

# SIL40C Series

12Vin single output

**NEW Product**

- **40A current rating**
- **Input voltage range: 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 >4 million hours per Telcordia SR-332**
- **Current share**



The SIL40C Series is a new high density open frame non-isolated converter for space-sensitive applications. Each model has a wide input range (10.2V to 13.8V) and offer a wide 0.9V to 5.0V output voltage range with a 40A load. An external resistor adjusts the output voltage from its pre-set value of 0.9V to any value up to 5V. Typical efficiencies are 92% at full load conditions. The SIL40C series offers remote ON/OFF and over-current protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SIL40C 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)           | 0.9V to 5.0V                                       |
| Output setpoint accuracy           | 1.0% trim resistors    | ±3.0%  |
| Line regulation                    | Low line to high line  | ±0.2% max.   |
| Load regulation                    | Full load to min. load | ±1.5% max.   |
| Min/max load                       |                        | 0A/40A   |
| Overshoot                          | At turn-on             | 1.0% max.  |
| Undershoot                         | At turn-off            | 100mV max.   |
| Ripple and noise<br>5Hz to 20MHz   | (See Note 1)           | 50mV pk-pk<br>15mV rms                             |
| Transient response<br>(See Note 2) | Deviation              | 75mV<br>50µs recovery to<br>within regulation band |

### INPUT SPECIFICATIONS

|                                      |                            |   |
|--------------------------------------|----------------------------|---|
| Input voltage range                  |                            | 10.2 to 13.8VDC   |
| Input current                        | Minimum load<br>Remote OFF | 290mA<br>30mA   |
| Input current (max.)                 |                            | 22A max @ I <sub>o</sub> max<br>and V <sub>in</sub> = 10.2V |
| Input reflected ripple               | (See Note 4)               | 150mA pk-pk   |
| Remote ON/OFF<br>Logic compatibility |                            | Active high<br>>2.4VDC<br>ON<br><0.8VDC<br>OFF              |
| Start-up time<br>(See Note 9)        | Power up<br>Remote ON/OFF  | <30ms<br><30ms  |
| Turn ON threshold                    |                            | 9.0VDC  |
| Turn OFF threshold                   |                            | 7.6VDC  |

### GENERAL SPECIFICATIONS

|                         |                                       |   |
|-------------------------|---------------------------------------|---|
| Efficiency              |                                       | See table                                     |
| Switching frequency     | Fixed                                 | 300kHz typ.                                   |
| Approvals and standards | (See Note 7)                          | TÜV Product Services<br>IEC60950, UL/cUL60950 |
| Material flammability   |                                       | UL94V-0                                       |
| Weight                  |                                       | 28.3g (1.0oz)                                 |
| MTBF                    | Telcordia SR-332,<br>method II @ 40°C | 4,585,991 hours                               |

### ENVIRONMENTAL SPECIFICATIONS

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

### PROTECTION

|                  |                        |
|------------------|------------------------|
| Short-circuit    | Foldback, non-latching |
| Over-temperature | Hiccup, non-latching   |

### RECOMMENDED SYSTEM CAPACITANCE

|                    |                                       |
|--------------------|---------------------------------------|
| Input capacitance  | (See Note 11) 2 x 270µF/20mΩ esr max. |
| Output capacitance | (See Note 11) 3 x 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. B 03 08 19870 219  
CB report and certificate to IEC60950

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DC/DC CONVERTERS

C Class Non-isolated

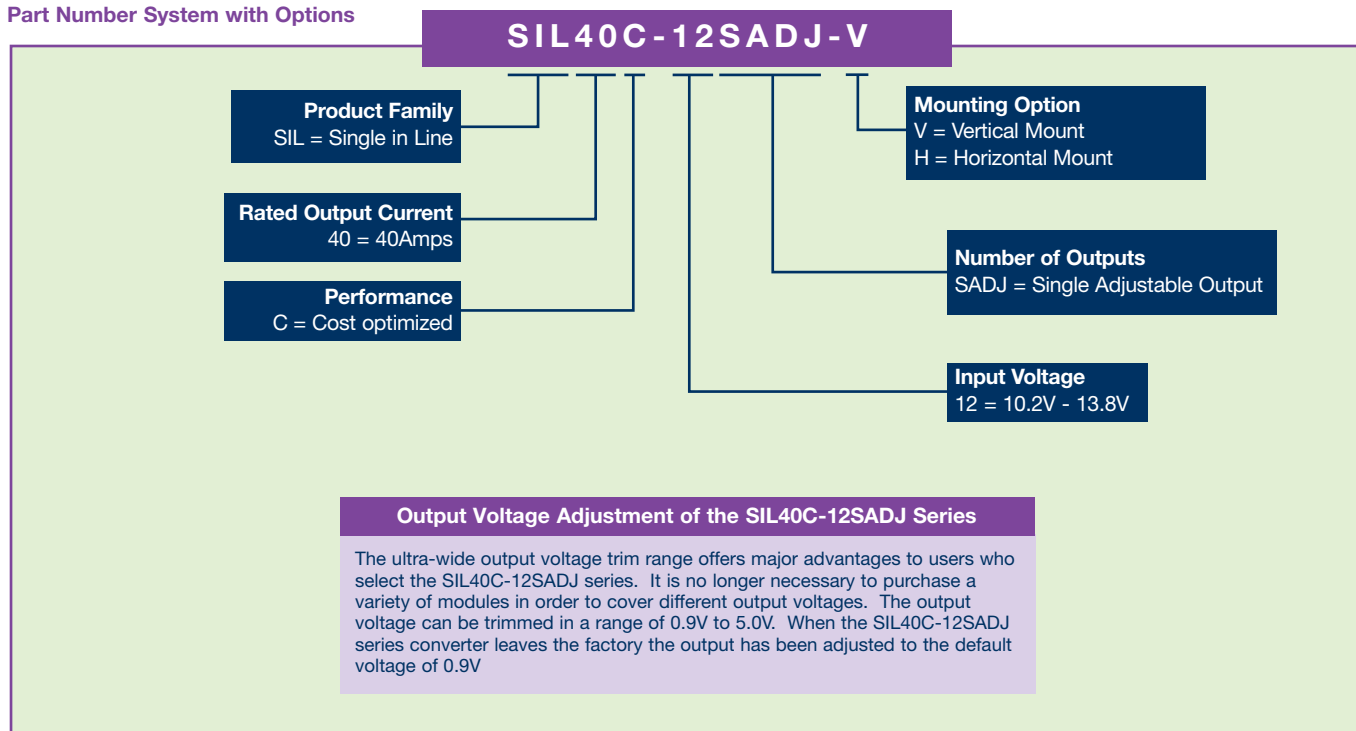
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**NEW Product**

| OUTPUT POWER (MAX.) | INPUT VOLTAGE  | OVP | OUTPUT VOLTAGE <sup>(12)</sup> | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY | REGULATION |       | MODEL NUMBER <sup>(8,13)</sup> |
|---------------------|----------------|-----|--------------------------------|-----------------------|-----------------------|------------|------------|-------|--------------------------------|
|                     |                |     |                                |                       |                       |            | LINE       | LOAD  |                                |
| 200W                | 10.2 - 13.8VDC | N/A | 0.9V - 5.0V                    | 0A                    | 40A                   | 92%        | ±0.2%      | ±1.5% | SIL40C-12SADJ-V                |

## Part Number System with Options



## Notes

- 1 Measured as per recommended set-up.  $2 \times C_{in} = 270\mu\text{F}$  (20mΩ esr max,  $3 \times C_{out} = 680\mu\text{F}$  (10mΩ 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<sub>o</sub> max. to 0.75 I<sub>o</sub> max. and 0.75 I<sub>o</sub> max. to 0.50 I<sub>o</sub> max.
- 3 External input fusing is recommended.
- 4 Measured with external filter. See Application Note 132 for details.
- 5 Uses external resistor from trim pin to output ground. See Application Note 132 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. SIL40C-12SADJ-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 132 for operation above 50°C.
- 11 See Application Note 132 for ripple current requirements.
- 12 These models have a wide trim output. The unit has an output of 0.9V to 5V. 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. SIL40C-12SADJ-HP4.

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DC/DC CONVERTERS | C Class Non-isolated

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**NEW Product**

| PIN CONNECTIONS |                |
|-----------------|----------------|
| PIN NUMBER      | FUNCTION       |
| 1               | Trim           |
| 2               | No Pin         |
| 3               | Ground         |
| 4               | Power good     |
| 5               | Not connected  |
| 6               | Current share  |
| 7               | Ground         |
| 8               | Ground         |
| 9               | Remote ON/OFF  |
| 10              | Remote sense - |
| 11              | Remote sense + |
| 12              | Vin            |
| 13              | Vin            |
| 14              | Vin            |
| 15              | Vout           |
| 16              | Vout           |
| 17              | Ground         |
| 18              | Vout           |
| 19              | Ground         |
| 20              | Vout           |
| 21              | Ground         |
| 22              | Vout           |
| 23              | Ground         |
| 24              | Vout           |

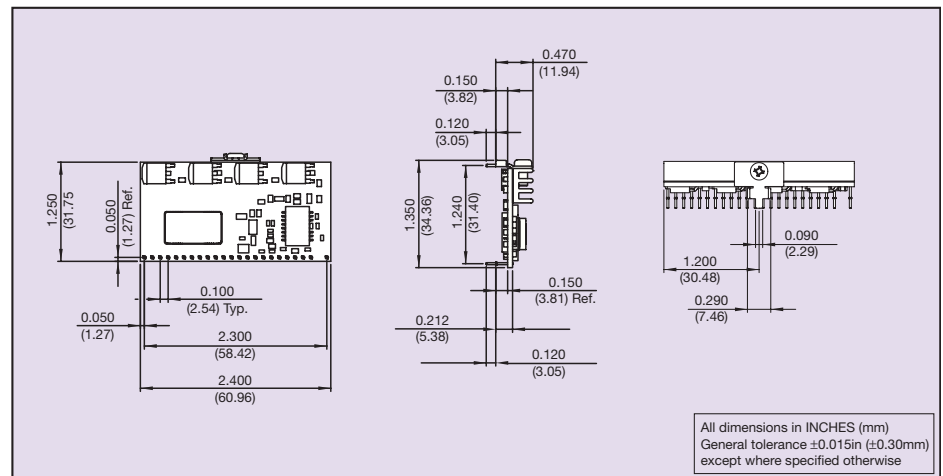


Figure 1: Mechanical Drawing - Horizontal Mount Version

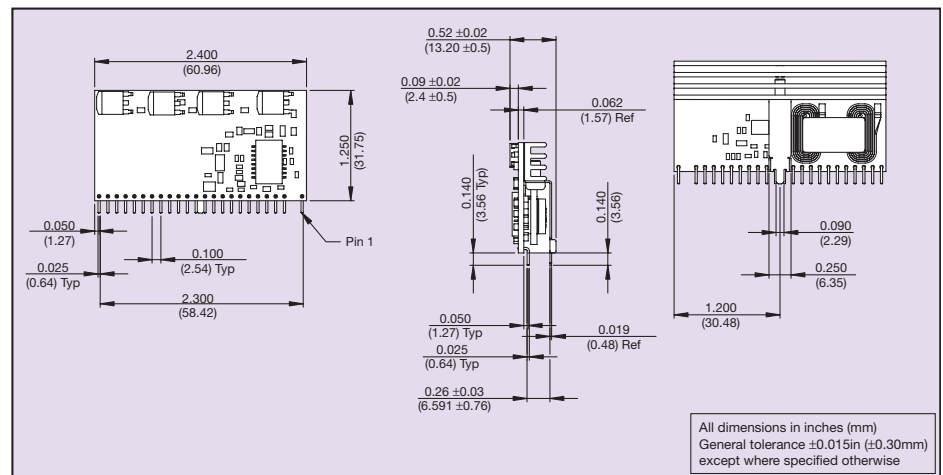


Figure 2: Mechanical Drawing - Vertical Mount Version

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