SIL/SMT20C2 Series

4.5 Vin to 13.8 V Single Output

EMERSON Network Power

October 13, 2010

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

RoHS 2002/95/EC

2 YEAR WARRANTY

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 5 Hz to 20 MHz	(See Note 1)	30 mV 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, V o=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/CSA 22.2

TÜV Product Service (EN60950)
CB report and certi cate to IEC60950

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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 Mount	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** (8)
  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 ouput has been adjusted to the default voltage of 0.59 V.

Notes

1. Measured as per recommended system capacitance.
2. di/dt = 10 A/ µs, Vin = Nom, Tc = 25 °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.

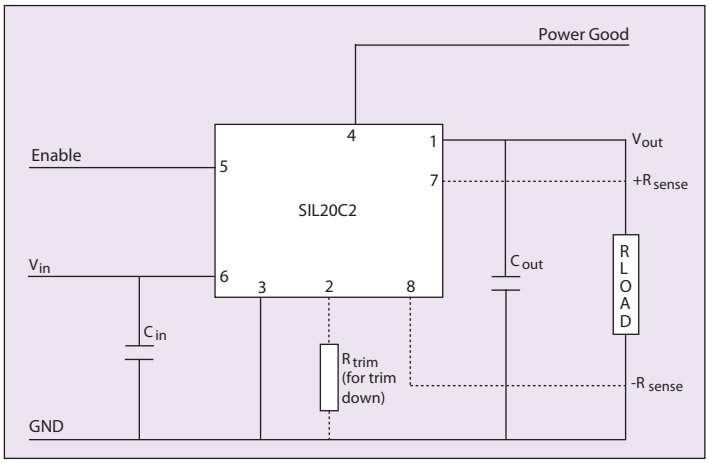

Figure 1: Standard Application Drawing

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

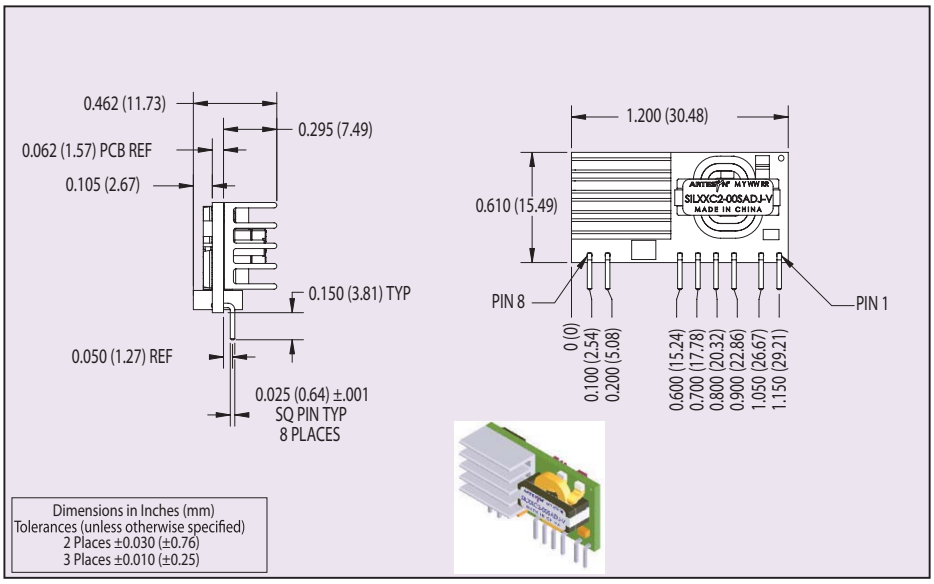

Figure 2: Vertical Mount Mechanical Drawing

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

* Horizontal version only

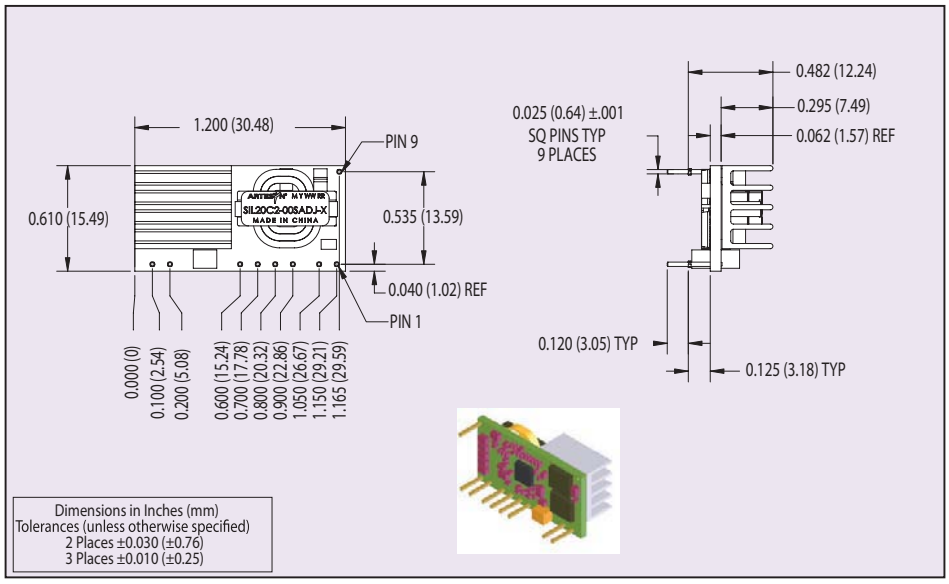

Figure 3: Horizontal Mount Mechanical Drawing

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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

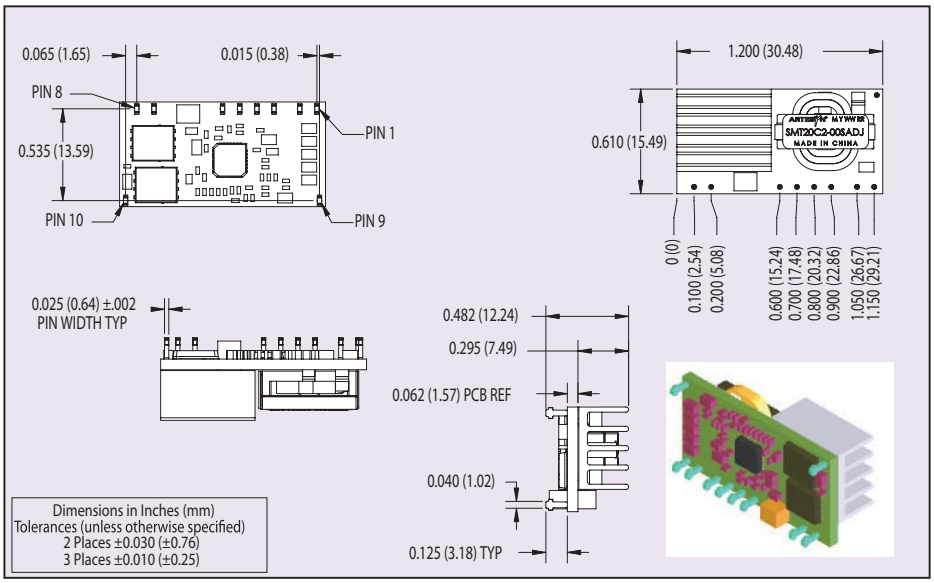

Figure 4: Surface Mount Mechanical Drawing