Network Power

4.5 Vin to 13.8 V Single Output

August 27, 2008

DC-DC CONVERTERS

C Class Non-isolated

NEW Product



- 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.





90%

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 @ lo max.
Start-up time	Remote ON/OFF	3 ms

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

ENVIRONMENTAL SPECIFICATIONS

GENERAL SPECIFICATIONS

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



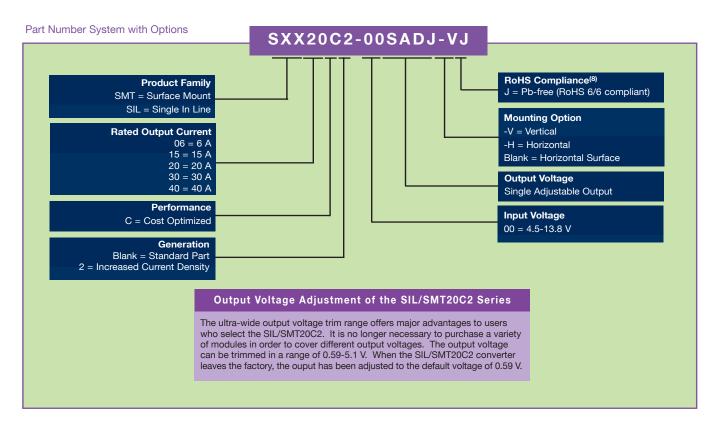
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DC-DC CONVERTERS C Class Non-isolated 2

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OUTPUT POWER (MAX.)	INPUT VOLTAGE	MOUNT	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGUL LINE	LOAD	MODEL NUMBER ^(8, 9)
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



Notes

- 1 Measured as per recommended system capacitance.
- 2 di/dt = 10 A/µs, Vin = Nom, Tc = 25 °C, load change = 0.75 lo to full lo and full lo 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.
- 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.

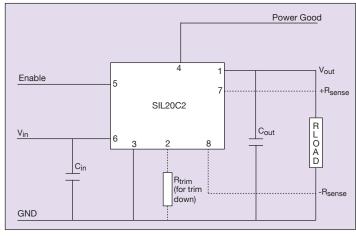


Figure 1: Standard Application Drawing



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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 (-)		

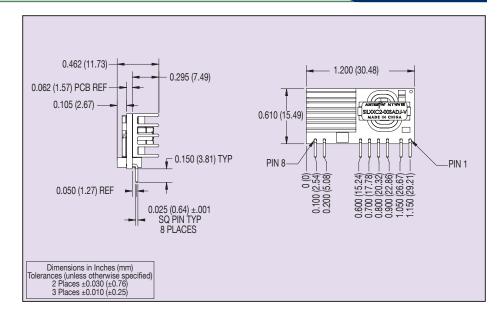


Figure 2: Vertical Mount Mechanical Drawing

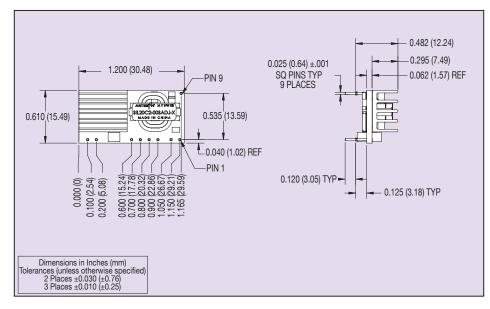


Figure 3: Horizontal Mount Mechanical Drawing



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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

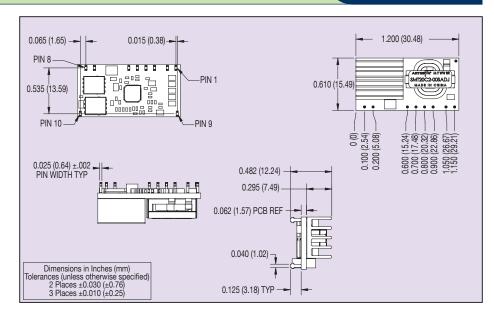


Figure 4: Surface Mount Mechanical Drawing

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