

## SMT15F Series

### 12 Vin single fixed output

**Total Power:** 15.0 W  
**Input Voltage:** 10.8-13.2 Vdc  
**# of Outputs:** Single

### Special Features

- 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
- 2 year warranty

### Safety

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

TÜV Product Service (EN60950)  
Certificate No. B 04 04 38572

CB report and certificate to  
IEC60950 DE3-52484



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SMT15F\_12\_FIXED  
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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.



# Specifications

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All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

| OUTPUT SPECIFICATIONS                           |                                                    |                                                                               |
|-------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------|
| Voltage adjustability                           | (Trimable)                                         | ±10%                                                                          |
| Setpoint accuracy                               |                                                    | ±2.5% typ.                                                                    |
| Line regulation                                 |                                                    | ±1.0% typ.                                                                    |
| Load regulation                                 |                                                    | ±1.0% typ.                                                                    |
| Total error band                                |                                                    | ±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                        |                                                    | ±0.01%/°C                                                                     |
| Transient response<br>(1.2 Vout)                | di/dt 200 A/μs<br>(See Note 3)                     | 7.5 A load step<br>50 mV max. deviation<br><10 μs recovery to<br>within ±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<br>Vin = 12 V, Vout = 1.2 V | Variable                                           | 700 kHz typ.                                                                  |
| 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 μm                                                                        |
| MTBF                                            | Telcordia SR-332                                   | 16,529,000 hours                                                              |
| ENVIRONMENTAL SPECIFICATIONS                    |                                                    |                                                                               |
| Thermal performance<br>(See Figure 1)           | Operating ambient,<br>temperature<br>Non-operating | -40 °C to +85 °C<br><br>-40 °C to +125 °C                                     |
| PROTECTION                                      |                                                    |                                                                               |
| Short-circuit                                   |                                                    | Continuous                                                                    |
| Thermal                                         |                                                    | Automatic recovery                                                            |

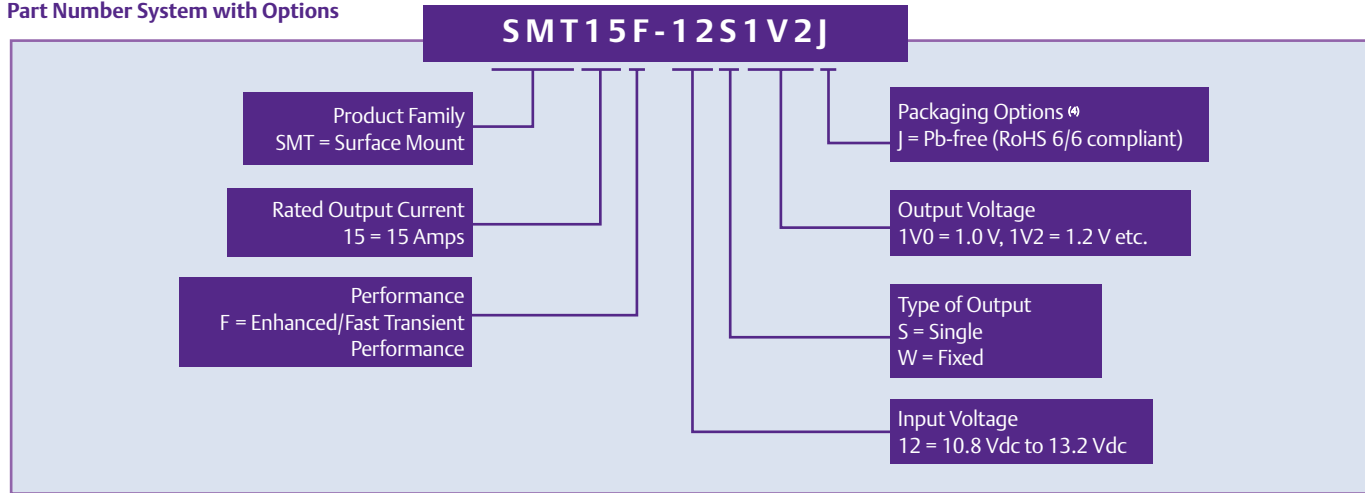
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All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

| 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

- 1 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

Remote pin open circuit  
Remote pin pulled low  
Remote pin pulled high

### Converter Operation

Unit is ON  
Unit is OFF  
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.

- 2 A 270  $\mu$ F electrolytic input capacitor maybe required for test purposes only.
- 3 An external output capacitor is not required for basic operation. Adding distributed capacitance at the load will improve the transient response.
- 4 TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.
- 5 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.

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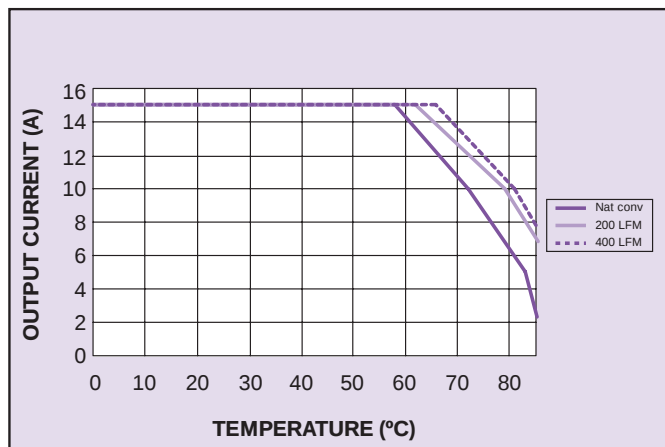


Figure 1 - Derating Curve  
 $V_{in} = 12\text{ V}$ , Output Voltage = 1.2 V (See Note A)

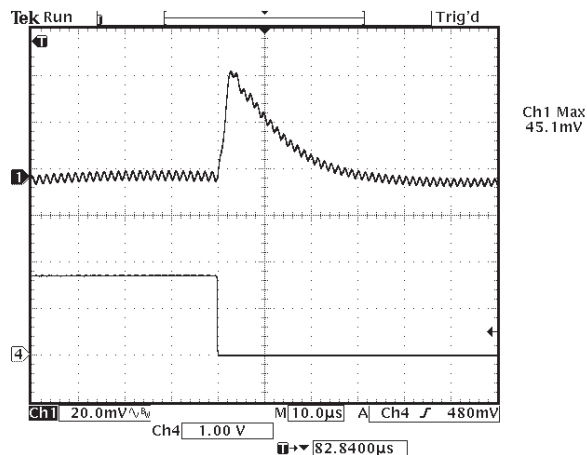


Figure 2 - Typical Transient Response,  
( $V_{in} = 12\text{ V}$ , Output Current = 1.2 V),  
7.5 A Load Step Change; Slew Rate = 200 A/ $\mu\text{s}$   
Channel 1: Voltage Deviation = 45 mV; Recovery Time = 10  $\mu\text{s}$

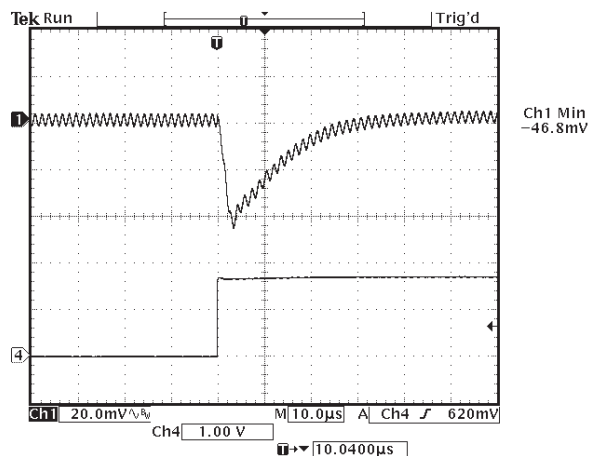


Figure 3 - Typical Transient Response,  
( $V_{in} = 12\text{ V}$ , Output Current = 1.2 V),  
7.5 A Load Step Change; Slew Rate = 200 A/ $\mu\text{s}$   
Channel 1: Voltage Deviation = 46.8 mV; Recovery Time = 10  $\mu\text{s}$

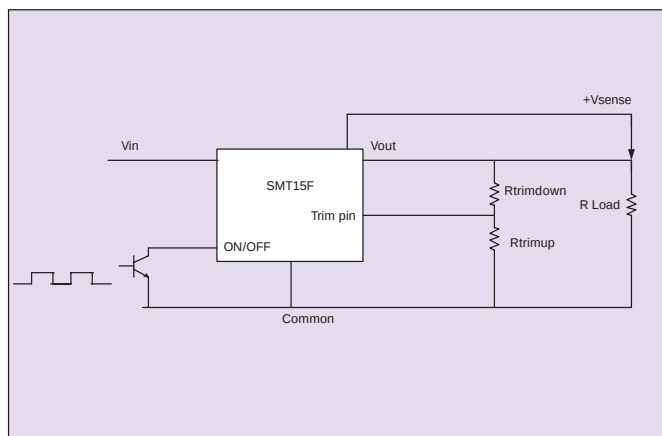


Figure 4 - Standard Application

## Notes

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

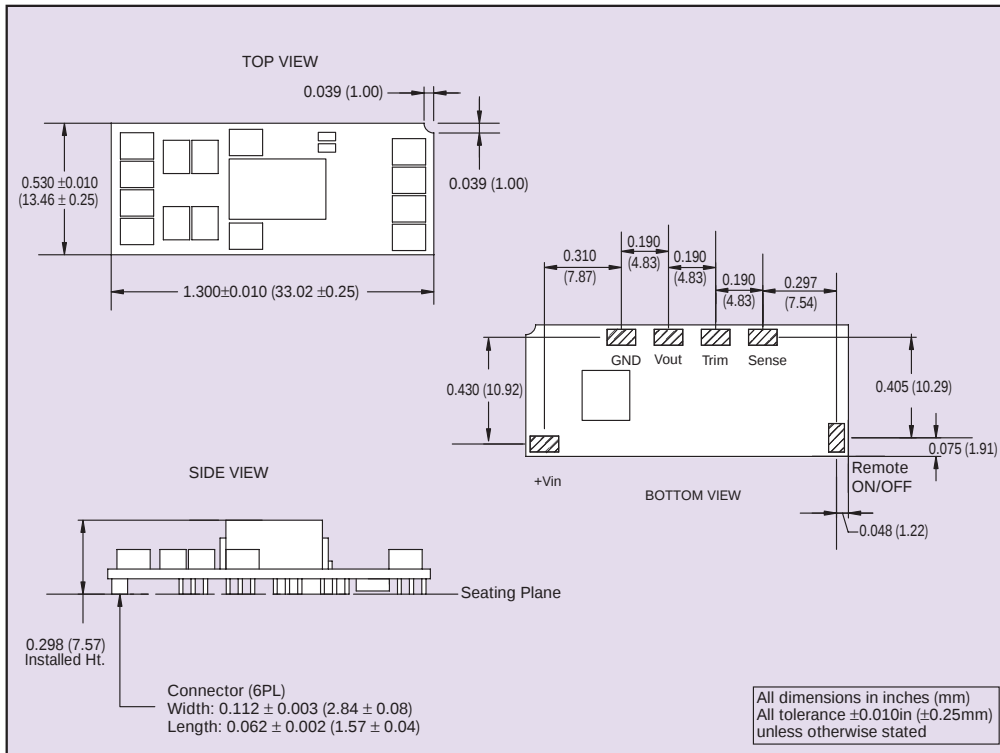


Figure 5 - Mechanical Drawing

| 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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