SIL15F Series

12 Vin single output

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

SPECIFICATIONS

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

OUTPUT SPECIFICATIONS

Voltage adjustability	Trimmable	±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

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

SIL15F-12S1V2-VJ

Product Family
SIL = Single-In-Line Mount

Rated Output Current
15 = 15 Amps

Performance
F = Enhanced/Fast Transient Performance

Packaging Options (4)
J = Pb-free (RoHS 6/6 compliant)

Mounting Option
V = Vertical Through-Hole

Output Voltage
1V0 = 1.0 Vdc, 1V2 = 1.2 Vdc
1V5 = 1.5 Vdc, 1V8 = 1.8 Vdc

Type of Output
S = Single

Input Voltage
12 = 8 Vdc to 13.2 Vdc

Notes

1 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.

2 A 270 µF electrolytic input capacitor maybe required for test purposes only.

3 An external output capacitor is not required for basic operation. Adding distributed capacitance at the load will improve the transient response.

4 TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.

5 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.

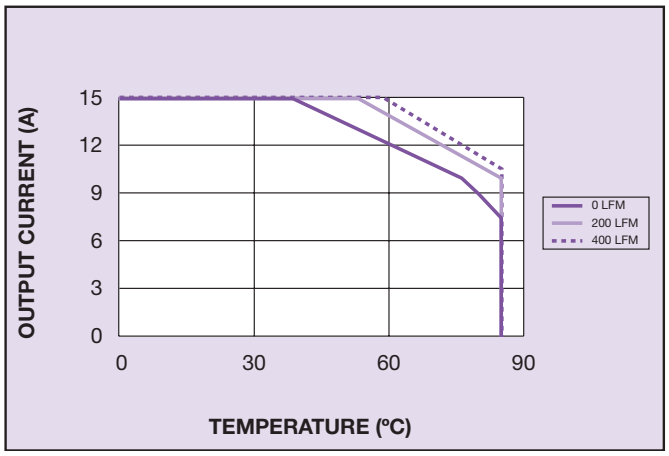


Figure 1 - Derating Curve
Vin = 12 V, Output Voltage = 1.0 V (See Note A)

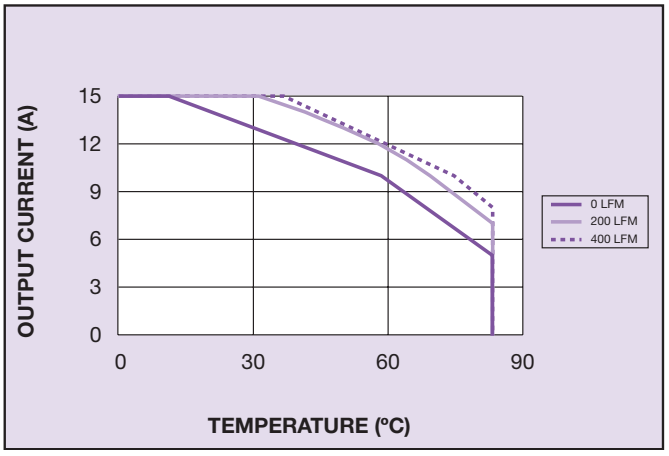


Figure 2 - Derating Curve
Vin = 12 V, Output Voltage = 1.8 V (See Note A)

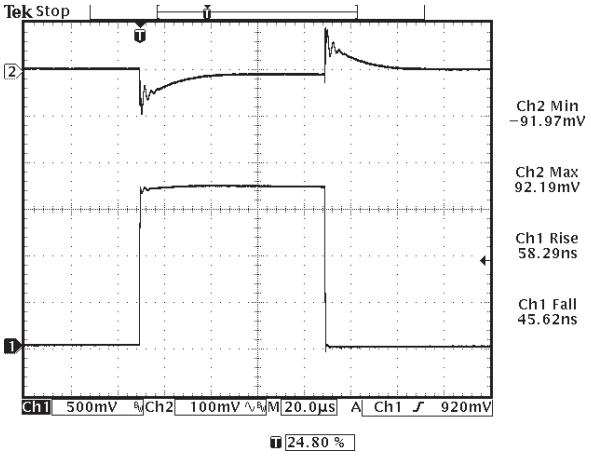


Figure 3 - Typical Transient Response,
Vin = 12 V, Vout = 1.2 V
Channel 1: 5 A Load Step, di/dt = 100 A/µs
Channel 2: Deviation on Unit, Recovery Time = 10 µs

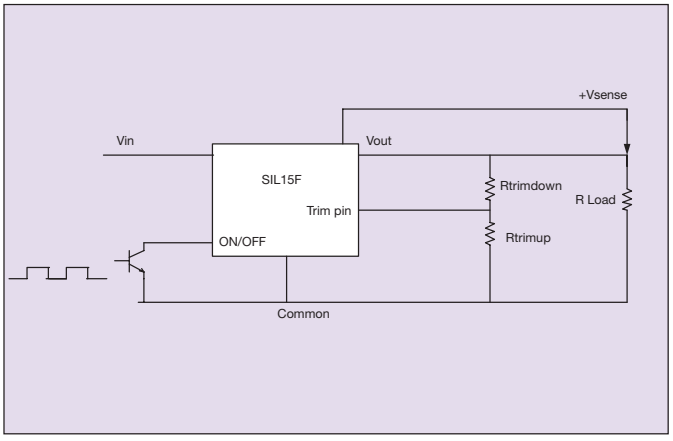
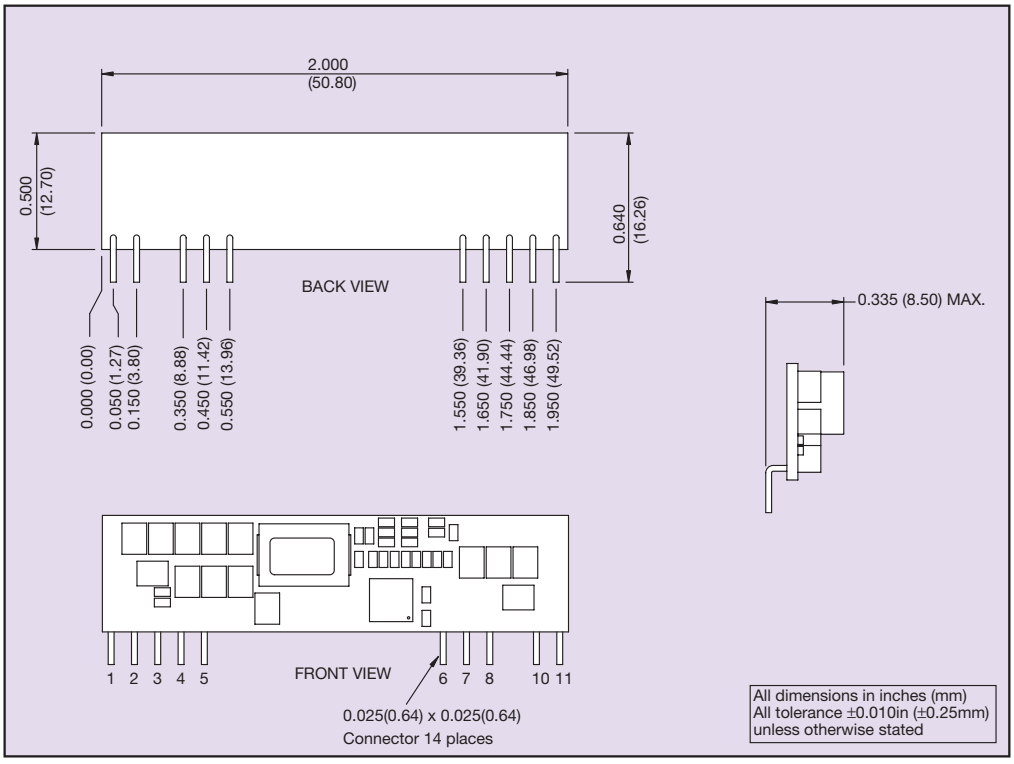


Figure 4 - Standard Application

Notes

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



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