



SIL15F Series

12 Vin single output



DC-DC CONVERTERS

Typhoon Non-isolated

Preliminary Data - subject to change without notice

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NEW Product



- Designed to meet ultra fast transient requirements: 300 A/μs step load transients
- 15 A current rating
- Input voltage range: 8 Vdc to 13.2 Vdc
- Output voltage range: 1.0 Vdc to 1.8 Vdc
- Extremely low internal power dissipation
- Minimal thermal design concerns
- Ideal solution where board space is at a premium or tighter card pitch is required
- Industry standard surface-mount footprint
- RoHS compliant



The SIL15F-12 series are non-isolated dc-dc converters packaged in a single-in-line footprint giving designers a cost effective solution for conversion from a 12 V source. The SIL15F-12 has an input range of 8 Vdc to 13.2 Vdc and offers an output voltage range from 1.0 Vdc to 1.8 Vdc with a 15 A load, which allows for maximum design flexibility and a pathway for future upgrades. The SIL15F-12 is designed for applications that include distributed power, workstations, optical network and wireless applications. Implemented using state of the art surface-mount technology and automated manufacturing techniques, the SIL15F-12 offers compact size and efficiencies of 85% typical at 1.8 Vout.



2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated
 $C_{in} = 270 \mu F$, $C_{out} = 0 \mu F$

SPECIFICATIONS

OUTPUT SPECIFICATIONS

| | | |
|----------------------------------|--------------------------------|--|
| Voltage adjustability | Trimable | ±10% |
| Setpoint accuracy | | ±3.5% typ. |
| Line regulation | | ±1.0% typ. |
| Load regulation | | ±2.0% typ. |
| Minimum load | | 0 A |
| Overshoot/undershoot | | None |
| Ripple and noise | 5 Hz to 20 MHz | 40 mV pk-pk 25 mV rms |
| Temperature co-efficient | | ±0.01%/°C |
| Transient response (1.2 Vout) | di/dt 200 A/μs (See Note 3) | 5 A load step 100 mV max. deviation <10 μs recovery to within ±1.0% |
| Remote sense | | 10% Vo compensation |

INPUT SPECIFICATIONS

| | | |
|------------------------|---------|--|
| Input voltage range | | 8-13.2 Vdc |
| Input current | No load | 100 mA |
| Input current (max.) | | 2.0 A max. @ Io max. and Vout = 1.2 V |
| Input reflected ripple | | 100 mA rms |
| Remote ON/OFF | | (See Note 1) |
| Start-up time | | 5 ms |

EMC CHARACTERISTICS

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

GENERAL SPECIFICATIONS

| | | |
|---|--------------------------|--|
| Efficiency | Vin = 12 V, Vout = 1.8 V | 84% typ. |
| Insulation voltage | | Non-isolated |
| Switching frequency Vin = 12 V, Vout = 1.2 V | Variable | 500 kHz typ. |
| Approvals and standards | | EN60950 UL/cUL60950 |
| Material flammability | | UL94V-0 |
| Dimensions | (LxWxH) | 50.80 x 8.50 x 12.70 mm 2.0 x 0.335 x 0.50 inches |
| Weight | | 5 g (0.18 oz) |
| MTBF | Telcordia SR-332 | TBD hours |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|---------------------------------------|--------------------------------|-------------------|
| Thermal performance (See Figure 1) | Operating ambient, temperature | -40 °C to +85 °C |
| | Non-operating | -40 °C to +125 °C |

PROTECTION

| | |
|---------------|--------------------|
| Short-circuit | Continuous |
| Thermal | Automatic recovery |

International Safety Standard Approvals



UL/cUL CAN/CSA 22.2 No. E174104
 UL 60950 File No. E174104

TÜV Product Service (EN60950) Certificate No. B 04 04 38572 041
 CB report and certificate to IEC60950



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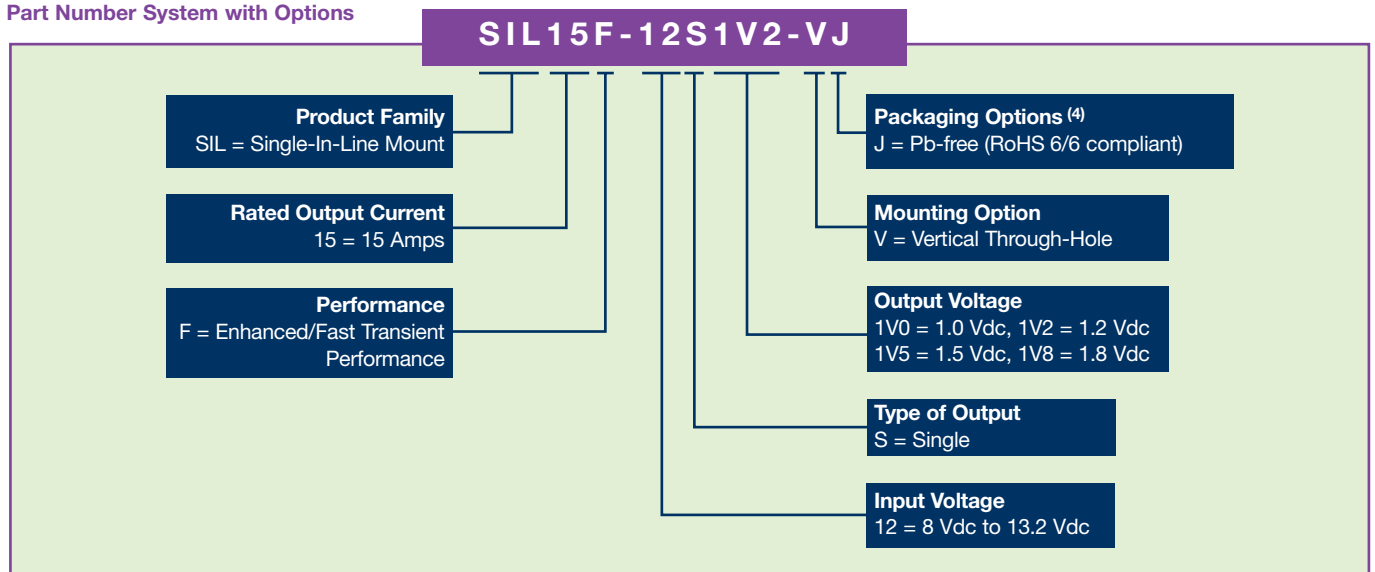
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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

NEW Product

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION | | MODEL NUMBER ^(1,4,5) |
|---------------------|---------------|----------------|-----------------------|-----------------------|-------------------|------------|-------|---------------------------------|
| | | | | | | LINE | LOAD | |
| 15.0 W | 8-13.2 Vdc | 1 V | 0 A | 15 A | 81% | ±1.0% | ±2.0% | SIL15F-12S1V0-VJ |
| 18.0 W | 8-13.2 Vdc | 1.2 V | 0 A | 15 A | 82% | ±1.0% | ±2.0% | SIL15F-12S1V2-VJ |
| 22.5 W | 8-13.2 Vdc | 1.5 V | 0 A | 15 A | 83% | ±1.0% | ±2.0% | SIL15F-12S1V5-VJ |
| 27.0 W | 8-13.2 Vdc | 1.8 V | 0 A | 15 A | 84% | ±1.0% | ±2.0% | SIL15F-12S1V8-VJ |

Part Number System with Options



Notes

- The SIL15F-12 features an 'Active High' 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 SIL15F-12:

| Configuration | Converter Operation |
|-------------------------|---------------------|
| Remote pin open circuit | Unit is ON |
| Remote pin pulled low | Unit is OFF |
| Remote pin pulled high | Unit is ON |

An 'Active Low' Remote ON/OFF version is also possible with this converter. To order please place the suffix 'R' toward the end of the part number, e.g. SIL15F-12S1V8-VRJ.

- A 270 µF electrolytic input capacitor maybe required for test purposes only.
- An external output capacitor is not required for basic operation. Adding distributed capacitance at the load will improve the transient response.
- TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 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/powergroup/products.htm> to find a suitable alternative.



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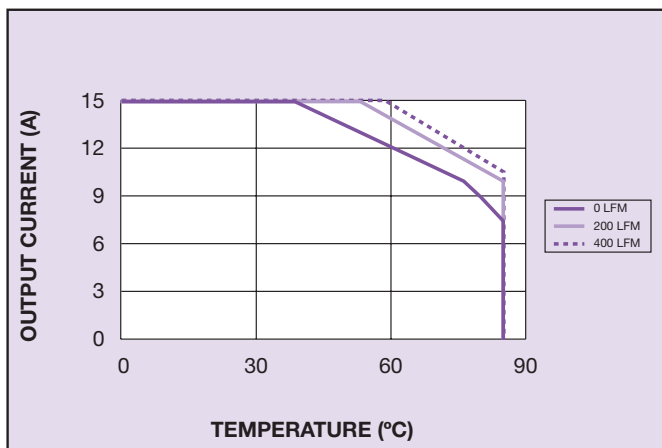


Figure 1 - Derating Curve
 Vin = 12 V, Output Voltage = 1.0 V (See Note A)

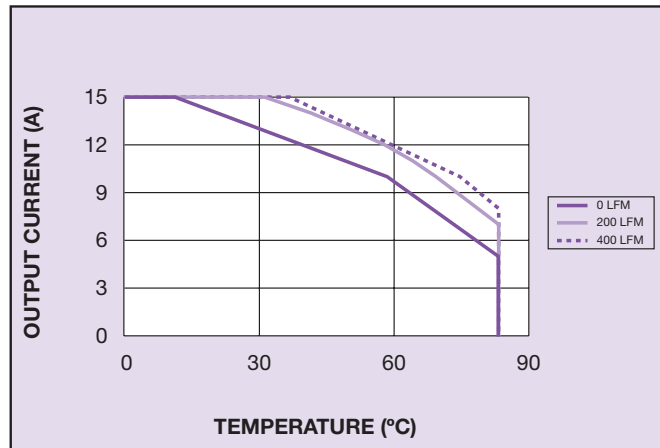


Figure 2 - Derating Curve
 Vin = 12 V, Output Voltage = 1.8 V (See Note A)

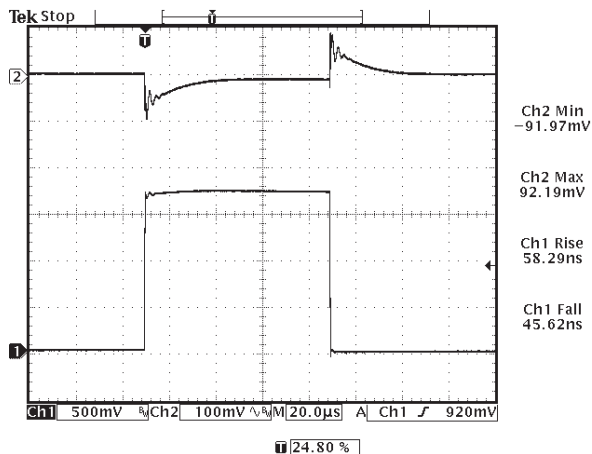


Figure 3 - Typical Transient Response,
 Vin = 12 V, Vout = 1.2 V
 Channel 1: 5 A Load Step, di/dt = 100 A/μs
 Channel 2: Deviation on Unit, Recovery Time = 10 μs

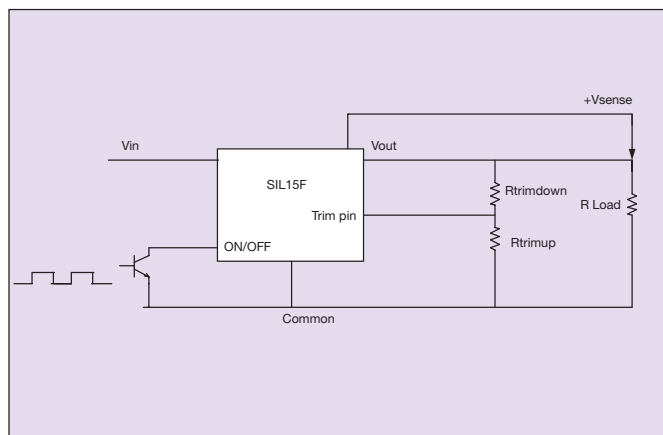


Figure 4 - Standard Application

Notes

- A The derating curve represents the conditions at which internal components are within the Artesyn derating guidelines.



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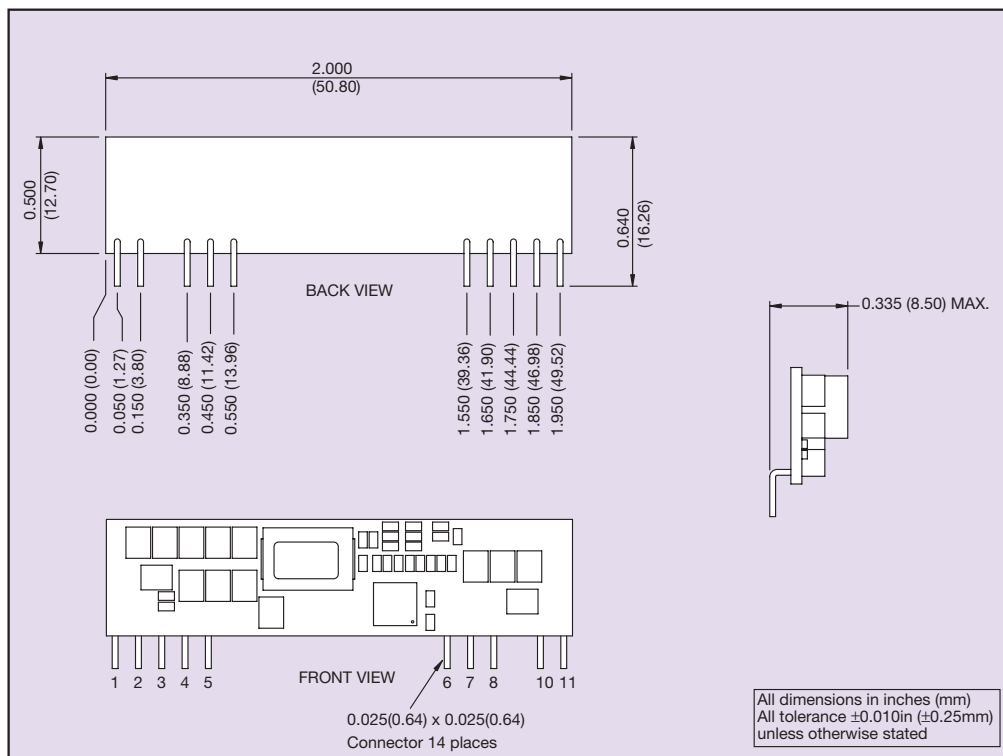
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NEW Product



| PIN CONNECTIONS | |
|-----------------|---------------|
| PIN NO. | FUNCTION |
| 1 | +Vout |
| 2 | +Vout |
| 3 | Remote Sense+ |
| 4 | +Vout |
| 5 | Ground |
| 6 | Ground |
| 7 | +Vin |
| 8 | +Vin |
| 10 | Trim |
| 11 | Remote ON/OFF |

Figure 5 - Mechanical Drawing and Pinout Table

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Please consult our website for the following items: ✓ Application Note

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