undershoot		100 mV max.
Ripple and noise	5 Hz to 20 MHz (See Note 1)	See table
Transient response (See Note 2)	Deviation	100 mV; 200 µs recovery to within regulation band

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

GENERAL SPECIFICATIONS

Efficiency		See Table
Switching frequency	Fixed	200 kHz
Approvals and standards	(See Note 4)	TÜV Product Services EN60950, UL/cUL60950
Material flammability		UL94V-0
Weight		14.2 g (0.5 oz)
MTBF	Telcordia SR-332	7,817,294 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-0 °C to +80 °C
(See Note 8)	Non-operating temperature	-40 °C to +125 °C
Protection		
Short-circuit	Hiccup, non latching	
Recommended System Capacitance		
Input capacitance	(See Note 11)	270 µF / 20 mW ESR max.
Output capacitance	(See Note 11)	680 µF / 10 mW ESR max.

ORDERING INFORMATION

Model Number [8,13,14]	Output Power (Max.)	Input Voltage	Output Voltage [12]	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SIL15C-05SADJ-VJ	50 W	4.5 - 5.5 Vdc	0.9 - 3.3 V	0 A	15 A	89%	±0.2%	±0.5%
SIL15C-12SADJ-VJ	75 W	10.2 - 13.8 Vdc	0.9 - 5.0 V	0 A	15 A	91%	±0.2%	±0.5%

PART NUMBER SYSTEM WITH OPTIONS

Product Family	Rated Output Current	Performance		Input Voltage	Number of Outputs		Mounting Option	Packaging Options
SIL	15	C	-	12	SADJ	-	V	J
SIL = Single In Line	15 = 15 Amps	C = Cost Optimized		05 = 4.5 - 5.5 12 = 10.2 - 13.8	Single Adjustable Output		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 SIL15C series. 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 0.9 Vdc to 5.0 Vdc. When the SIL15C series converter leaves the factory the output has been adjusted to the default voltage of 0.9 V.

RIPPLE AND NOISE SPECIFICATION

Model	Output Voltage	Pk - Pk	RMS
5 V input models	0.9 - 2.5 Vdc 3.3 Vdc	30 mV 40 mV	15 mV 15 mV
12 V input models	0.9 - 2.5 Vdc 3.3 Vdc	50 mV 50 mV	20 mV 20 mV

Notes:
1. Measured as per recommended set-up. Cin = 270 µF (20 mW ESR max.). Cout = 680 µF (10 mW ESR max.).
2. di/dt = 10 A/µs, Vin = Nom, Tc = 25 °C, load change = 0.5 Io max. to 0.75 Io max. and 0.75 Io max to 0.5 Io max.
3. External input fusing recommended.
4. Measured with external filter. See Application Note 131 for details.
5. Uses external resistor from trim pin to output ground. Min value = 485 Ω for 5 V model, 280 Ω for 12 V model. See Application Note 131 for details.
6. Signal line assumed <3 m in length
7. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand-alone product.
8. The standard unit with the suffix '-V' is for vertical mounting. To order a unit with horizontal mounting, please add the suffix '-H' to the model number, e.g. SIL15C-05SADJ-HJ.
9. Power up is the time from application of dc input to Power Good enabled. Remote ON/OFF is from ON/OFF asserted high to Power Good enabled.
10. See Application Note 131 for operation above 50 °C.
11. See Application Note 131 for ripple current requirements.
12. These models have a wide trim output. 5 Vin has an output of 0.9 Vdc to 3.3 Vdc and 12 Vin has an output of 0.9 Vdc to 5 Vdc. An external resistor adjusts the output voltage.
13. To order a unit with a pin length of 0.150", please add suffix 'P4' to the model number, e.g. SIL15C-05SADJ-HP4J.
14. 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.

MECHANICAL DRAWINGS

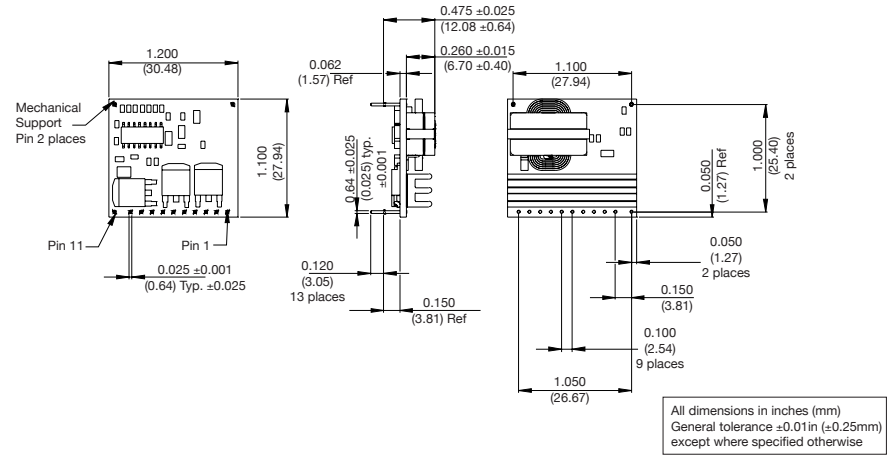

Figure 1: Mechanical Drawing - Horizontal Mount Version

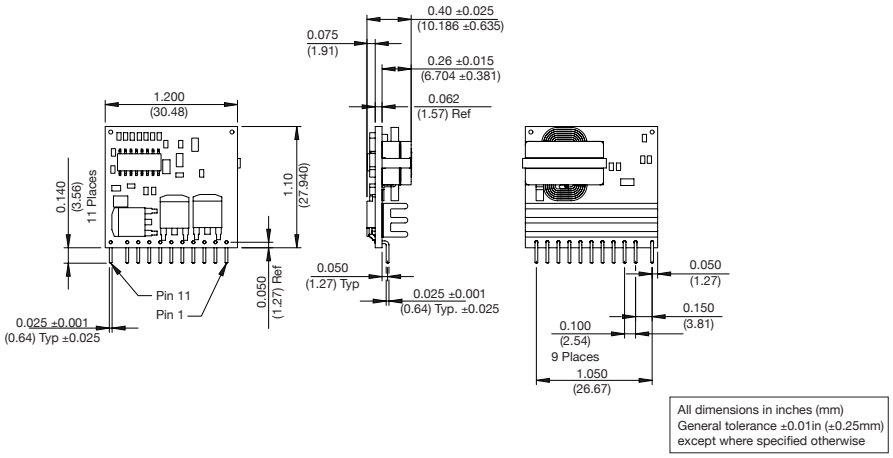

Figure 2: Mechanical Drawing - Vertical Mount Version

Pin Assignments	
Pin	Function
1	Vout
2	Vout
3	Vout
4	Trim
5	Remote ON/OFF
6	Power Good
7	Ground
8	Ground
9	Reserved
10	Vin
11	Vin
12	Mechanical support (Horiz only)
13	Mechanical support (Horiz only)

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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