

SIL10E Series

49.9 Watt (10 Amp) Non-Isolated DC-DC Converters

Data Sheet

Total Power: 49.9 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 footprint and pin out
- Available RoHS compliant
- Two year warranty

SAFETY

- UL, cUL CAN/CSA 22.2 No. 60950-1-03/UL 60950-1, File No. E186249
- TÜV Product Service (EN60950) Certificate No. B 08 05 51485 378
- CB report and certificate to IEC60950, Certificate No. DE3-51686M1



Electrical Specifications

Input		
Input voltage range		3.0 - 5.5 Vdc
Input current	No load (max.)	70 mA
Input current (max.)		8 A max. @ Io max. and Vout = 3.3 V
Input reflected ripple		65 mA rms
Remote ON/OFF		See Note 2
Start-up time		20 ms
Output		
Voltage adjustability (See Note 1)	Fixed output versions 5 Vin with wide trim 3.3 Vin with wide trim	±10% 0.8 - 3.63 Vdc 0.8 - 2.75 Vdc
Setpoint accuracy		±0.4%.
Line regulation		±0.2%
Load regulation		±1.0%
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise 5 Hz to 20 MHz		50 mV pk=pk 25 mV rms max.
Temperature co-efficient		±0.01%/ °C
Transient response		50 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	50.8 x 7.8 x 12.7 mm 2.0 x 0.31 x 0.5 inches
Pin length	Vertical	0.135 ± 0.002 in (3.43 ± 0.5 mm)
Weight		5 g (0.18 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
SIL10E-05W3V3-VJ	36.3 W	4.5 - 5.5 Vdc	0.8 - 3.63 Vdc	0 A	10 A	95%	±0.2%	±1.0%

Part Number System with Options

Product Family	Rated Output Current	Performance	Input Voltage	Type of Output	Output Voltage	Mounting/Packaging Options
SIL	10	E	05	W	3V3	VJ
SIL = Single In Line	10 = 10 Amps	E = Enhanced Performance	05 = 3.0 - 5.5 V 12 = 10 - 12 V	W = Wide	2.5 V, 3.3 V, etc.	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 SIL10E-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 SIL10E-05W3V3J converter leaves the factory the output has been adjusted to the default voltage of 3.3 V.

- When $V_{in} \geq 4.5$ V, then V_{out} can be adjusted from 0.8 - 3.63 Vdc
- When $V_{in} < 4.5$ V, then V_{out} can be adjusted from 0.8 - 2.75 Vdc

Notes:

- When $V_{in} \geq 4.5$ V, then V_{out} can be adjusted from 0.8 V to 3.6 V.
When $V_{in} < 4.5$ V, then V_{out} can be adjusted from 0.8 V to 2.75 V.
- The SIL10E 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. The following conditions apply for the SIL10E:

Configuration	Converter Operation
Remote pin open circuit	Unit is ON
Remote pin pulled low	Unit is ON
Remote pin pulled high [$V_{on/off} > 1.2$ V]	Unit is OFF
- Full derating curves available in both the Longform (Technical Reference) and Application Note 136.
- For certain applications that use low ESR capacitors on the output of the converter and to insure maximum converter stability, please add the suffix '02' to the model, e.g. SIL10E-05S2V5-V02J.
- NOTICE: Some models do not support all options. Please contact your local Artesyn Embedded Technologies representative or use the on-line model number search tool at <http://www.Artesyn.com/power> to find a suitable alternative.

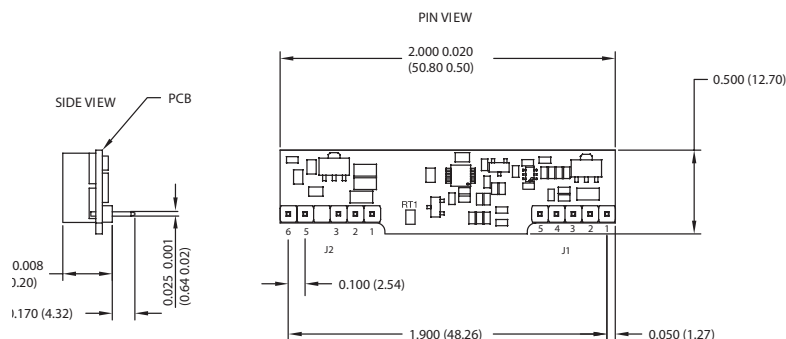
Mechanical Drawings

Input Pin Connections

J1	
Pin	Function
1	+Vout
2	+Vout
3	Remote Sense (+)
4	+Vout
5	Ground

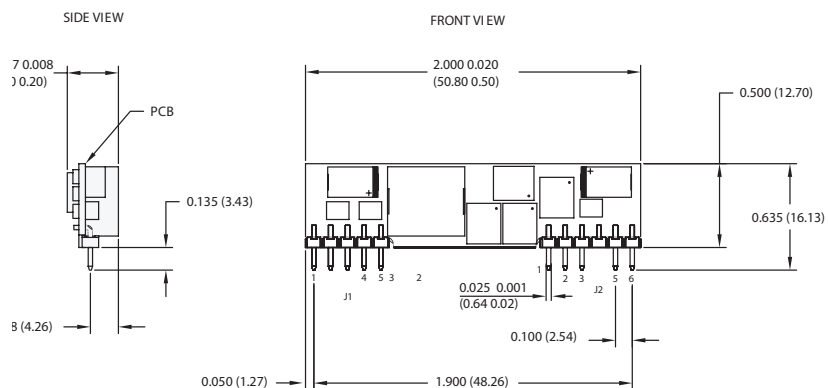
Input Pin Connections

J2	
Pin	Function
1	Ground
2	+Vin
3	+Vin
4	No Pin
5	Trim
6	Remote ON/OFF



Horizontal Mount Version

Dimensions in Inches (mm)
Tolerances (unless other wise specified)
2 Place 0.15
3 Place 0.006



Vertical Mount Version

Dimensions in Inches (mm)
Tolerances (unless other wise specified)
2 Place 0.15
3 Place 0.006

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