ARTESYN SIL/SMT40C2 SERIES

C-Class Non-Isolated



Advanced Energy's Artesyn SIL40C2 and SMT40C2 series of 40 amp non-isolated DC-DC converters are designed for cost- and space-sensitive applications. Both converters accept a wide range 4.5 to 13.8 VDC input and provide an output that is adjustable from 0.6 to 5.0 VDC to accommodate a wide variety of silicon power needs. Rated at 200 watts, the converters are capable of delivering up to 40 amps and have a typical efficiency of 94%. Standard features include remote sense, remote On/Off and remote 'power good' indication. These converters also support current sharing – multiple modules can be connected in parallel.

AT A GLANCE

Total Power:

40 Amps

Input Voltage:

4.5 to 13.8 VDC

# of Outputs:

Single

SPECIAL FEATURES

- 40 A current rating
- Input voltage range: 4.5 - 13.8 VDC
- Output voltage: 0.6 to 5 V
- Industry-leading value
- Cost optimized design
- Excellent transient response
- Output enable
- Output voltage adjustability
- Supports silicon voltage migration
- Reduced design-in and qual time
- RoHS compliant

SAFETY

- UL, cUL CAN/CSA 22.2 No. E139421 UL6950 File No. TBD
- TÜV Product Service (EN60950)
- Certificate No. TBD
- CB report and certificate to IEC60950

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ELECTRICAL SPECIFICATIONS

Input		
Input voltage range		4.5 - 13.8 VDC
Input current	Minimum load Remote OFF	50 mA 5 mA
Input current (max.)	See Note 3	25 A @ Io max.
Start-up time	Remote ON/OFF	3 ms
Output		
Output voltage	See Note 5	0.6 - 5 V
Output setpoint accuracy	0.1% trim resistors	±1.0%
Line regulation	Low line to high line	±0.2%
Load regulation	Full load to min. load	±0.5%
Min./max. load		0 A/40 A
Overshoot	At turn-on	0.5% max.
Undershoot	At turn-off	100 mV max.
Ripple and noise 5 Hz to 20 MHz	See Note 1	25 mV Vin = 5 V, Vout = 2.5 V
Transient response	See Note 1, 2	130 mV max. deviation 50 µs recovery to within regulation band
General		
Efficiency (high input)	Vin = 5 V, Vo = 2.5 V, Io = 20 A	94%
Switching frequency	Fixed	500 kHz
Material flammability		UL94V-0
Weight		17 g (0.06 oz.)
MTBF	12 V @ 40 °C, 100% load Bellcore 332	6,749,409 hours
Coplanarity	Surface mount models	150 µm

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient temperature	-0 °C to +70 °C
See Note 5	Non-operating temperature	-40 °C to +125 °C
Protection		
Short-circuit	Hiccup, non-latching	
Overvoltage protection	Hiccup, non-latching	
Recommended System Capacitance		
Input	See Note 6	0 µF
Output	See Note 7	0 µF

ORDERING INFORMATION

Model Number [3,5]	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SIL40C2-00SADJ-VJ	200 W	4.5 - 13.8 Vdc	0.6 - 5 V	0 A	40 A	94%	±0.2%	±0.5%
SIL40C2-00SADJ-HJ	200 W	4.5 - 13.8 Vdc	0.6 - 5 V	0 A	40 A	94%	±0.2%	±0.5%
SMT40C2-00SADJJ	200 W	4.5 - 13.8 Vdc	0.6 - 5 V	0 A	40 A	94%	±0.2%	±0.5%

PART NUMBER SYSTEM WITH OPTIONS

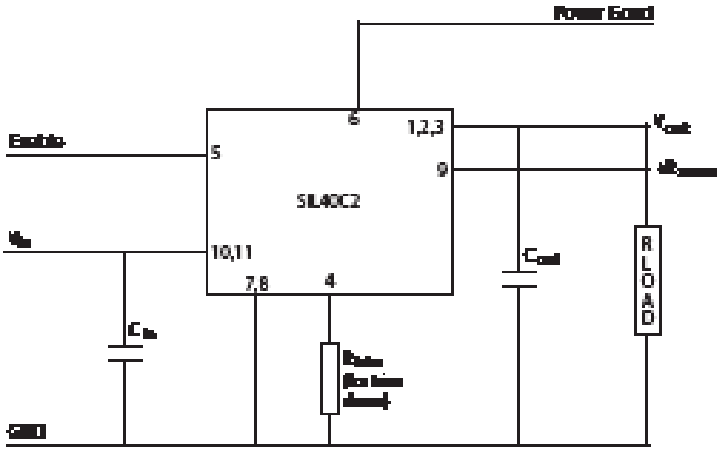
Product Family	Rated Output Current	Performance	Generation		Input Voltage	Output Voltage		Mounting Option	RoHS Compliance
SXX	40	C	2	-	00	SADJ	-	V	J
SIL = Single In Line SMT = Surface Mount	06 = 6 Amp 15 = 15 Amp 20 = 20 Amp 30 = 30 Amp 40 = 40 Amp	C = Cost Optimized	Blank = Standard 2 = Increased current density		00 = 4.5 - 13.8 V	Single Adjustable Output		V = Vertical H = Horizontal (Applicable to SIL version only)	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 SIL40C2 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 0.6-5 V. When the SIL40C2 converter leaves the factory, the output has been adjusted to the default voltage of 0.6 V.

Notes:
1. Measured as per recommended system capacitance.
2. di/dt = 10 A/µs, Vin = Nom, Tc = 25 °C, load change = 0.75 Io to full Io and full Io to 0.75.
3. External input fusing is recommended.
4. Additional part numbers may be available with different output voltages.
5. Airflow dependent, 100 LFM minimum required.
6. No capacitors needed for ripple current stability.
7. No capacitors needed for stability.
8. 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.
9. To order a Horizontal Mounting option with a pin length of 0.165", please use model SIL40C2-00S-HP5.

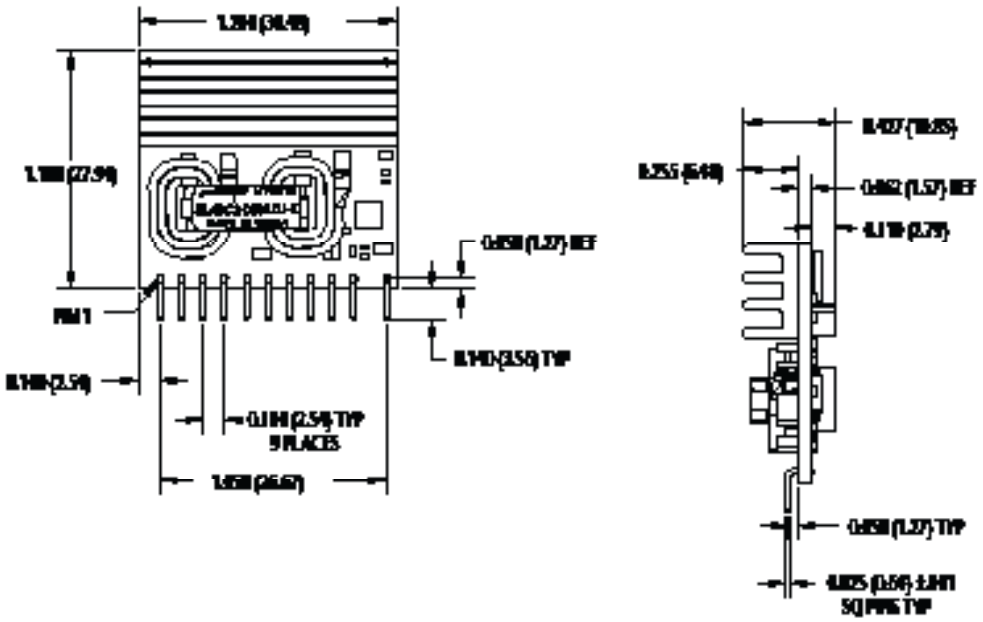
STANDARD APPLICATION DRAWING



MECHANICAL DRAWINGS

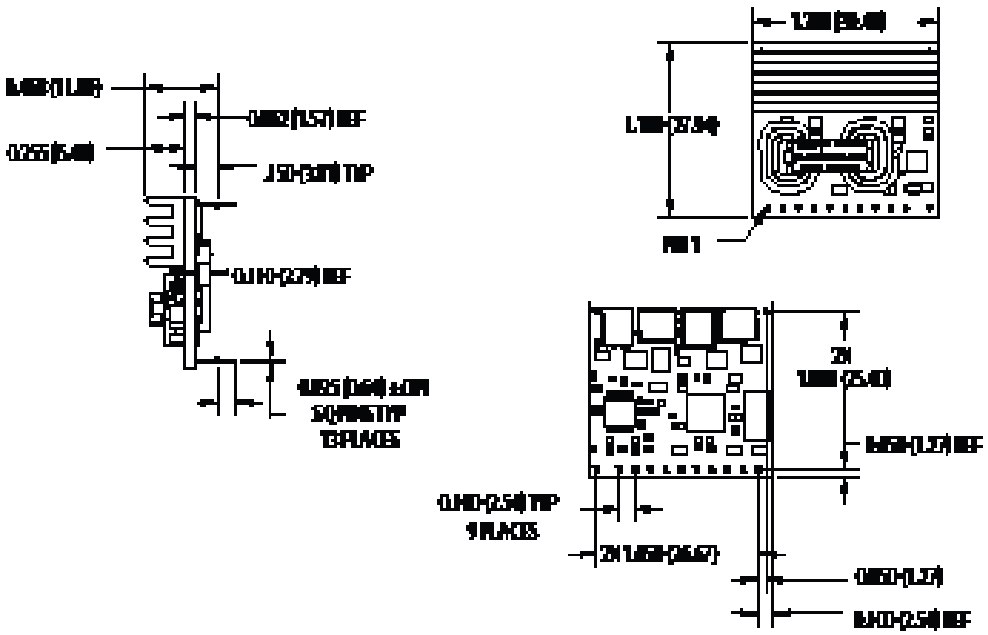
Vertical Mount

Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ±0.030 (±0.76) 3 Places ±0.010 (±0.25)



Horizontal Mount

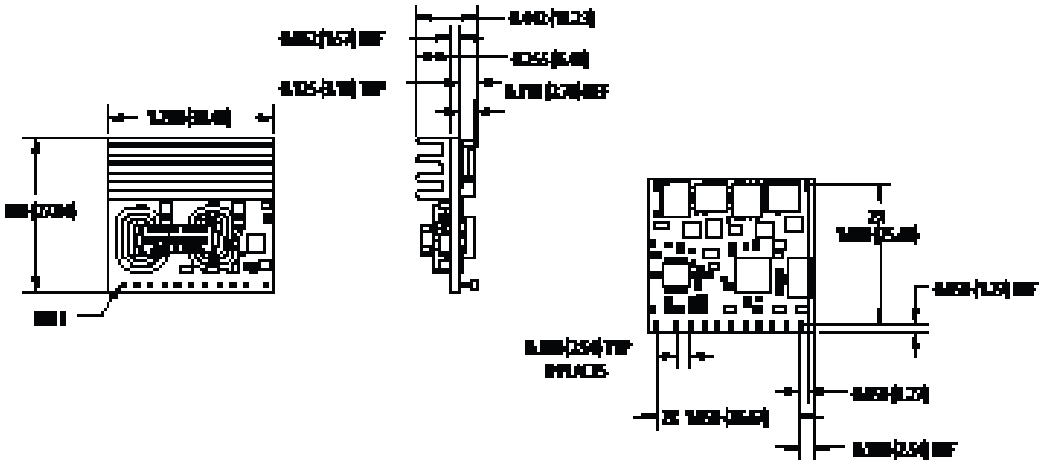
Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ±0.030 (±0.76) 3 Places ±0.010 (±0.25)



MECHANICAL DRAWINGS (CONTINUED)

Surface Mount

Dimensions in inches (mm). Tolerances (unless otherwise specified) 2 Places ±0.030 (±0.76) 3 Places ±0.010 (±0.25)



Pin Assignments	
Pin	Function
1	Vout
2	Vout
3	Vout
4	Trim
5	Enable
6	Power Good
7	Ground
8	Ground
9	(+) Sense
10	Vin
11	Vin
12	Mech Pin (Horz/SMT only)
13	Mech Pin (Horz/SMT 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.

PRECISION | POWER | PERFORMANCE

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