

- **Designed to meet ultra fast transient requirements: 300 A/ $\mu$ s step load transients**
- **15 A Current rating**
- **Input voltage range: 10.8 Vdc to 13.2 Vdc**
- **Output voltage range: 1.0 Vdc to 1.8 Vdc**
- **Extremely low internal power dissipation**
- **Minimal thermal design concerns**
- **Ideal solution where board space is at a premium or tighter card pitch is required**
- **Industry standard surface-mount footprint**
- **Available RoHS compliant**

**NEW Product**



The SMT15F-12 series are non-isolated dc-dc converters packaged in a surface-mount footprint giving designers a cost effective solution for conversion from a 12 V source. The SMT15F-12 has an input range of 10.8 Vdc to 13.2 Vdc and offers an output voltage range from 1.0 Vdc to 1.8 Vdc with a 15 A load, which allows for maximum design flexibility and a pathway for future upgrades. The SMT15F-12 is designed for applications that include distributed power, workstations, optical network and wireless applications. Implemented using state of the art surface-mount technology and automated manufacturing techniques, the SMT15F-12 offers compact size and efficiencies of up to 88% at 1.8 Vout.



**2 YEAR WARRANTY**

*All specifications are typical at nominal input, full load at 25 °C unless otherwise stated*  
 $C_{in} = 270 \mu F$ ,  $C_{out} = 0 \mu F$

**SPECIFICATIONS**

| OUTPUT SPECIFICATIONS            |                                      |  |
|----------------------------------|--------------------------------------|--|
| Voltage adjustability            | (Trimnable)                          | $\pm 10\%$   |
| Setpoint accuracy                |                                      | $\pm 2.5\%$ typ.   |
| Line regulation                  |                                      | $\pm 1.0\%$ typ.   |
| Load regulation                  |                                      | $\pm 1.0\%$ typ.   |
| Total error band                 |                                      | $\pm 3.0\%$ typ.   |
| Minimum load                     |                                      | 0 A  |
| Overshoot/undershoot             |                                      | None   |
| Ripple and noise                 | 5 Hz to 20 MHz                       | 40 mV pk-pk<br>25 mV rms   |
| Temperature co-efficient         |                                      | $\pm 0.01\%/^{\circ}C$   |
| Transient response<br>(1.2 Vout) | di/dt 200 A/ $\mu$ s<br>(See Note 3) | 7.5 A load step<br>50 mV max. deviation<br><10 $\mu$ s recovery to<br>within $\pm 1.0\%$ |
| Remote sense                     |                                      | 10% Vo compensation  |

| INPUT SPECIFICATIONS   |         |  |
|------------------------|---------|--|
| Input voltage range    |         | 10.8 Vdc to 13.2 Vdc                     |
| Input current          | No load | 100 mA                                   |
| Input current (max.)   |         | 2.0 A max. @ Io max.<br>and Vout = 1.2 V |
| Input reflected ripple |         | 100 mA rms                               |
| Remote ON/OFF          |         | (See Note 1)                             |
| Start-up time          |         | 5 ms                                     |

| EMC CHARACTERISTICS     |  |                       |
|-------------------------|--|-----------------------|
| Electrostatic discharge |  | EN61000-4-2, IEC801-2 |
| Conducted immunity      |  | EN61000-4-6           |
| Radiated immunity       |  | EN61000-4-3           |

| GENERAL SPECIFICATIONS  |                          |  |
|-------------------------|--------------------------|--|
| Efficiency              | Vin = 12 V, Vout = 1.8 V | 88% typ.   |
| Insulation voltage      |                          | Non-isolated   |
| Switching frequency     | Variable                 | 700 kHz typ.   |
|                         | Vin = 12 V, Vout = 1.2 V |  |
| Approvals and standards |                          | EN60950<br>UL/cUL60950                               |
| Material flammability   |                          | UL94V-0  |
| Dimensions              | (LxWxH)                  | 33.02 x 13.46 x 7.57 mm<br>1.3 x 0.53 x 0.298 inches |
| Weight                  |                          | 7 g (0.25 oz)  |
| Coplanarity             |                          | 100 $\mu$ m  |
| MTBF                    | Telcordia SR-332         | 16,529,000 hours                                     |

| ENVIRONMENTAL SPECIFICATIONS          |   |                                       |
|---------------------------------------|---|---------------------------------------|
| Thermal performance<br>(See Figure 1) | Operating ambient, temperature<br>Non-operating | -40 °C to +85 °C<br>-40 °C to +125 °C |

| PROTECTION    |  |                    |
|---------------|--|--------------------|
| Short-circuit |  | Continuous         |
| Thermal       |  | Automatic recovery |

**International Safety Standard Approvals**



UL/cUL CAN/CSA 22.2 No. E174104  
UL 60950 File No. E174104



TÜV Product Service (EN60950) Certificate No. B 04 04 38572 041  
CB report and certificate to IEC60950 DE3-52484



# SMT15F Series

12 Vin single fixed output



DC-DC CONVERTERS

Typhoon Non-isolated

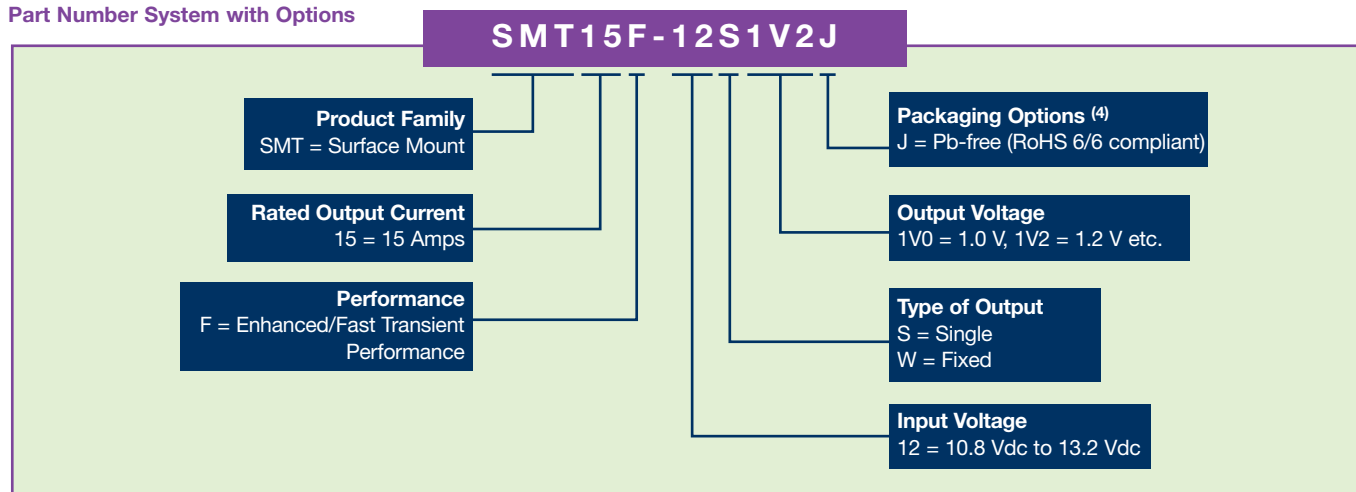
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**NEW Product**

| OUTPUT POWER (MAX.) | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT (MIN.) | OUTPUT CURRENT (MAX.) | EFFICIENCY (TYP.) | REGULATION |       | MODEL NUMBER <sup>(1,4,5)</sup> |
|---------------------|---------------|----------------|-----------------------|-----------------------|-------------------|------------|-------|---------------------------------|
|                     |               |                |                       |                       |                   | LINE       | LOAD  |                                 |
| 15.0 W              | 10.8-13.2 Vdc | 1 Vdc          | 0 A                   | 15 A                  | 85%               | ±1.0%      | ±1.0% | SMT15F-12S1V0J                  |
| 18.0 W              | 10.8-13.2 Vdc | 1.2 Vdc        | 0 A                   | 15 A                  | 86%               | ±1.0%      | ±1.0% | SMT15F-12S1V2J                  |
| 22.5 W              | 10.8-13.2 Vdc | 1.5 Vdc        | 0 A                   | 15 A                  | 87%               | ±1.0%      | ±1.0% | SMT15F-12S1V5J                  |
| 27.0 W              | 10.8-13.2 Vdc | 1.8 Vdc        | 0 A                   | 15 A                  | 88%               | ±1.0%      | ±1.0% | SMT15F-12S1V8J                  |

## Part Number System with Options



## Notes

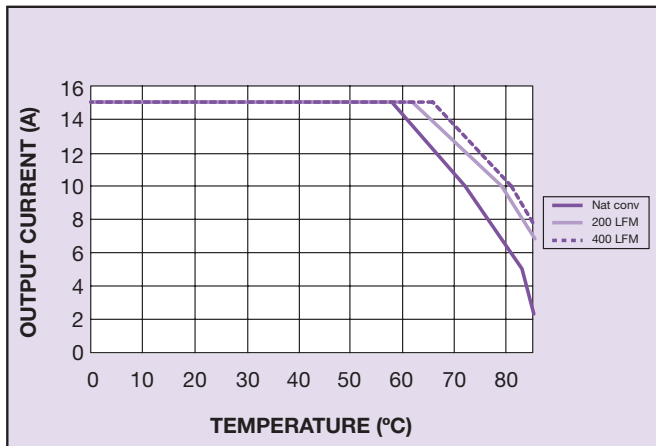
- The SMT15F-12 features an 'Active High' Remote ON/OFF operation. If not using the Remote ON/OFF pin, leave the pin open (the converter will be on). The Remote ON/OFF pin is referenced to ground.

The following conditions apply for the SMT15F-12:

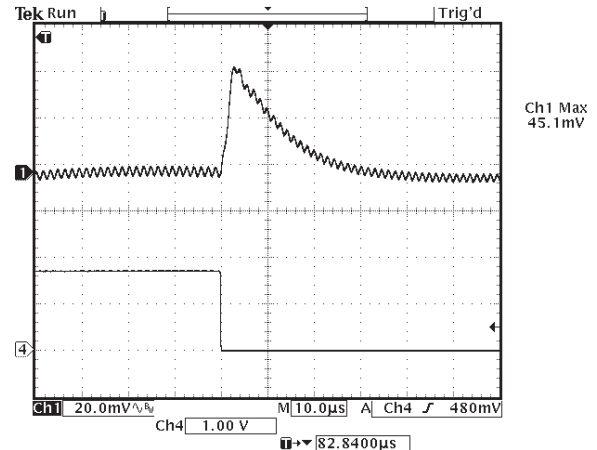
| Configuration           | Converter Operation |
|-------------------------|---------------------|
| Remote pin open circuit | Unit is ON          |
| Remote pin pulled low   | Unit is OFF         |
| Remote pin pulled high  | Unit is ON          |

An 'Active Low' Remote ON/OFF version is also possible with this converter. To order please place the Suffix 'R' towards the end of the part number, e.g. SMT15F-12S1V8RJ.

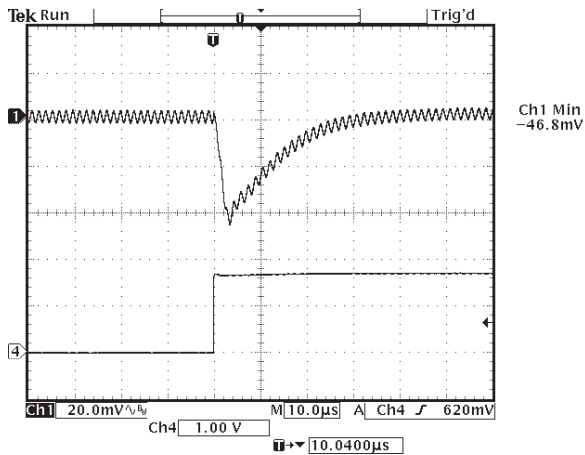
- A 270  $\mu$ F electrolytic input capacitor maybe required for test purposes only.
- An external output capacitor is not required for basic operation. Adding distributed capacitance at the load will improve the transient response.
- TSE RoHS 5/6 (non Pb-free) compliant versions may be available on 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.



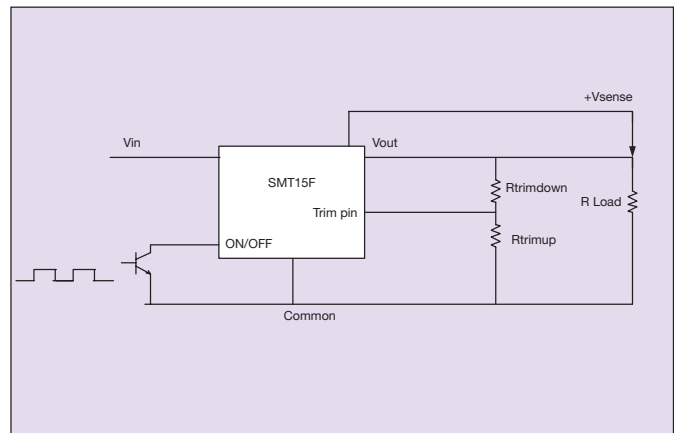
**Figure 1 - Derating Curve**  
Vin = 12 V, Output Voltage = 1.2 V (See Note A)



**Figure 2 - Typical Transient Response,**  
(Vin = 12 V, Output Current = 1.2 V),  
7.5 A Load Step Change; Slew Rate = 200 A/µs  
Channel 1: Voltage Deviation = 45 mV; Recovery Time = 10 µs



**Figure 3 - Typical Transient Response,**  
(Vin = 12 V, Output Current = 1.2 V),  
7.5 A Load Step Change; Slew Rate = 200 A/µs  
Channel 1: Voltage Deviation = 46.8 mV; Recovery Time = 10 µs



**Figure 4 - Standard Application**

**Notes**

**A** The derating curve represents the conditions at which internal components are within the Artesyn derating guidelines.



# SMT15F Series

12 Vin single fixed output



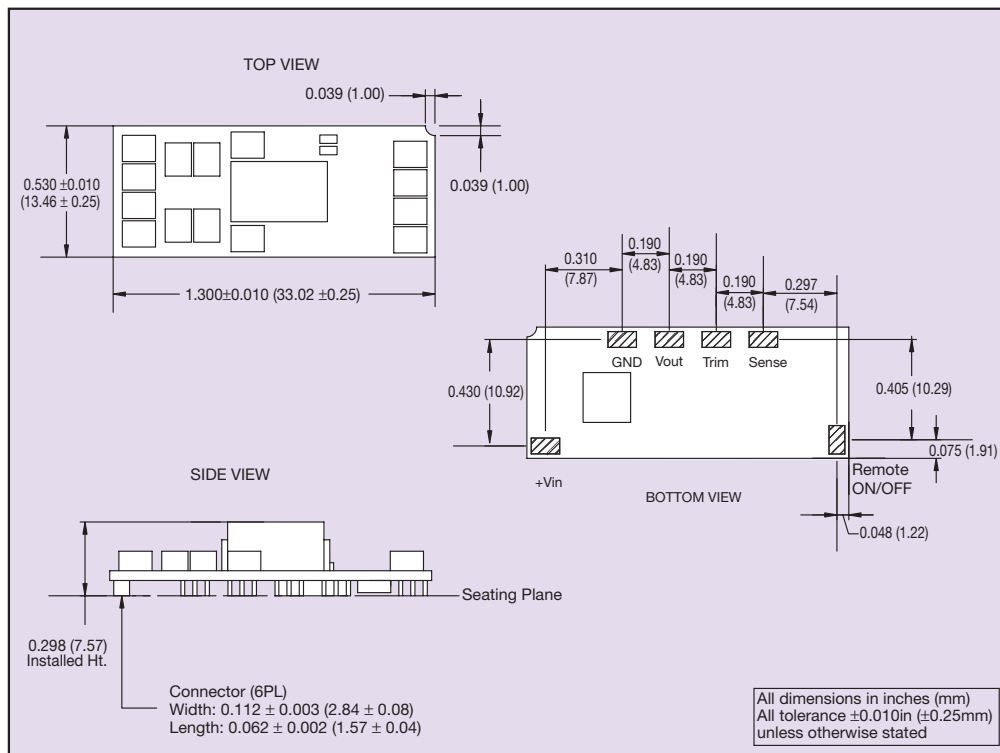
DC-DC CONVERTERS

Typhoon Non-isolated

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**NEW Product**



| PIN CONNECTIONS |               |
|-----------------|---------------|
| PIN NUMBER      | FUNCTION      |
| 1               | +Vin          |
| 2               | GND           |
| 3               | +Vout         |
| 4               | Trim          |
| 5               | +Vsense       |
| 6               | Remote ON/OFF |

Figure 5 - Mechanical Drawing and Pinout Table

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