SIL20C Series

5 Vin and 12 Vin single output

ARTESYN TECHNOLOGIES

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.

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)	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 @ lo max. 11 A @ lo 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	0 °C to +80 °C
	Non-operating	-40 °C to +125 °C

PROTECTION

Short-circuit protection	Hiccup, non-latching

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

SIL20C Series

5 Vin and 12 Vin single output

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

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

- **Product Family**: SIL = Single in Line
- **Rated Output Current**: 20 = 20 Amps
- **Performance**: C = Cost Optimised
- **Packaging Options**: J = Pb-free (RoHS 6/6 compliant) (15)
- **Mounting Option**: V = Vertical Mount, H = Horizontal Mount
- **Number of Outputs**: SADJ = Single Adjustable Output
- **Input Voltage**: 05 = 4.5 Vdc to 5.5 Vdc, 12 = 10.2 Vdc to 13.8 Vdc

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 x Cin = 270 µF (20 mΩ esr max, Cout = 680 µF (10 mΩ esr max).
2 di/dt = 10 A/µs, Vin = Nom, Tc = 25 °C, load change = 0.50 Io max. to 0.75 Io max. and 0.75 Io max. to 0.50 Io 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

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)

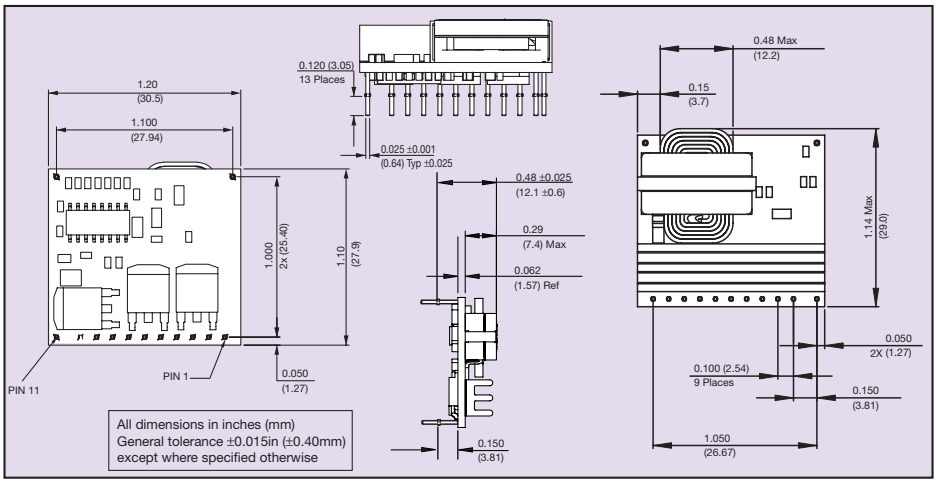

Figure 1: Mechanical Drawing - Horizontal Mount Version

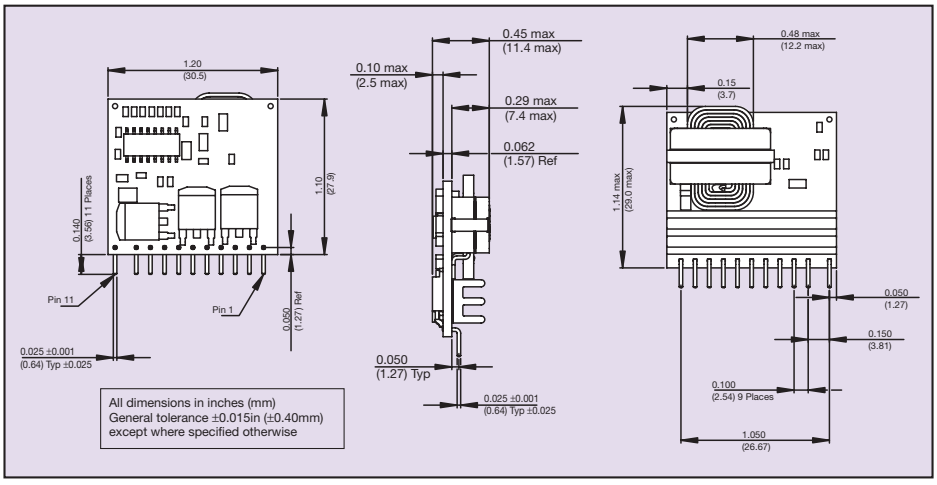

Figure 2: Mechanical Drawing - Vertical Mount Version