



5TAW_1.5 series

5W - Single Output - Wide Input - Isolated & Regulated DC-DC Converter

DC-DC Converter

5 Watt

- ⊕ 5 Watt SMD Package
- ⊕ 2:1 Wide input voltage range: 9-18V, 18-36V, 36-72V
- ⊕ 1.5kVDC Input/Output Isolation
- ⊕ Short circuit protection (SCP) (automatic recovery)
- ⊕ Operating temperature: -40°C ~ +71°C
- ⊕ 100% burned in
- ⊕ High efficiency
- ⊕ UL94-V0 package material
- ⊕ RoHS Compliance
- ⊕ Custom solutions available
- ⊕ 3 years warranty

The 5TAW_1.5 series offers 5W of output, with 2:1 wide input voltage of 9-18VDC, 18-36VDC, 36-72VDC, and features 1500VDC isolation, over current, over voltage and short-circuit protection.

All models are particularly suited to industrial, tele-communications, test equipments power.



| Common specifications | |
|------------------------------|-------------------------------------|
| Short circuit protection: | Continous, automatic recovery |
| Cooling: | Free air convection |
| Operation temperature range: | -40°C~+71°C |
| Storage temperature range: | -55°C~+125°C |
| Maximum case temperature: | 95°C |
| Conducted emissions: | EN55022 Class B |
| Radiated emissions: | EN55022 Class B |
| Switching frequency: | 50kHz MIN, Nominal input, 100% load |
| Storage humidity range: | 5% MIN, 95% MAX |
| Case material: | Five-side shielded case |
| Case size: | 31.8mm*20.3mm*11.4mm |
| Potting material: | Non potting |
| MTBF (MIL-HDBK-217F @25°C): | >900,000 hours |
| Weight: | 17.5g |

| Input specifications | | | | | | |
|----------------------|------------------|-----|-----|-----|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Input filter | PI | | | | | |
| Protection | Fuse recommended | | | | | |

| Output specifications | | | | | | |
|-------------------------|------------------------------|-----|------|-------|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Output voltage accuracy | Nominal Vin and full load | | | ±2 | % | |
| Line regulation | High line to low line | | | ±1 | % | |
| Load regulation | From 20% to 100% load | | ±0.5 | | % | |
| Minimum load | | 20 | | | % | |
| Temperature coefficient | Refer to recommended circuit | | | ±0.05 | %/°C | |
| Ripple & Noise | 20MHz Bandwidth | | | 100 | mVp-p | |
| Transient response | 25% load step change | | | 200 | us | |
| Over load protection | Input voltage range | 110 | | 180 | % | |

| Isolation specifications | | | | | | |
|--------------------------|--------------------|-----------------|-----|-----|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Isolation voltage | Tested for 10 sec. | 1500 | | | VDC | |
| Isolation resistance | Test at 500VDC | 10 ⁹ | | | Ω | |
| Isolation capacitance | | | | 40 | pF | |

Example:

5TAW_2415S1.5

5 = 5Watt; T = SMD; A = series; W = Wide input (2:1) 18-36Vin; 24 = Vin; 15 = 15Vout; S = single output; 1.5 = 1500VDC isolation

Note:

1. Only typical model listed. Non-standard models will be different from the above, please contact us for more details.
2. All specifications are measured at TA = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
3. In this datasheet, all the test methods of indications are based on corporate standards.

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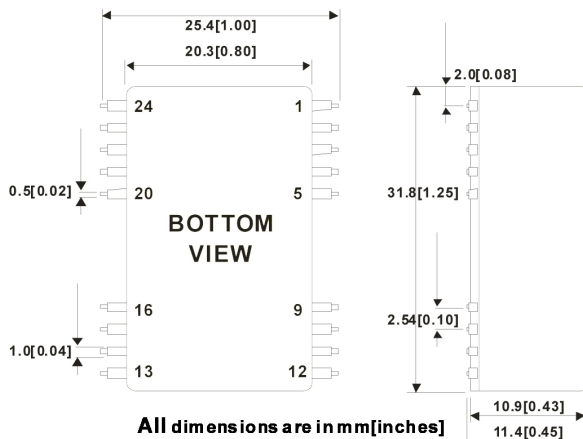
| Part Number | Input Voltage [VDC] | | | Output Voltage [VDC] | Output Current [mA] | Input Current ⁽¹⁾ [mA] | | Efficiency ⁽²⁾ [% , Typ.] |
|---------------|---------------------|-------|-----|----------------------|---------------------|-----------------------------------|---------|--------------------------------------|
| | Nominal | Range | Max | | | Full load | No load | |
| 5TAW_1205S1.5 | 12 | 9-18 | 20 | 5 | 1000 | 521 | 18 | 80 |
| 5TAW_1212S1.5 | 12 | 9-18 | 20 | 12 | 470 | 566 | 18 | 83 |
| 5TAW_1215S1.5 | 12 | 9-18 | 20 | 15 | 400 | 595 | 18 | 84 |
| 5TAW_2405S1.5 | 24 | 18-36 | 40 | 5 | 1000 | 257 | 10 | 81 |
| 5TAW_2412S1.5 | 24 | 18-36 | 40 | 12 | 470 | 280 | 10 | 84 |
| 5TAW_2415S1.5 | 24 | 18-36 | 40 | 15 | 400 | 294 | 10 | 85 |
| 5TAW_4805S1.5 | 48 | 36-72 | 80 | 5 | 1000 | 127 | 5 | 82 |
| 5TAW_4812S1.5 | 48 | 36-72 | 80 | 12 | 470 | 138 | 5 | 85 |
| 5TAW_4815S1.5 | 48 | 36-72 | 80 | 15 | 400 | 147 | 5 | 85 |
| 5TAW_1205D1.5 | 12 | 9-18 | 20 | ±5 | ±500 | 521 | 18 | 80 |
| 5TAW_1212D1.5 | 12 | 9-18 | 20 | ±12 | ±230 | 554 | 30 | 83 |
| 5TAW_1215D1.5 | 12 | 9-18 | 20 | ±15 | ±190 | 565 | 32 | 84 |
| 5TAW_2405D1.5 | 24 | 18-36 | 40 | ±5 | ±500 | 257 | 10 | 81 |
| 5TAW_2412D1.5 | 24 | 18-36 | 40 | ±12 | ±230 | 274 | 15 | 84 |
| 5TAW_2415D1.5 | 24 | 18-36 | 40 | ±15 | ±190 | 279 | 15 | 85 |
| 5TAW_4805D1.5 | 48 | 36-72 | 80 | ±5 | ±500 | 127 | 5 | 82 |
| 5TAW_4812D1.5 | 48 | 36-72 | 80 | ±12 | ±230 | 135 | 5 | 85 |
| 5TAW_4815D1.5 | 48 | 36-72 | 80 | ±15 | ±190 | 140 | 5 | 85 |

1. Nominal input voltage
2. Nominal input voltage, full load

For B or C Pinning: 5TBW_xx03S1.5/5TBW_xx03D1.5 or 5TCW_xx03S1.5/5TCW_xx03D1.5

SMD package

SMD package



SMD package „A“

| PIN | SINGLE | DUAL |
|---------|--------|--------|
| 1 | ON/OFF | ON/OFF |
| 2 & 3 | -Vin | -Vin |
| 4 & 5 | NC | NC |
| 9 | NC | COM |
| 10 & 12 | NC | NC |
| 11 | NC | -VOUT |
| 13 & 15 | NC | NC |
| 14 | +VOUT | +VOUT |
| 16 | -VOUT | COM |
| 20 & 21 | NC | NC |
| 22 & 23 | +VIN | +VIN |
| 24 | NC | NC |

SMD package „C“

| PIN | SINGLE | DUAL |
|---------|--------|--------|
| 1 & 2 | +Vin | +Vin |
| 3 & 4 | NC | NC |
| 5 & 9 | NC | NC |
| 10 & 11 | NC | Common |
| 12 | -Vout | NC |
| 13 | +Vout | -Vout |
| 14 & 16 | NC | NC |
| 15 | NC | +Vout |
| 20 & 21 | NC | NC |
| 22 | NC | NC |
| 23 & 24 | -Vin | -Vin |

SMD package „B“

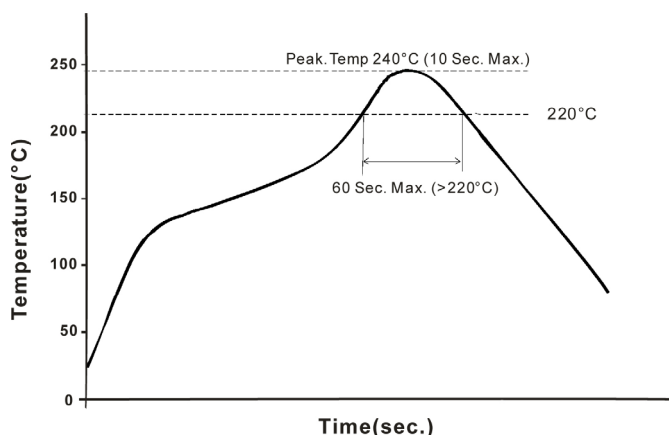
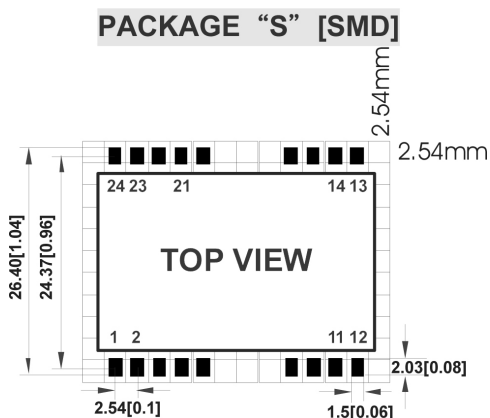
| PIN | SINGLE | DUAL |
|---------|--------|--------|
| 1 & 24 | +Vin | +Vin |
| 2 & 23 | NC | -Vout |
| 3 & 22 | NC | Common |
| 4 & 21 | NC | NC |
| 5 & 20 | NC | NC |
| 9 & 16 | NC | NC |
| 10 & 15 | -Vout | Common |
| 11 & 14 | +Vout | +Vout |
| 12 & 13 | -Vin | -Vin |

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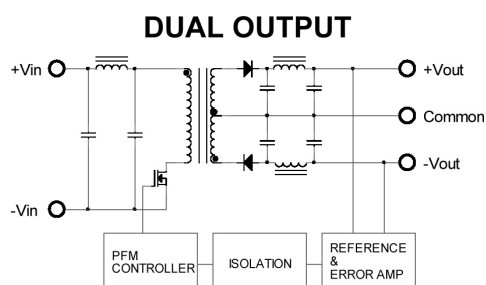
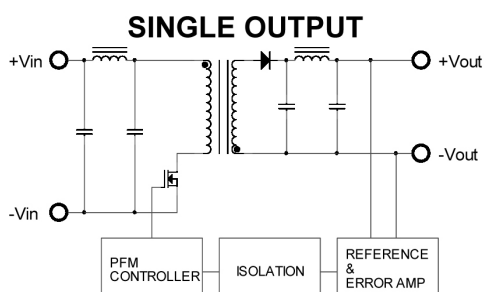
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Input operating voltage

Reflow soldering profile

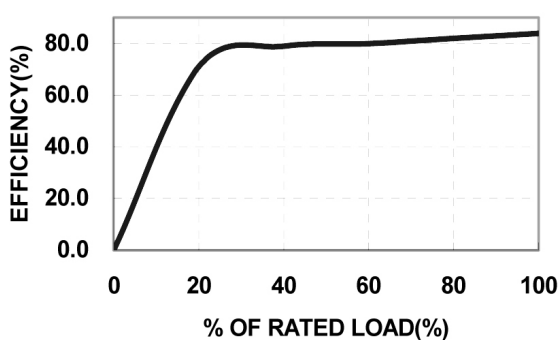


Simplified schematic

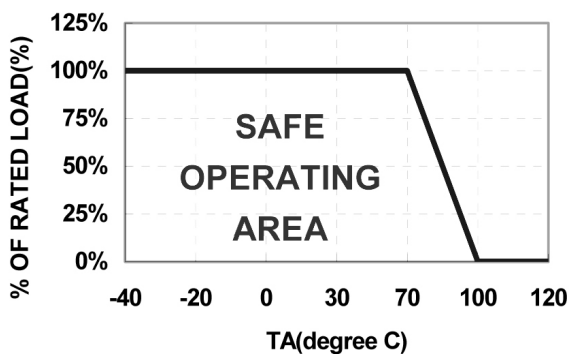


Efficiency & derating curve

Output load vs. efficiency



Temperature derating



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Application notes

No external capacitance is required for operation of the 5TAW_1.5 series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5Ω from DC to 100KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 1000uF.

We Can Offer EMC-Filter According To EN55011/22 Class B.