

POWER

SIL15E Series

Non-Isolated DC-DC Converters

Data Sheet

Total Power: 54.5 Watts
Input Voltage: 5.5 Vdc
of Outputs: Single

SPECIAL FEATURES

- 15 A current rating
- Input voltage range: 3.0 - 5.5 Vdc
- Output voltage range: 0.8 - 3.63 V
- Ultra high efficiency: 95% @ 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-332
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard footprint and pinout
- Available RoHS compliant
- Two year warranty

SAFETY

- UL, cUL CAN/CSA 22.2 No. E174104
- UL6950 File No. E174104
- TÜV Product Service (EN60950) Certificate No. B 03 10 38572
- CB report and certificate to DE3-51686M1



Electrical Specifications

Input

Input voltage range	3.0 - 5.5 Vdc	
Input current	No load	70 mA
Input current (max.)		11.8 A @ $i_{o\ max.}$ and $V_{out} = 3.63$ V
Input current ripple		110 mA rms
Remote ON/OFF		See Note 2
Start-up time		<20 ms

Output

Voltage adjustability	Fixed output version Wide trim version	$\pm 10.0\%$ 0.8 - 3.63 Vdc
Setpoint accuracy		$\pm 0.4\%$
Line regulation		$\pm 0.2\%$
Load regulation		$\pm 1.0\%$
Minimum load		0 A
Overshoot/undershoot		None
Ripple and noise	0 - 20 MHz BW	60 mV pk-pk 25 mV rms max.
Temperature coefficient		$\pm 0.01\% / ^\circ\text{C}$
Transient response		60 mV max deviation 50 μs recovery to within $\pm 1.0\%$
Short circuit protection		Continuous
Thermal protection		Automatic recovery

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		0.135 ± 0.02 inches 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

EMC Characteristics

Electrostatic discharge	EN61000-4-2, IEC801-2
Conducted immunity	EN61000-4-6
Radiated immunity	EN61000-4-3

Environmental Specifications

Thermal performance (See Note 3)	Operating ambient temperature Non-operating temperature	-40 °C to +100 °C -40 °C to +125 °C
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Ordering Information

Model Number ^(2,5,6)	Output Power (Max.)	Input Voltage	Output Voltage	Output Current (Min.)	Output Current (Max.)	Efficiency (Typical)	Regulation	
							Line	Load
SIL15E-05W3V3-VJ	54.5 W	3.0 - 5.5 Vdc	0.8 - 3.63 Vdc	0 A	15 A	94% ⁽⁴⁾	±0.2%	±1.0%

Part Number System with Options

Product Family	Rated Output Current	Performance	Input Voltage	Type of Output	Output Voltage	Mounting Option	Packaging Options
SIL SIL = Single In Line	15 15 = 15 Amps	E E = Enhanced Performance	05 05 = 3 - 5.5 Vdc	W W = Wide	3V3 3V3 = 3.3 V	V V = Vertical H = Horizontal ⁽⁵⁾	J 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 SIL15E-05W3V3. 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 SIL15E-05W3V3 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 Vdc to 3.63 Vdc
- When $V_{in} < 4.5$ V, then V_{out} can be adjusted from 0.8 Vdc to 2.75 Vdc

Notes:

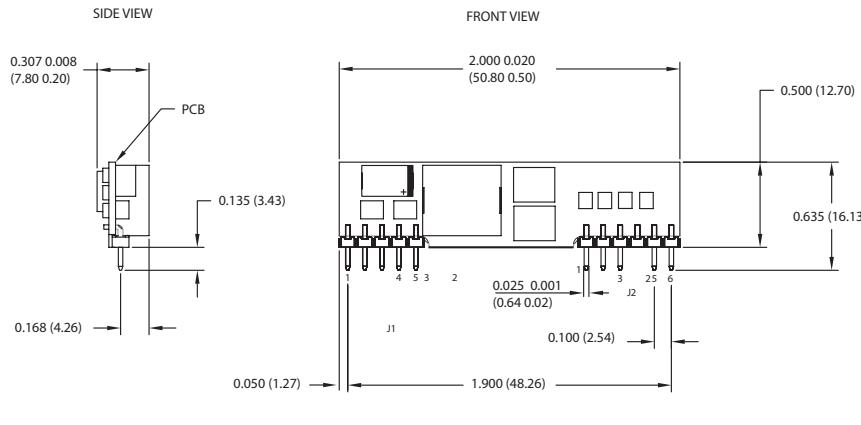
1. When $V_{in} \geq 4.5$ V, then V_{out} can be adjusted from 0.8 Vdc to 3.63 Vdc.
When $V_{in} < 4.5$ V, then V_{out} can be adjusted from 0.8 Vdc to 2.75 Vdc.
2. The SIL15E 5 V features a 'Negative Logic' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF pin is referenced to ground. The following conditions apply for the SIL15E:

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

 A 'Positive Logic' Remote ON/OFF version is also possible with this converter. To order please place the suffix 'R' towards the end of the model number, e.g. SIL15E-05W3V3-VRJ.
3. Full derating curves available in both the Longform Datasheet and Application Note 134.
4. When the unit is trimmed down to 0.8 V, the efficiency is 82%.
5. For horizontal mounting option please consult factory for details.
6. 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

Pin Assignments	
J1	
Pin	Function
1	+Vout
2	+Vout
3	Remote Sense (+)
4	+Vout
5	Ground
J1	
Pin	Function
1	Ground
2	+Vin
3	+Vin
4	No Pin
5	Trim



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