

SIL15C Series

5Vin and 12Vin single output

DC/DC CONVERTERS

C Class Non-isolated

1

NEW Product

- **15A current rating**
- **Input voltage range: 4.5V - 5.5V or 10.2V - 13.8V**
- **Output voltage range: 0.9V - 5.0V**
- **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**



The SIL15C Series is a new high density open frame non-isolated converter for space-sensitive 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 SIL15C series offers remote ON/OFF and over-current protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SIL15C 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 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 | | 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 |

INPUT SPECIFICATIONS

| | | |
|--|-----------------------------------|---|
| 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 @ I _o max. 8.1A @ I _o max. |
| Input reflected ripple (See Note 4) | 5V input model 12V input model | 200mA (pk-pk) 200mA (pk-pk) |
| Remote ON/OFF Logic compatibility | | 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 | 5Vin 12Vin | 4.5VDC 9.0VDC |
| Turn OFF threshold | 5Vin 12Vin | 4.3VDC 7.5VDC |

GENERAL SPECIFICATIONS

| | | |
|-----------------------------------|------------------|---|
| Efficiency | | See Table |
| Switching frequency | Fixed | 200kHz |
| Approvals and standards (pending) | (See Note 4) | TÜV Product Services IEC60950, UL/cUL60950 |
| Material flammability | | UL94V-0 |
| Weight | | 14.2g (0.5oz) |
| MTBF | Telcordia SR-332 | 7,817,294 hours |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|-------------------------------------|-----------------------------------|-----------------|
| Thermal performance (See Note 8) | 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) | 270µF/20mΩ esr max. |
| Output capacitance | (See Note 11) | 680µF/10mΩ esr max. |

International Safety Standard Approvals



UL/cUL CAN/CSA 22.2 No. E139421
UL60950 file No. E139421



TÜV Product Service (EN60950) Certificate No. BQ211.19870.205
CB report and certificate to IEC60950

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DC/DC CONVERTERS C Class Non-isolated

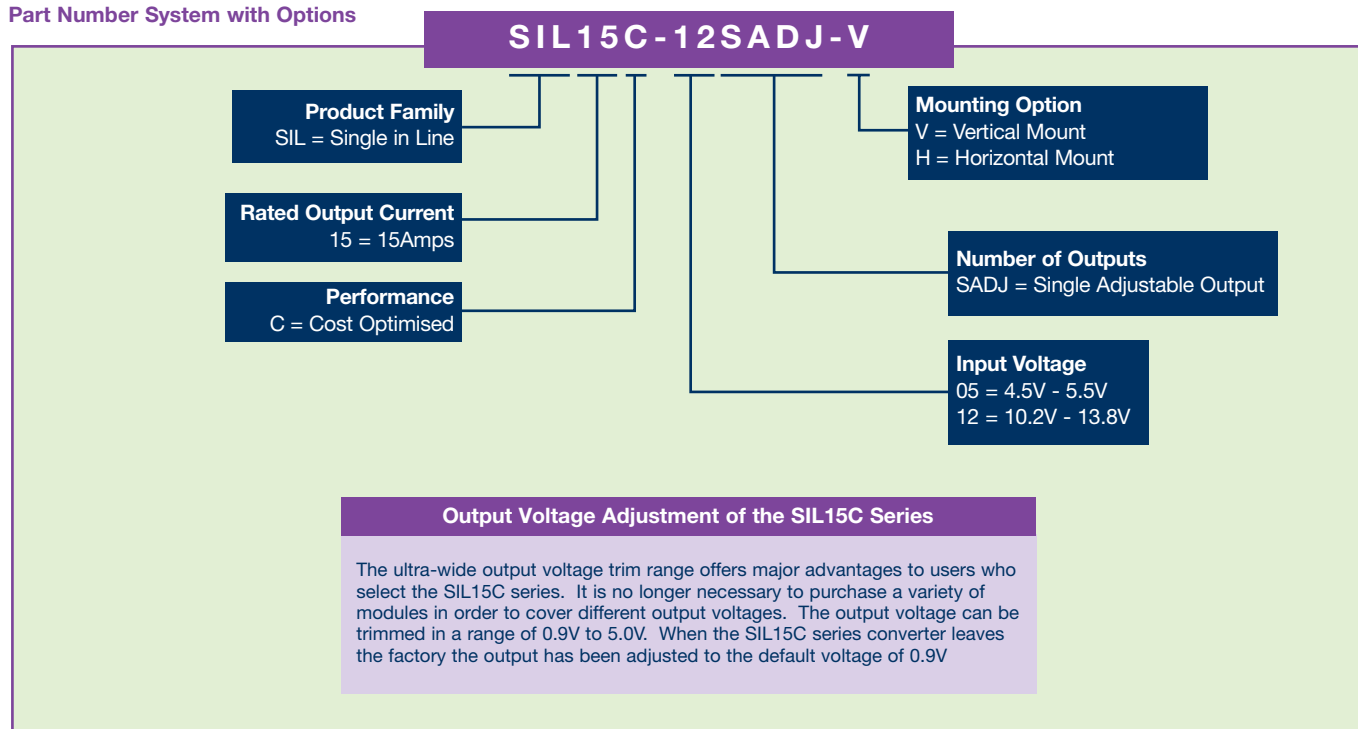
2

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

NEW Product

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OVP | OUTPUT VOLTAGE ⁽¹²⁾ | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION | | MODEL NUMBER ⁽⁸⁾ |
|---------------------|----------------|-----|--------------------------------|-----------------------|-----------------------|-------------------|------------|-------|-----------------------------|
| | | | | | | | LINE | LOAD | |
| 50W | 4.5 - 5.5VDC | N/A | 0.9V - 3.3V | 0A | 15A | 89% | ±0.2% | ±0.5% | SIL15C-05SADJ-V |
| 75W | 10.2 - 13.8VDC | N/A | 0.9V - 5.0V | 0A | 15A | 91% | ±0.2% | ±0.5% | SIL15C-12SADJ-V |

Part Number System with Options



Notes

- 1 Measured as per recommended set-up. $C_{in} = 270\mu F$ (20mΩ esr max), $C_{out} = 680\mu F$ (10mΩ esr max).
- 2 $di/dt = 10A/\mu s$, $V_{in} = \text{Nom}$, $T_c = 25^\circ C$, 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 = 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. SIL15C-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 12Vin 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 |

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) |

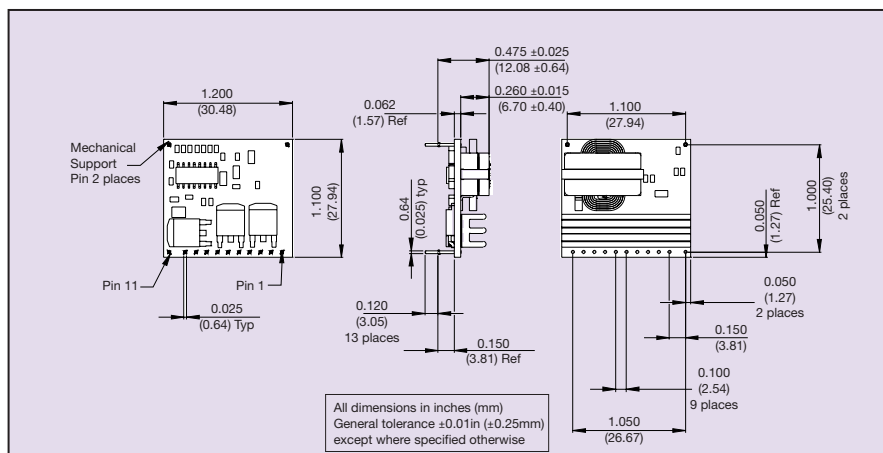


Figure 1: Mechanical Drawing - Horizontal Mount Version

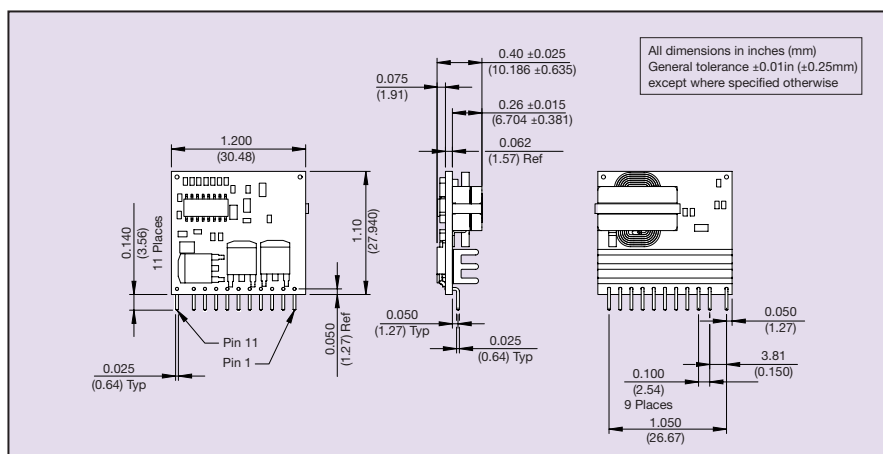


Figure 2: Mechanical Drawing - Vertical Mount Version