

SIL20C Series

5 Vin and 12 Vin single output

NEW Product



- **20 A current rating**
- **Input voltage range: 4.5 Vdc to 5.5 Vdc or 10.2 Vdc to 13.8 Vdc**
- **Output voltage range: 0.9 Vdc to 5.0 Vdc**
- **Industry leading value**
 - Cost optimized design
- **Excellent transient response**
- **Output Voltage adjustability**
 - Pathway for future upgrades
 - Supports silicon voltage migration
 - Resulting in reduced design-in and qualification time
- **Designed in reliability: MTBF of >7 million hrs per Telcordia SR-332**
- **Available RoHS compliant**



The SIL20C Series is a new high density open frame non-isolated converter for space-sensitive applications. Each model has a wide input range (4.5 Vdc to 5.5 Vdc or 10.2 Vdc to 13.8 Vdc) and offer a wide 0.9 Vdc to 3.3 Vdc/5 Vdc output voltage range with a 20 A load. An external resistor adjusts the output voltage from its pre-set value of 0.9 Vdc to any value up to the maximum allowed value for that model. Typical efficiencies are 87% for the 5 V input version and 91% for the 12 V input version at full load conditions. The SIL20C series offers remote ON/OFF and overcurrent protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SIL20C reduces compliance costs and time to market.



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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability (See Note 5)	5 V input models 12 V input models	0.9-3.3 Vdc 0.9-5.0 Vdc
Output setpoint accuracy	With 1.0% trim resistors	±2.5%
Line regulation	Low line to high line	±0.2% max.
Load regulation		±1.3% max.
Min/max load		0 A/20 A
Overshoot (at turn on)	5 V input models 12 V input models	3% max. 1% max.
Ripple and noise (5 Hz to 20 MHz)	(See Note 1)	See table
Transient response (See Note 2)	Deviation	100 mV 200 µs recovery to within regulation band

INPUT SPECIFICATIONS

Input voltage range	5 V input model 12 V input model	4.5-5.5 Vdc 10.2-13.8 Vdc
Input current	Minimum load Remote OFF	65 mA 20 mA
Input current (max.) (See Note 3)	5 V input model 12 V input model	15 A @ Io max. 11 A @ Io max.
Input reflected ripple	(See Note 4)	200 mA
Remote ON/OFF Logic compatibility	ON OFF	Active high >2.4 Vdc <0.8 Vdc
Start-up time (See Note 9)	Power up Remote ON/OFF	<20 ms <20 ms

INPUT SPECIFICATIONS (CONTD.)

Turn ON threshold	5 Vin 12 Vin	4.5 Vdc 9.0 Vdc
Turn OFF threshold	5 Vin 12 Vin	4.3 Vdc 7.5 Vdc

GENERAL SPECIFICATIONS

Efficiency		See Table
Switching frequency	Fixed	275 kHz typ.
Approvals and standards	(See Note 4)	TÜV Product Services IEC60950, UL/cUL60950
Material flammability		UL94V-0
Weight		14.2 g (0.5 oz)
MTBF	Telcordia SR-332	7,963,574 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance (See Note 10)	Operating ambient, temperature Non-operating	0 °C to +80 °C -40 °C to +125 °C
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PROTECTION

Short-circuit protection	Hiccup, non-latching
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RECOMMENDED SYSTEM CAPACITANCE

Input capacitance	(See Note 11)	270 µF/20 mΩ esr max.
Output capacitance	(See Note 11)	680 µF/10 mΩ esr max.

International Safety Standard Approvals

	UL/cUL CAN/CSA 22.2 No. E139421 UL60950 file No. E139421
	TÜV Product Service (EN60950) Certificate No. B 04 08 19870 228 CB report and certificate to US/6415C/UL

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DC-DC CONVERTERS

C Class Non-isolated

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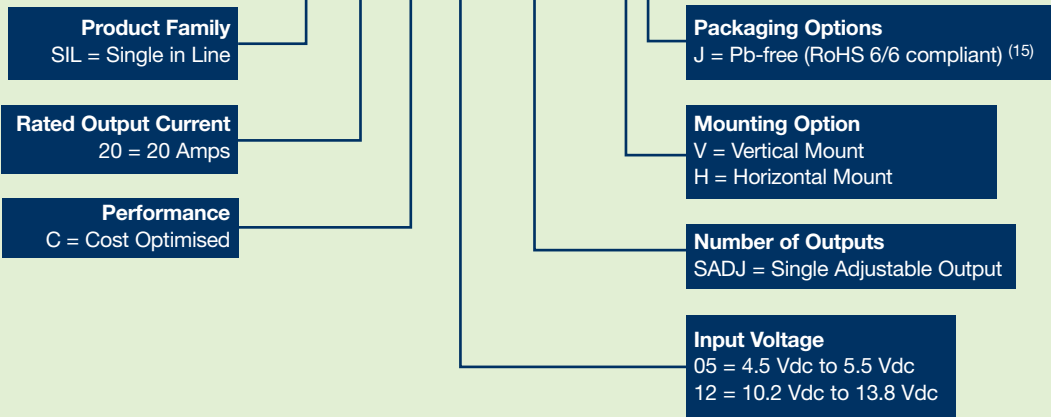
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NEW Product

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OVP	OUTPUT VOLTAGE ⁽¹²⁾	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	MAXIMUM LOAD (TYP.)	REGULATION		MODEL NUMBER ^(8,13,14,15)
							LINE	LOAD	
66 W	4.5-5.5 Vdc	N/A	0.9-3.3 Vdc	0 A	20 A	87%	±0.2%	±1.3%	SIL20C-05SADJ-VJ
100 W	10.2-13.8 Vdc	N/A	0.9-5.0 Vdc	0 A	20 A	91%	±0.2%	±1.3%	SIL20C-12SADJ-VJ

Part Number System with Options

SIL20C-12SADJ-VJ



Output Voltage Adjustment of the SIL20C-12SADJ Series

The ultra-wide output voltage trim range offers major advantages to users who select the SIL20C-12SADJ series. 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 0.9 Vdc to 5.0 Vdc. When the SIL20C-12SADJ series converter leaves the factory the output has been adjusted to the default voltage of 0.9 V

Notes

- 1 Measured as per recommended set-up. $2 \times C_{in} = 270 \mu\text{F}$ (20 mΩ esr max, $C_{out} = 680 \mu\text{F}$ (10 mΩ esr max).
- 2 $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25^\circ\text{C}$, load change = 0.50 I_o max. to 0.75 I_o max. and 0.75 I_o max. to 0.50 I_o 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 = 485 Ω for 5 V model, 280 Ω for 12 V model. See Application Note 131 for details.
- 6 Signal line assumed <3 m 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. SIL20C-05SADJ-HJ.

Notes Cond.

- 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. 5 Vin has an output of 0.9 Vdc to 3.3 Vdc and 12 Vin has an output of 0.9 Vdc to 5 Vdc. An external resistor adjusts the output voltage.
- 13 To order a unit with a pin length of 0.150", please add suffix 'P4' to the model number, e.g. SIL20C-05SADJ-HP4J.
- 14 TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 15 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.

Ripple and Noise Specification

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

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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)

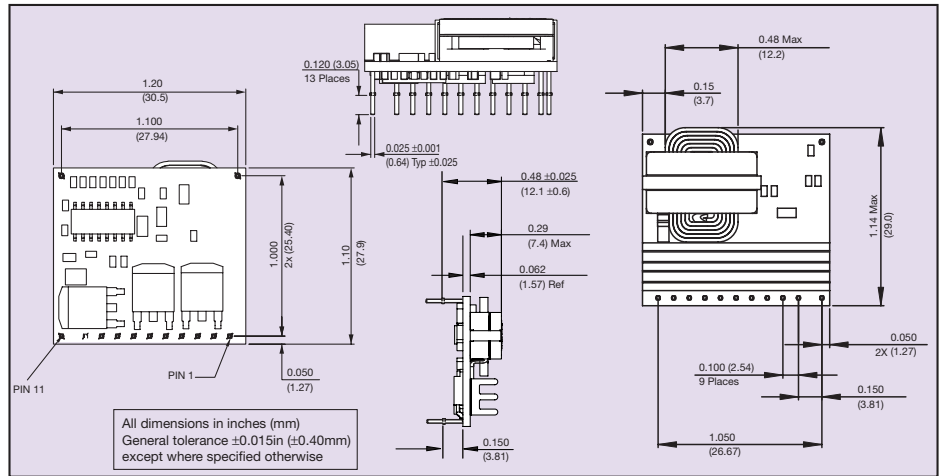


Figure 1: Mechanical Drawing - Horizontal Mount Version

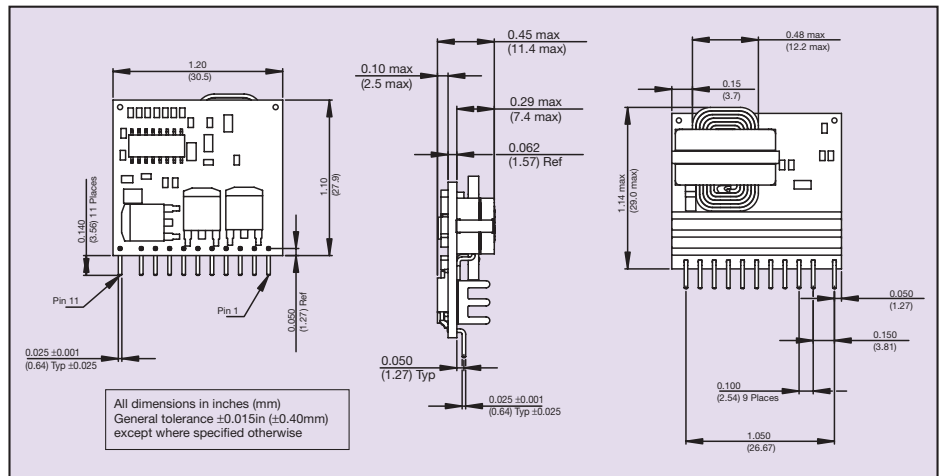


Figure 2: Mechanical Drawing - Vertical Mount Version

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

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