

SIL/SMT20C2 Series

4.5 Vin to 13.8 V Single Output

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 5 Hz to 20 MHz Vin = 5 V, Vout = 2.5 V |
| Transient response | (See Notes 1, 2) | 130 mV max. deviation 50 µs recovery within regulation band |

INPUT SPECIFICATIONS

| | | |
|----------------------|----------------------------|----------------|
| Input voltage range | | 4.5-13.8 Vdc |
| Input current | Minimum load Remote OFF | 50 mA 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 UL/cUL6950 |
| Material flammability | | UL94V-0 |
| Weight | | 8.50 g/0.3 oz. |
| MTBF | 12 V @ 40 °C 100% load Bellcore 332 | 6,721,853 hours |
| Coplanarity | | 150 µm |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|----------------------------------|---|-------------------------------------|
| Thermal performance (See Note 5) | Operating ambient, temperature Non-operating | 0 °C to +70 °C -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/GSA 22.2



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

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NEW Product

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | MOUNT | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION | | MODEL NUMBER ^(8, 9) |
|---------------------|---------------|--------------------|----------------|-----------------------|-----------------------|-------------------|------------|-------|--------------------------------|
| | | | | | | | 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⁽⁶⁾
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 $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25 \text{ }^\circ\text{C}$, 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.

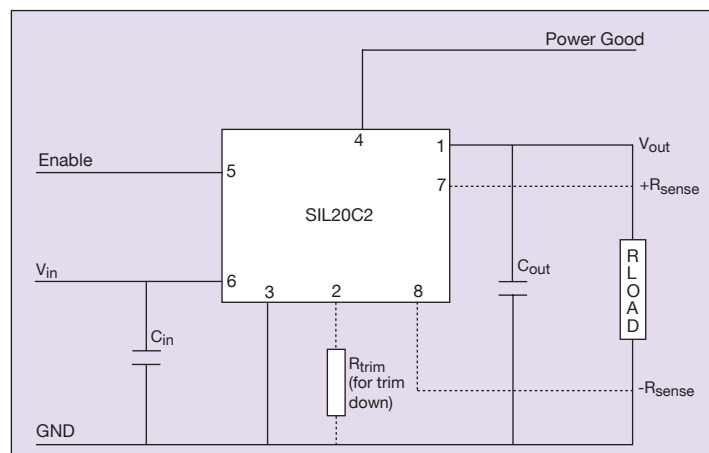


Figure 1: Standard Application Drawing

SIL/SMT20C2 Series

4.5 Vin to 13.8 V Single Output

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NEW Product

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

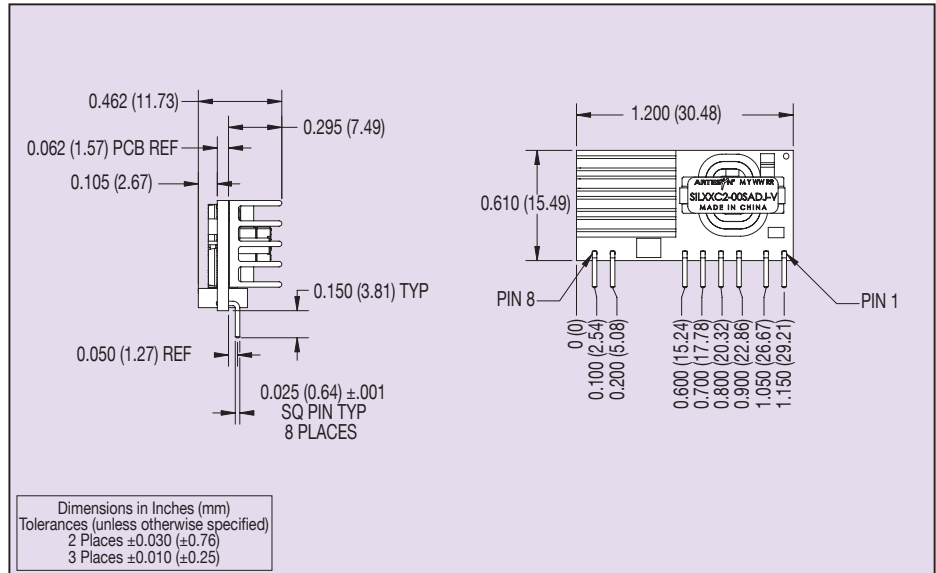


Figure 2: Vertical Mount Mechanical Drawing

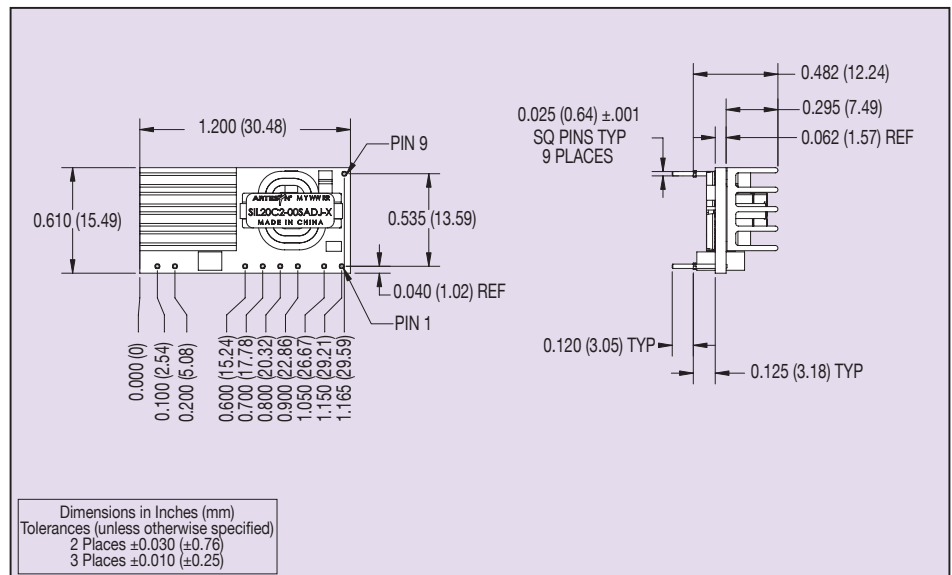


Figure 3: Horizontal Mount Mechanical Drawing

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DC-DC CONVERTERS

C Class Non-isolated

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NEW Product

| 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

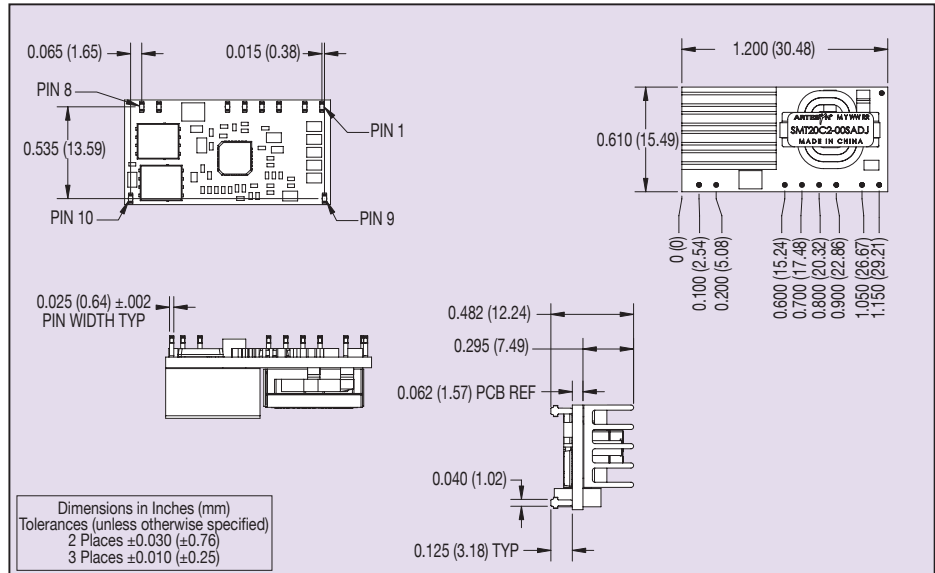


Figure 4: Surface Mount Mechanical Drawing

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Please consult our website for the following items: ✓ Application Note ✓ Longform Datasheet

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