

# SIL06C Series

5 Vin and 12 Vin single output

**NEW Product**



- **6 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 optimised 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 SIL06C 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 5 Vdc output voltage range with a 6 A load. An external resistor adjusts the output voltage from its pre-set value of 0.9 V to any value up to the 5 V maximum. Typical efficiencies for the models are 89% for the 5 V input version and 91% for the 12 V input version. The SIL06C series offers remote ON/OFF and overcurrent protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SIL06C 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 7) | 5 V input models<br>12 V input models | 0.9-3.3 Vdc<br>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                    | Full load to min. load                | ±0.5% max.   |
| Min./max. load                     |                                       | 0 A/6 A  |
| Overshoot (at turn on)             | 5 V input models<br>12 V input models | 3.0% max.<br>1.0% max.                             |
| Undershoot                         |                                       | 100 mV max.  |
| Ripple and noise                   | 5 Hz to 20 MHz (See Note 2)           | See table  |
| Transient response (See Note 1)    | Deviation                             | 75 mV<br>150 µs recovery to within regulation band |

### INPUT SPECIFICATIONS

|                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|
| Input voltage range                 | 5 V input model<br>12 V input model | 4.5-5.5 Vdc<br>10.2-13.8 Vdc        |
| Input current                       | No load<br>Remote OFF               | 50 mA<br>5 mA                       |
| Input current (max.) (See Note 9)   | 5 V input model<br>12 V input model | 5.1 A @ Io max.<br>1.6 A @ Io max.  |
| Input reflected ripple (See Note 2) | 5 V input model<br>12 V input model | 52 mA (pk-pk)<br>56 mA (pk-pk)      |
| Remote ON/OFF Logic compatibility   | ON<br>OFF                           | Active high<br>>2.4 Vdc<br><0.8 Vdc |
| Start-up time (See Note 3)          | Power up<br>Remote ON/OFF           | <20 ms<br><20 ms                    |

### INPUT SPECIFICATIONS (CONTD.)

|                    |                 |                    |
|--------------------|-----------------|--------------------|
| Turn ON threshold  | 5 Vin<br>12 Vin | 4.5 Vdc<br>9.0 Vdc |
| Turn OFF threshold | 5 Vin<br>12 Vin | 4.3 Vdc<br>7.5 Vdc |

### GENERAL SPECIFICATIONS

|                         |                  |   |
|-------------------------|------------------|---|
| Efficiency              |                  | See Table                                     |
| Switching frequency     | Fixed            | 200 kHz                                       |
| Approvals and standards | (See Note 4)     | TÜV Product Services<br>IEC60950, UL/cUL60950 |
| Material flammability   |                  | UL94V-0                                       |
| Weight                  |                  | 9.3 g (0.3 oz)                                |
| MTBF                    | Telcordia SR-332 | 7,562,142 hours                               |

### ENVIRONMENTAL SPECIFICATIONS

|                                  |   |                                     |
|----------------------------------|---|-------------------------------------|
| Thermal performance (See Note 8) | Operating ambient, temperature<br>Non-operating | 0 °C to +80 °C<br>-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 IEC60950

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DC-DC CONVERTERS

C Class Non-isolated

2

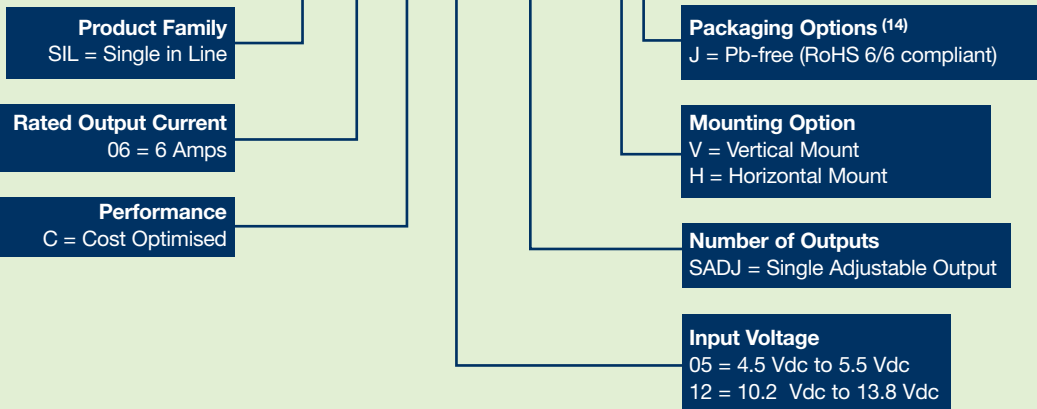
For the most current data and application support visit [www.artesyn.com/powergroup/products.htm](http://www.artesyn.com/powergroup/products.htm)

**NEW Product**

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OVP | OUTPUT VOLTAGE <sup>(12)</sup> | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION |       | MODEL NUMBER <sup>(5,13,14,15)</sup> |
|---------------------|---------------|-----|--------------------------------|-----------------------|-----------------------|-------------------|------------|-------|--------------------------------------|
|                     |               |     |                                |                       |                       |                   | LINE       | LOAD  |                                      |
| 20 W                | 4.5-5.5 Vdc   | N/A | 0.9-3.3 Vdc                    | 0 A                   | 6 A                   | 89%               | ±0.2%      | ±0.5% | SIL06C-05SADJ-VJ                     |
| 30 W                | 10.2-13.8 Vdc | N/A | 0.9-5.0 Vdc                    | 0 A                   | 6 A                   | 91%               | ±0.2%      | ±0.5% | SIL06C-12SADJ-VJ                     |

## Part Number System with Options

### SIL06C-12SADJ-VJ



### Output Voltage Adjustment of the SIL06C Series

The ultra-wide output voltage trim range offers major advantages to users who select the SIL06C 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 SIL06C series converter leaves the factory the output has been adjusted to the default voltage of 0.9 V

## Notes

- 1  $di/dt = 10 \text{ A}/\mu\text{s}$ ,  $V_{in} = \text{Nom}$ ,  $T_c = 25^\circ\text{C}$ , load change = 0.5  $I_o$  max. to 0.75  $I_o$  max. and 0.75  $I_o$  max. to 0.5  $I_o$  max.
- 2 Measured with external filter. See Application Note 131 for details.
- 3 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
- 4 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- 5 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. SIL06C-05SADJ-HJ.
- 6 Measured as per recommended set-up.  $C_{in} = 270 \mu\text{F}$  (20 m $\Omega$  esr max.).  $C_{out} = 680 \mu\text{F}$  (10 m $\Omega$  esr max.).
- 7 Uses external resistor from trim to output ground. Minimum value 485  $\Omega$  for 5 V model, 280  $\Omega$  for 12 V model. See Applications Note 131 for details.

## Notes cond.

- 8 Signal line assumed <3 m.
- 9 External input fusing recommended.
- 10 See Application Note 131 for operation above 50 °C.
- 11 See Application Note 131 for more details.
- 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. SIL06C-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    | 40 mV   | 20 mV |
|                   | 3.3-5 dcV      | 50 mV   | 20 mV |

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| PIN CONNECTIONS |   |
|-----------------|---|
| PIN NUMBER      | FUNCTION                                      |
| 1               | Vout  |
| 2               | Trim  |
| 3               | Ground  |
| 4               | Power Good                                    |
| 5               | Remote ON/OFF                                 |
| 6               | Vin   |
| 7               | Mechanical support                            |
| 8               | Mechanical support                            |
| 9               | Mechanical support on horizontal version only |

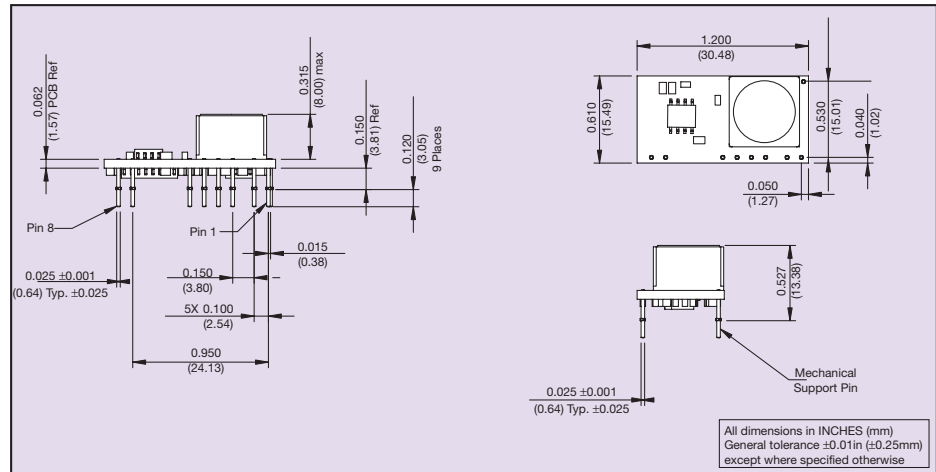


Figure 1: Mechanical Drawing - Horizontal Mount Version

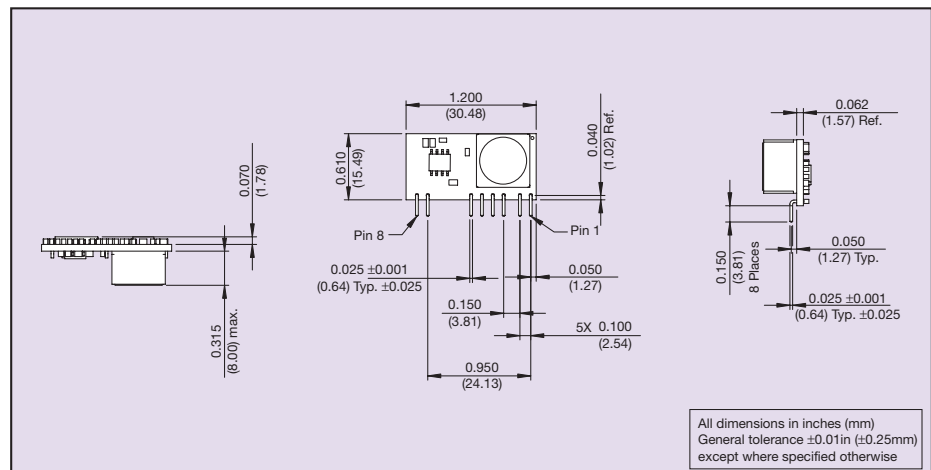


Figure 2: Mechanical Drawing - Vertical Mount Version