

# SIL/SMT20C2 Series

## 4.5 Vin to 13.8 V Single Output



August 27, 2008

DC-DC CONVERTERS

C Class Non-isolated

1

NEW Product



- 20 A current rating
- Input voltage range: 4.5-13.8 V
- Output voltage: 0.59-5.1 V
- Industry leading value
  - Cost optimized design
- Excellent transient response
- Output enable
- Output voltage adjustability
  - Pathway for future upgrades
  - Supports silicon voltage migration
  - Resulting in reduced design-in and qual time
- Current sink capability
- RoHS compliant



The SIL/SMT20C2 series is a new high density, open frame, non-isolated converter for space sensitive applications. This model has a wide input range (4.5-13.8 Vdc) and offers a wide 0.59-5.1 V output voltage range with 20 A load capability. An external resistor adjusts the output voltage from its pre-set value of 0.59 V to any value up to the 5 V maximum. Typical efficiencies for the models are 93% for the 12 V input version. The series offers remote ON/OFF and over-current protection as standard.

All specifications are typical at nominal input, full load at 25 °C, unless otherwise stated

### SPECIFICATIONS

#### OUTPUT SPECIFICATIONS

|                          |                        |                                                                |
|--------------------------|------------------------|----------------------------------------------------------------|
| Output voltage           | (See Note 5)           | 0.59-5.1 V                                                     |
| Output setpoint accuracy | 0.1% trim resistors    | ±1.0%                                                          |
| Line regulation          | Low line to high line  | ±0.2%                                                          |
| Load regulation          | Full load to min. load | ±0.5%                                                          |
| Min/max load             |                        | 0 A/20 A                                                       |
| Overshoot                | At turn-on             | 0.5% max.                                                      |
| Undershoot               | At turn-off            | 100 mV max.                                                    |
| Ripple and noise         | (See Note 1)           | 30 mV<br>5 Hz to 20 MHz<br>Vin = 5 V, Vout = 2.5 V             |
| Transient response       | (See Notes 1, 2)       | 130 mV max. deviation<br>50 µs recovery within regulation band |

#### INPUT SPECIFICATIONS

|                      |                            |                |
|----------------------|----------------------------|----------------|
| Input voltage range  |                            | 4.5-13.8 Vdc   |
| Input current        | Minimum load<br>Remote OFF | 50 mA<br>5 mA  |
| Input current (max.) | (See Note 3)               | 18 A @ Io max. |
| Start-up time        | Remote ON/OFF              | 3 ms           |

#### GENERAL SPECIFICATIONS

|                                   |                                           |                       |
|-----------------------------------|-------------------------------------------|-----------------------|
| Efficiency                        | Vin=5 V, Vo=2.5 V, Io=20 A                | 90%                   |
| Switching frequency               | Fixed                                     | 750 kHz               |
| Approvals and standards (pending) |                                           | EN60950<br>UL/cUL6950 |
| Material flammability             |                                           | UL94V-0               |
| Weight                            |                                           | 8.50 g/0.3 oz.        |
| MTBF                              | 12 V @ 40 °C<br>100% load<br>Bellcore 332 | 6,721,853 hours       |
| Coplanarity                       |                                           | 150 µm                |

#### ENVIRONMENTAL SPECIFICATIONS

|                                  |                                                 |                                     |
|----------------------------------|-------------------------------------------------|-------------------------------------|
| Thermal performance (See Note 5) | Operating ambient, temperature<br>Non-operating | 0 °C to +70 °C<br>-40 °C to +125 °C |
|----------------------------------|-------------------------------------------------|-------------------------------------|

#### PROTECTION

|                        |                      |
|------------------------|----------------------|
| Short-circuit          | Hiccup, non-latching |
| Overvoltage protection | Hiccup, non-latching |

#### RECOMMENDED SYSTEM CAPACITANCE

|                    |              |      |
|--------------------|--------------|------|
| Input capacitance  | (See Note 6) | 0 µF |
| Output capacitance | (See Note 7) | 0 µF |

International Safety Standard Approvals



UL/cUL CAN/CSA 22.2



TÜV Product Service (EN60950)  
CB report and certificate to IEC60950

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

**NEW Product**

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | MOUNT              | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION |       | MODEL NUMBER <sup>(8, 9)</sup> |
|---------------------|---------------|--------------------|----------------|-----------------------|-----------------------|-------------------|------------|-------|--------------------------------|
|                     |               |                    |                |                       |                       |                   | LINE       | LOAD  |                                |
| 100 W               | 4.5-13.8 Vdc  | Horizontal         | 0.59-5.1 V     | 0 A                   | 20 A                  | 93%               | ±0.2%      | ±0.5% | SIL20C2-00SADJ-HJ              |
| 100 W               | 4.5-13.8 Vdc  | Vertical           | 0.59-5.1 V     | 0 A                   | 20 A                  | 93%               | ±0.2%      | ±0.5% | SIL20C2-00SADJ-VJ              |
| 100 W               | 4.5-13.8 Vdc  | Horizontal Surface | 0.59-5.1 V     | 0 A                   | 20 A                  | 93%               | ±0.2%      | ±0.5% | SMT20C2-00SADJJ                |

### Part Number System with Options

**SXX20C2-00SADJ-VJ**

**Product Family**  
SMT = Surface Mount  
SIL = Single In Line

**Rated Output Current**  
06 = 6 A  
15 = 15 A  
20 = 20 A  
30 = 30 A  
40 = 40 A

**Performance**  
C = Cost Optimized

**Generation**  
Blank = Standard Part  
2 = Increased Current Density

**RoHS Compliance<sup>(8)</sup>**  
J = Pb-free (RoHS 6/6 compliant)

**Mounting Option**  
-V = Vertical  
-H = Horizontal  
Blank = Horizontal Surface

**Output Voltage**  
Single Adjustable Output

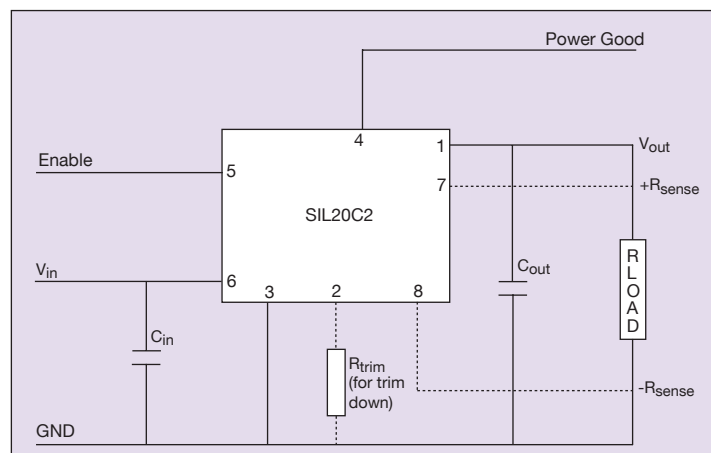
**Input Voltage**  
00 = 4.5-13.8 V

### Output Voltage Adjustment of the SIL/SMT20C2 Series

The ultra-wide output voltage trim range offers major advantages to users who select the SIL/SMT20C2. 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 0.59-5.1 V. When the SIL/SMT20C2 converter leaves the factory, the output has been adjusted to the default voltage of 0.59 V.

### Notes

- 1 Measured as per recommended system capacitance.
- 2  $di/dt = 10 \text{ A}/\mu\text{s}$ ,  $V_{in} = \text{Nom}$ ,  $T_c = 25^\circ\text{C}$ , load change = 0.75 Io to full Io and full Io to 0.75.
- 3 External input fusing is recommended.
- 4 Additional part numbers may be available with different output voltages.
- 5 Airflow dependent, 100 LFM minimum required.
- 6 No capacitor needed for ripple current capability.
- 7 No capacitor needed for stability.
- 8 TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 9 NOTICE: Some models may not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at <http://www.powerconversion.com> to find a suitable alternative.



**Figure 1: Standard Application Drawing**

# SIL/SMT20C2 Series

## 4.5 Vin to 13.8 V Single Output

| PIN CONNECTIONS |                  |
|-----------------|------------------|
| PIN NO.         | FUNCTION         |
| 1               | Vout             |
| 2               | Trim             |
| 3               | Ground           |
| 4               | Power good       |
| 5               | Enable           |
| 6               | Vin              |
| 7               | Remote Sense (+) |
| 8               | Remote Sense (-) |

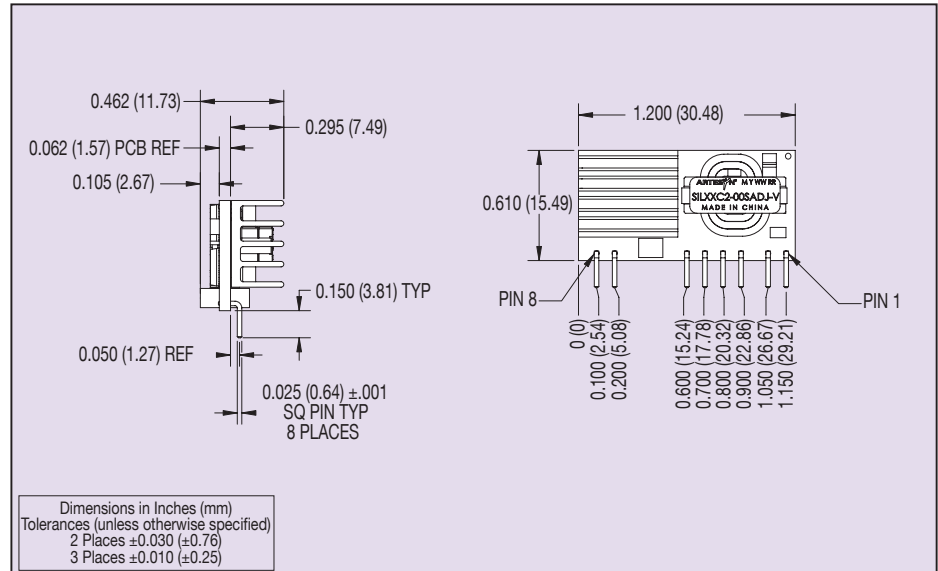


Figure 2: Vertical Mount Mechanical Drawing

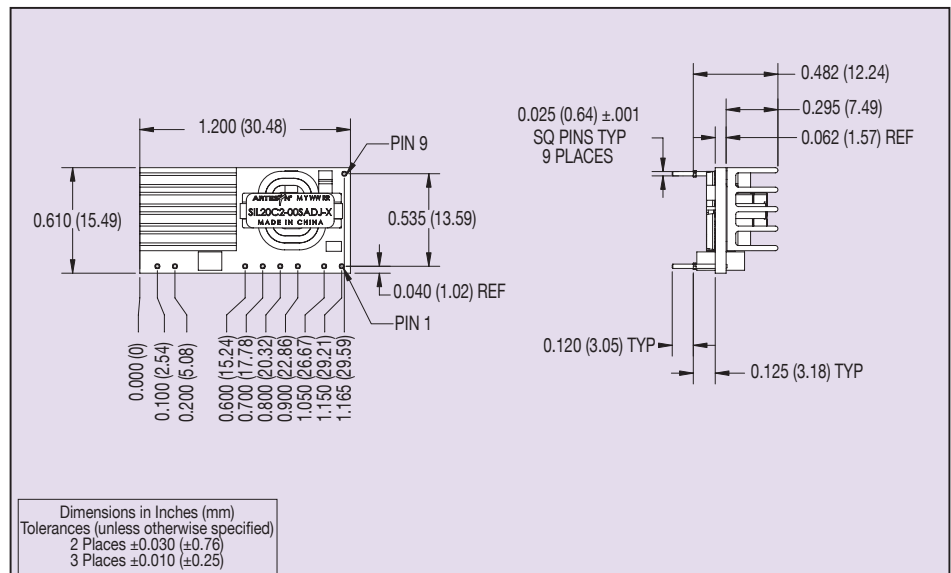


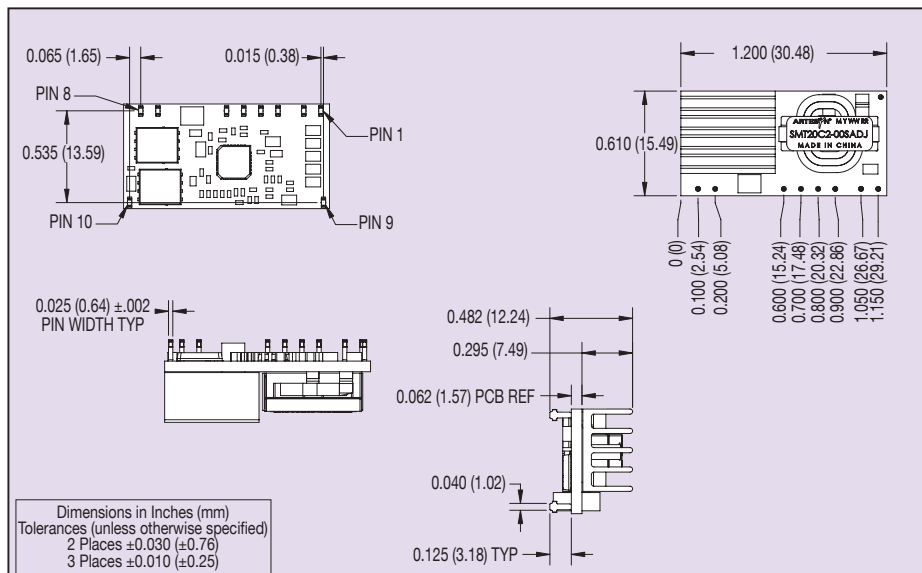
Figure 3: Horizontal Mount Mechanical Drawing

# SIL/SMT20C2 Series

## 4.5 Vin to 13.8 V Single Output

| PIN CONNECTIONS |                  |
|-----------------|------------------|
| PIN NO.         | FUNCTION         |
| 1               | Vout             |
| 2               | Trim             |
| 3               | Ground           |
| 4               | Power good       |
| 5               | Enable           |
| 6               | Vin              |
| 7               | Remote Sense (+) |
| 8               | Remote Sense (-) |
| 9               | *Mech Support    |
| 10              | *Mech Support    |

\* Horizontal version only



**Figure 4: Surface Mount Mechanical Drawing**

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- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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## JONHON

«JONHON» (основан в 1970 г.)

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