

SMT20C Series

5 Vin and 12 Vin single output

NEW Product



- **20 A current rating**
- **Input voltage range: 4.5 Vdc to 5.5 Vdc or 10.2 Vdc to 13.8 Vdc**
- **Output voltage range: 0.9 Vdc to 3.3/5.0 Vdc**
- **Industry leading value**
 - Cost optimized 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 >7 million hours per Telcordia SR-332**
- **Available RoHS compliant**



The SMT20C Series is a new high density open frame non-isolated converter for space-sensitive applications. Each model has a wide input range (4.5 Vdc to 5.5 Vdc or 10.2 Vdc to 13.8 Vdc) and offers a wide 0.9 Vdc to 3.3/5.0 V output voltage range with a 20 A load. An external resistor adjusts the output voltage from its pre-set value of 0.9 V to any value up to the maximum allowed value for that model. Typical efficiencies are 87% for the 5 V input version and 91% for the 12 V input version at full load conditions. The SMT20C series offers remote ON/OFF and overcurrent protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SMT20C reduces compliance costs and time to market.



All specifications are typical at nominal input Vin = 12 V, full load at 25 °C unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

| | | |
|---------------------------------------|---------------------------------------|---|
| Voltage adjustability (See Note 5) | 5 V input models 12 V input models | 0.9-3.3 Vdc 0.9-5.0 Vdc |
| Output setpoint accuracy | With 1.0% trim resistors | ±2.5% |
| Line regulation | Low line to high line | ±0.2% max. |
| Load regulation | | ±1.3% max. |
| Min/max load | | 0 A/20 A |
| Overshoot (at turn on) | 5 V input models 12 V input models | 3.0% max. 1.0% max. |
| Ripple and noise 5 Hz to 20 MHz | (See Note 1) | See Table on page 2 |
| Transient response (See Note 2) | | 100 mV max. deviation 200 µs recovery to within regulation band |

INPUT SPECIFICATIONS

| | | |
|--------------------------------------|-------------------------------------|--|
| Input voltage range | 5 V input model 12 V input model | 4.5-5.5 Vdc 10.2-13.8 Vdc |
| Input current | Minimum load Remote OFF | 65 mA 20 mA |
| Input current (max.) (See Note 3) | 5 V input model 12 V input model | 15 A @ Io max. 11 A @ Io max. |
| Input reflected ripple | (See Note 4) | 200 mA (pk-pk) |
| Remote ON/OFF Logic compatibility | | Positive Logic >2.4 Vdc <0.8 Vdc |
| Start-up time (See Note 8) | Power up Remote ON/OFF | <20 ms <20 ms |

INPUT SPECIFICATIONS (CONTD.)

| | | |
|--------------------|-----------------|------------------------------|
| Turn ON threshold | 5 Vin 12 Vin | 4.5 Vdc typ. 9.3 Vdc typ. |
| Turn OFF threshold | 5 Vin 12 Vin | 4.3 Vdc typ. 7.8 Vdc typ. |

GENERAL SPECIFICATIONS

| | | |
|-------------------------|---------------------|---|
| Efficiency | See Table on page 2 | |
| Switching frequency | Fixed | 275 kHz typ. |
| Approvals and standards | (See Note 7) | TÜV Product Services IEC60950, UL/cUL60950 |
| Material flammability | UL94V-0 | |
| Weight | 14.2 g (0.5 oz) | |
| Coplanarity | 150 µm | |
| MTBF | Telcordia SR-332 | 7,963,574 hours |

ENVIRONMENTAL SPECIFICATIONS

| | | |
|-------------------------------------|--|-------------------------------------|
| Thermal performance (See Note 9) | Operating ambient, temperature Non-operating | 0 °C to +80 °C -40 °C to +125 °C |
|-------------------------------------|--|-------------------------------------|

PROTECTION

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

RECOMMENDED SYSTEM CAPACITANCE

| | | |
|--------------------|---------------|-----------------------|
| Input capacitance | (See Note 10) | 270 µF/20 mΩ ESR max. |
| Output capacitance | (See Note 10) | 680 µF/10 mΩ ESR max. |

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DC-DC CONVERTERS

C Class Non-isolated

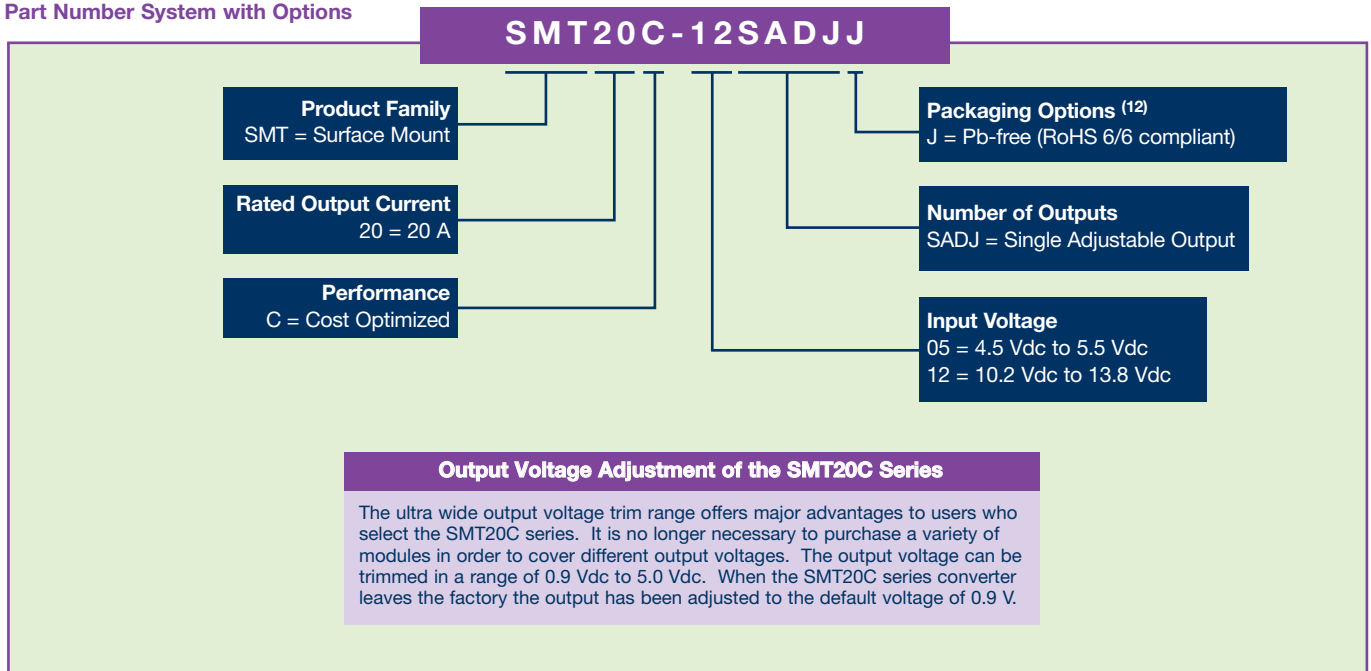
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For the most current data and application support visit www.artesyn.com/powergroup/products.htm

NEW Product

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OVP | OUTPUT VOLTAGE ⁽¹¹⁾ | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | MAXIMUM LOAD (TYP.) | REGULATION | | MODEL NUMBER ^(12,13) |
|---------------------|---------------|-----|--------------------------------|-----------------------|-----------------------|---------------------|------------|-------|---------------------------------|
| | | | | | | | LINE | LOAD | |
| 66 W | 4.5-5.5 Vdc | N/A | 0.9-3.3 V | 0 A | 20 A | 87% | ±0.2% | ±1.3% | SMT20C-05SADJJ |
| 100 W | 10.2-13.8 Vdc | N/A | 0.9-5.0 V | 0 A | 20 A | 91% | ±0.2% | ±1.3% | SMT20C-12SADJJ |

Part Number System with Options



Notes

- Measured as per recommended set-up. $2 \times C_{in} = 270 \mu\text{F}$ (20 m Ω ESR max, $C_{out} = 680 \mu\text{F}$ (10 m Ω ESR max).
- $di/dt = 10 \text{ A}/\mu\text{s}$, $V_{in} = \text{Nom}$, $T_c = 25 \text{ }^\circ\text{C}$, load change = 0.50 I_o max. to 0.75 I_o max. and 0.75 I_o max. to 0.50 I_o max. At 12 V, 0.9 V_{out}, the max voltage deviation is 200 mV.
- External input fusing is recommended.
- Measured with external filter. See Application Note 169 for details.
- Uses external resistor from trim pin to output ground. Min value = 485 Ω for 5 V model, 280 Ω for 12 V model. See Application Note 169 for details.
- Signal line assumed <3 m in length.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
- 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.
- See Application Note 169 for operation above 50 $^\circ\text{C}$.
- See Application Note 169 for ripple current requirements.
- These models have a wide trim output. 5 Vin has an output of 0.9 Vdc to 3.3 Vdc and 12 Vin has an output of 0.9 Vdc to 5 Vdc. An external resistor adjusts the output voltage.
- TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.

Ripple and Noise Specification

| Model | Output Voltage | Pk - Pk | RMS |
|-------------------|--------------------|---------|-------|
| 5 V input models | 0.9 Vdc to 2.5 Vdc | 30 mV | 15 mV |
| | 3.3 Vdc | 40 mV | 15 mV |
| 12 V input models | 0.9 Vdc to 2.5 Vdc | 40 mV | 25 mV |
| | 3.3 Vdc to 5 Vdc | 50 mV | 25 mV |

International Safety Standard Approvals



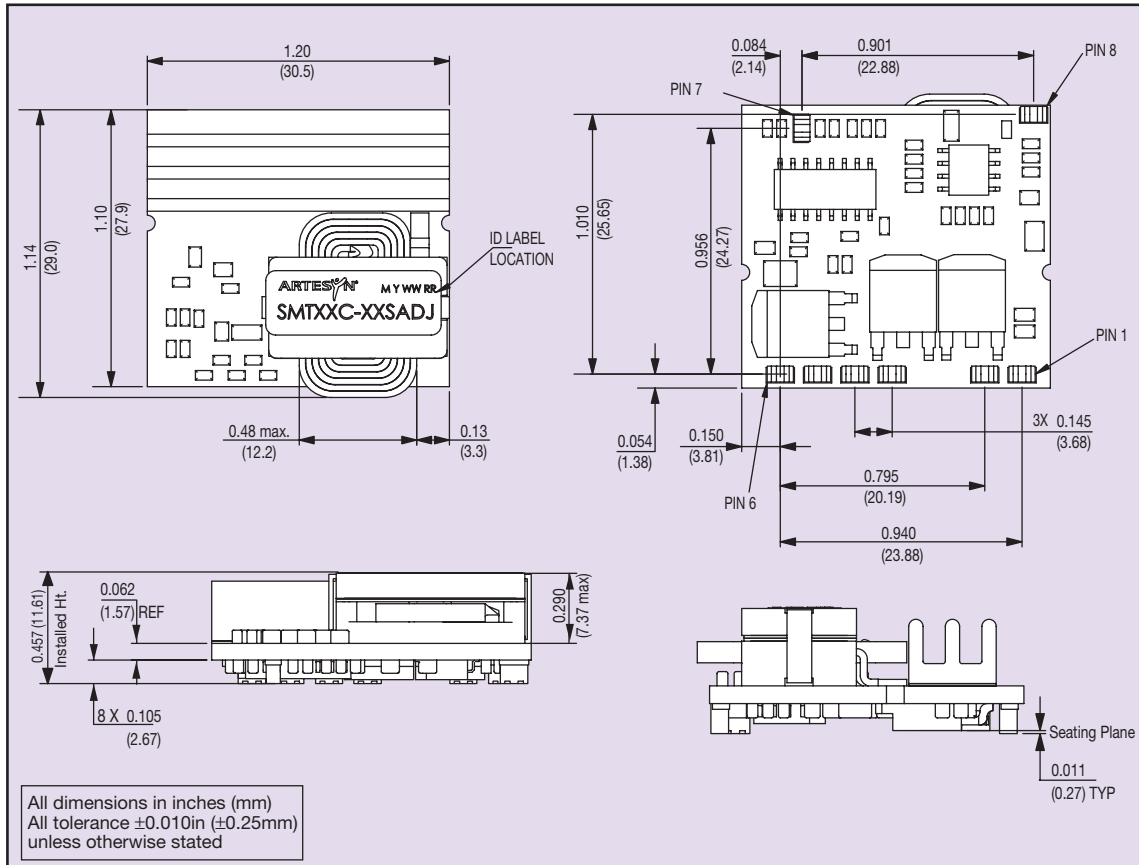
UL/cUL CAN/CSA 22.2 No. 60950
UL 60950 File No. E139421



TÜV Product Service (EN60950:2000)
Certificate No. B 04 08 19870 228
CB report and certificate to US/6415C/UL

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PIN CONNECTIONS

| PIN NUMBER | FUNCTION |
|------------|---------------|
| 1 | Vout |
| 2 | Vout |
| 3 | Power Good |
| 4 | GND |
| 5 | GND |
| 6 | Vin |
| 7 | Trim |
| 8 | Remote ON/OFF |