SIL15 Series Single output



NEW Product

DC/DC CONVERTERS 15A Non-Isolated DC/DC Converters

- Ultra-wide trim range (0.9V to 3.3V/5V)
- Current sink capable for termination applications
- Horizontal and vertical models available
- High power density design means reduced board space requirement
- Power good output signal (open collector)
- Operating ambient temperature up to +80°C with suitable derating and forced air cooling
- Remote ON/OFF (active high)
- 0A minimum load
- Input undervoltage lockout
- Over-current and short-circuit protection

The SIL15 Series is a new high density open frame non-isolated converter for spacesensitive applications. Each model has a wide input range (4.5V to 5.5V or 10.2V to 13.8V) and offer a wide 0.9V to 3.3V/5V output voltage range with a 15A load. An external resistor adjusts the output voltage from its pre-set value of 0.9V to any value up to the maximum allowed value for that model. Typical efficiencies are 89% for the 5V input version and 91% for the 12V input version. The SIL15 series offers remote ON/OFF and over-current protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SIL15 reduces compliance costs and time to market.



2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability (See Note 5)	5V input models 12V input models	0.9V to 3.3V 0.9V to 5.0V
Output setpoint accuracy	With 1.0% trim res	sistors ±2.5%
Line regulation	Low line to high line	ne ±0.2% max.
Load regulation	Full load to min. Ic	bad ±0.5% max.
Min/max load		0A/15A
Overshoot (at turn on)	5V input models 12V input models	3% max. 1% max.
Undershoot		100mV max.
Ripple and noise 5Hz to 20MHz	(See Note 1)	See table
Transient response (See Note 2)	Deviation	100mV 200µs recovery to within regulation band

INPL	JT S	PEC	IFICA	TIONS

Input voltage range	5V input model 12V input model	4.5 to 5.5VDC 10.2 to 13.8VDC
Input current	Minimum load Remote OFF	65mA 20mA
Input current (max.) (See Note 3)	5V input model 12V input model	11.5A @ lo max. 8.1A @ lo max.
Input reflected ripple (See Note 4)	5V input model 12V input model	200mA (pk-pk) 200mA (pk-pk)
Remote ON/OFF Logic compatibility ON OFF		Active high >2.4VDC <0.8VDC
Start-up time (See Note 9)	Power up Remote ON/OFF	<20ms <20ms

INPUT SPECIFICATIONS Contd.

Turn ON threshold	5V input model	4.5V
	12V input model	9.0V
Turn OFF threshold	5V input model	4.3V
	12V input model	7.5V

GENERAL SPECIFICATIONS

Efficiency		See table
Switching frequency	Fixed	200kHz typ.
Approvals and standards (See Note 7)		JV Product Service 950, UL/cUL60950
Material flammability		UL94V-0
Weight		14.2g (0.5oz)
MTBF Representative model:	MIL-HDBK-217F 12V model @ 40°C 100% load, ground b Bellcore 332	468,803 hours enign 7,817,294 hours

ENVIRONMENTAL SPECIFICATIONS 0°C to +80°C Thermal performance Operating ambient, (See Note 10) temperature -40°C to +125°C Non-operating Altitude derating 3,000m (9,843 ft.) (above sea level) 10,000m (32,808 ft.)

20%

50%

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OUTPUT POWER	INPUT	OVP	OUTPUT	OUTPUT CURRENT	OUTPUT CURRENT	EFFICIENCY	REGUL	ATION	MODEL
(MAX.)	VOLTAGE		VOLTAGE ⁽¹²⁾	(MIN.)	(MAX.)	(TYP.)	LINE	LOAD	NUMBER ⁽⁸⁾
50W	4.5 - 5.5VDC	N/A	0.9V - 3.3V	0A	15A	89%	±0.2%	±0.5%	SIL15-05SADJ-V
75W	10.2 - 13.8VDC	N/A	0.9V - 5.0V	0A	15A	91%	±0.2%	±0.5%	SIL15-12SADJ-V

Notes

- 1 Measured as per recommended set-up. Cin = 270μ F ($20m\Omega$ esr max, Cout = 680μ F ($10m\Omega$ esr max).
- 2 di/dt = $10A/\mu$ s, Vin = Nom, Tc = 25° C, load change = 0.50 lo max. to 0.75 lo max. and 0.75 lo max. to 0.50 lo max.
- 3 External input fusing is recommended.
- 4 Measured with external filter. See Application Note 131 for details.
- 5 Uses external resistor from trim pin to output ground. Min value = 485Ω for 5V model, 280Ω for 12V model. See Application Note 131 for details.
 6 Signal line assumed <3m in length
- 7 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- 8 The standard unit with the suffix '-V' is for vertical mounting. To order a unit with horizontal mounting, please add the suffix '-H' to the model number, e.g. SIL15-05SADJ-H.
- 9 Power-up is the time from application of DC input to Power Good enabled. Remote ON/OFF is from ON/OFF asserted high to power good enabled.
- **10** See Application Note 131 for operation above 50°C.
- **11** See Application Note 131 for ripple current requirements.
- 12 These models have a wide trim output. 5Vin has an output of 0.9V to 3.3V and 12 Vin has an output of 0.9V to 5V. An external resistor adjusts the output voltage.

Ripple	and	Noise	Specification

Model	Output Voltage	Pk - Pk	RMS
5V input models	0.9 to 2.5V	30mV	15mV
	3.3V	40mV	15mV
12V input models	0.9 to 2.5V	50mV	20mV
	3.3V to 5V	50mV	20mV

PROTECTION Short-circuit protection

Hiccup, non-latching

RECOMMENDED SYSTEM CAPACITANCE

Input capacitance	(See Note 11)	270μ F/20m Ω esr max.
Output capacitance	(See Note 11)	680μ F/10m Ω esr max.

CAUTION: High internal temperatures. Ensure that unit is not user accessible.

PIN CONNECTIONS			
PIN NUMBER FUNCTION			
1	Vout		
2	Vout		
3	Vout		
4	Trim		
5	Remote ON/OFF		
6	Power Good		
7	Ground		
8	Ground		
9	Reserved		
10	Vin		
11	Vin		
12	Mechanical support (horizontal version only)		
13	Mechanical support (horizontal version only)		

International Safety Standard Approvals (pending)



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Figure 1: Mechanical Drawing - Horizontal Mount Version



Figure 2: Mechanical Drawing - Vertical Mount Version

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