

SIL06C Series



5 Vin and 12 Vin single output

DC-DC CONVERTERS

C Class Non-isolated

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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 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 | Full load to min. load | ±0.5% max. |
| Min./max. load | | 0 A/6 A |
| Overshoot (at turn on) | 5 V input models 12 V input models | 3.0% max. 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 150 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 | No load Remote OFF | 50 mA 5 mA |
| Input current (max.) (See Note 9) | 5 V input model 12 V input model | 5.1 A @ Io max. 1.6 A @ Io max. |
| Input reflected ripple (See Note 2) | 5 V input model 12 V input model | 52 mA (pk-pk) 56 mA (pk-pk) |

| | | |
|-----------------------------------|-----------|-------------------------------------|
| Remote ON/OFF Logic compatibility | ON OFF | Active high >2.4 Vdc <0.8 Vdc |
|-----------------------------------|-----------|-------------------------------------|

| | | |
|----------------------------|---------------------------|------------------|
| Start-up time (See Note 3) | 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 | 200 kHz |
| Approvals and standards | (See Note 4) | TÜV Product Services 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 Non-operating | 0 °C to +80 °C -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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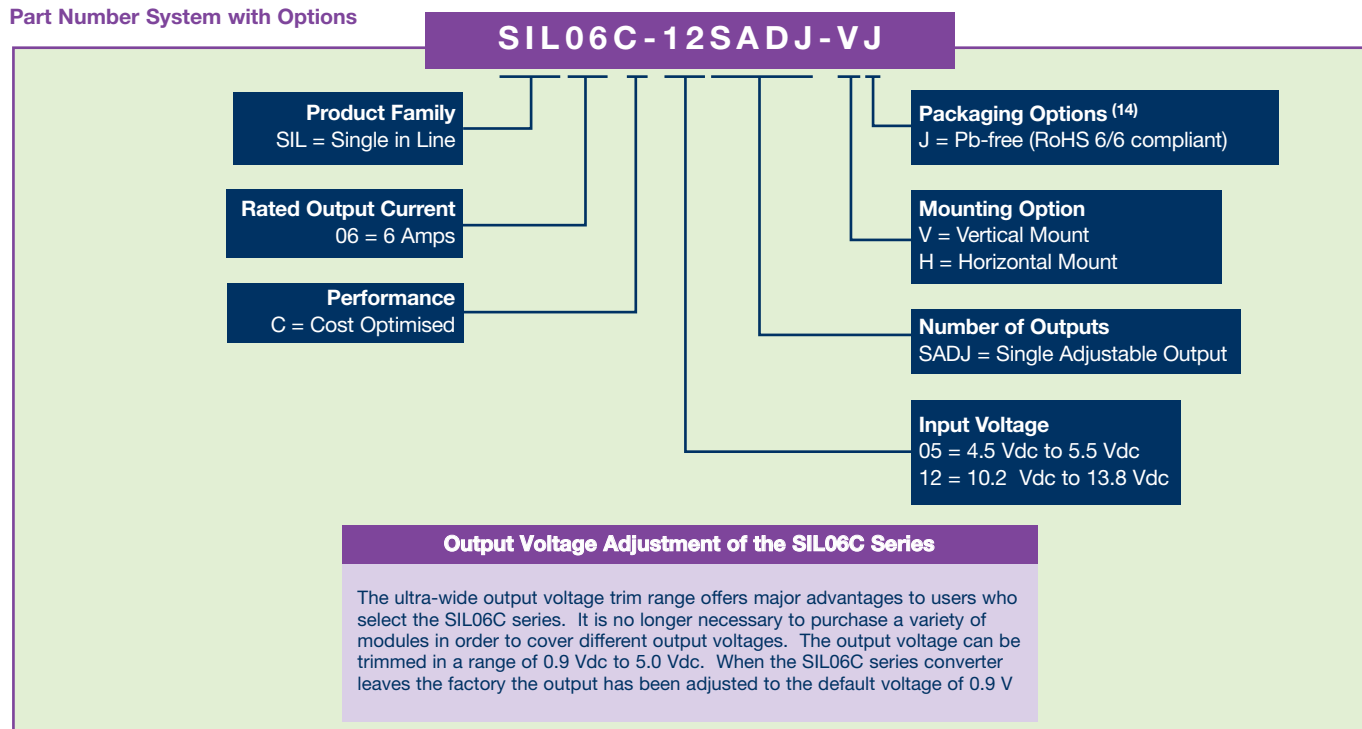
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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

NEW Product

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OVP | OUTPUT VOLTAGE ⁽¹²⁾ | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION | | MODEL NUMBER ^(5,13,14,15) |
|---------------------|---------------|-----|--------------------------------|-----------------------|-----------------------|-------------------|------------|-------|--------------------------------------|
| | | | | | | | 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



Notes

- 1 $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25 \text{ }^\circ\text{C}$, 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 mΩ esr max.). $C_{out} = 680 \mu\text{F}$ (10 mΩ esr max.).
- 7 Uses external resistor from trim to output ground. Minimum value 485 Ω for 5 V model, 280 Ω 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 |

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NEW Product

| 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 |

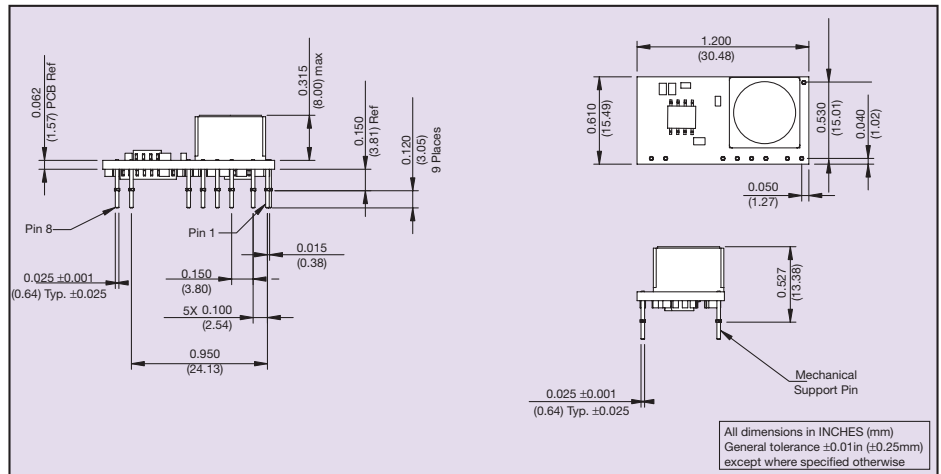


Figure 1: Mechanical Drawing - Horizontal Mount Version

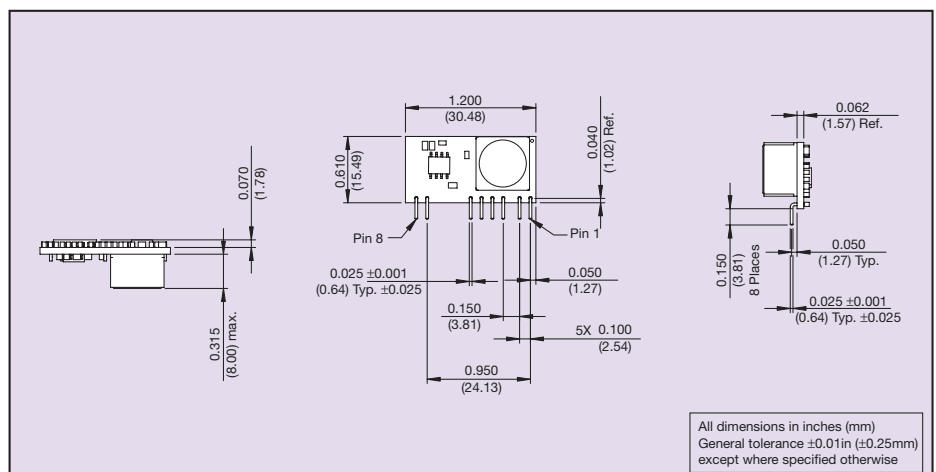


Figure 2: Mechanical Drawing - Vertical Mount Version