

2S8WE4_3RP Series

2W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

DC-DC Converter

2 Watt

- ⊕ Wide 4:1 input voltage range
- ⊕ Efficiency up to 80%
- ⊕ Regulated output types
- ⊕ I/O Isolation 3KVDC
- ⊕ Internal SMD construction
- ⊕ Operating temperature range: -40°C to +85°C
- ⊕ Continuous short circuit protection (SCP)
- ⊕ Industry standard pinout

The 2S8WE4_3RP series is a family of cost effective 2W single output DC-DC converters, specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range \leq 4:1)
- 2) Where isolation is necessary between input and output (isolation voltage \leq 3000VDC)
- 3) Where the regulation of the output voltage and the output ripple noise are demanded



| Common specifications | |
|------------------------------|--|
| Short circuit protection: | Continuous |
| Cooling: | Free air convection |
| Operation temperature range: | -40°C~+85°C |
| Operating case temperature: | 100°C max. |
| Storage temperature range: | -40°C ~+125°C |
| Storage humidity range: | < 95% |
| Soldering temperature: | 260°C max, 1.5mm from case for 10 sec |
| Switching frequency: | 100kHz typ. |
| Temperature coefficient: | 0.02%/°C typ. |
| Case material: | Non-conductive black plastic [UL94-V0] |
| Potting material: | Epoxy [UL94-V0] |
| MTBF (MIL-HDBK-217F): | >1500000 hours |
| Weight: | 4.5g |
| Dimensions: | 21.8x9.2x11.1mm |

| Input specifications | | | | | |
|----------------------|----------------|-----|-----|-----|-------|
| Item | Test condition | Min | Typ | Max | Units |
| Input filter | Capacitor | | | | |

Note:

1. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. Capacitive load: test by nominal input voltage and constant resistor load.
3. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
4. In this datasheet, all the test methods of indications are based on corporate standards.

| Output specifications | | | | | | |
|---------------------------------|---|-----|-----|-------------------|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Output voltage accuracy | Nominal Vin and full load | | | ±3 | % | |
| Line regulation | Vin=min to max, full load | | | ±0.5 | % | |
| Load regulation | 20% to 100% full load | | | ±0.8 | % | |
| Ripple & Noise | 20MHz Bandwidth • 5V-9V models • 12V-24V models | | | 100 1% of Vout | mVp-p | |
| Transient response setting time | 50% load step change | | 350 | | ms | |

| Isolation specifications | | | | | |
|--------------------------|-------------------------|------|-----|-----|-------|
| Item | Test condition | Min | Typ | Max | Units |
| Isolation voltage | | 3000 | | | VDC |
| Isolation resistance | 500VDC, input to output | 1000 | | | MΩ |

Example:

2S8WE4_2405S3RP
2=2Watt; S8= SIP8; W=wide input (4:1); E= cost effective; 9 - 36Vin; 5Vout; S= Single output; 3= 3000VDC; R= Regulated output
P= Short circuit protection

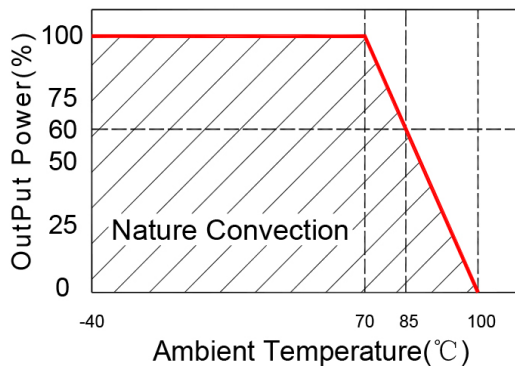
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| Part Number | Input Voltage [V] | Output Voltage [VDC] | Output Current [mA, max] | Efficiency [%, typ] |
|-----------------|-------------------|----------------------|--------------------------|---------------------|
| 2S8WE4_2405S3RP | 9-36 | 5 | 400 | 75 |
| 2S8WE4_2409S3RP | 9-36 | 9 | 222 | 80 |
| 2S8WE4_2412S3RP | 9-36 | 12 | 167 | 80 |
| 2S8WE4_2415S3RP | 9-36 | 15 | 133 | 80 |
| 2S8WE4_2424S3RP | 9-36 | 24 | 84 | 80 |
| 2S8WE4_4805S3RP | 18-75 | 5 | 400 | 70 |
| 2S8WE4_4809S3RP | 18-75 | 9 | 222 | 80 |
| 2S8WE4_4812S3RP | 18-75 | 12 | 167 | 80 |
| 2S8WE4_4815S3RP | 18-75 | 15 | 133 | 80 |
| 2S8WE4_4824S3RP | 18-75 | 24 | 84 | 80 |
| 2S8WE4_2405D3RP | 9-36 | ±5 | ±200 | 75 |
| 2S8WE4_2409D3RP | 9-36 | ±9 | ±111 | 80 |
| 2S8WE4_2412D3RP | 9-36 | ±12 | ±84 | 80 |
| 2S8WE4_2415D3RP | 9-36 | ±15 | ±67 | 80 |
| 2S8WE4_2424D3RP | 9-36 | ±24 | ±42 | 80 |
| 2S8WE4_4805D3RP | 18-75 | ±5 | ±200 | 70 |
| 2S8WE4_4809D3RP | 18-75 | ±9 | ±111 | 80 |
| 2S8WE4_4812D3RP | 18-75 | ±12 | ±84 | 80 |
| 2S8WE4_4815D3RP | 18-75 | ±15 | ±67 | 80 |
| 2S8WE4_4824D3RP | 18-75 | ±24 | ±42 | 80 |

Typical characteristics

Temperature derating graph



2S8WE4_3RP Series

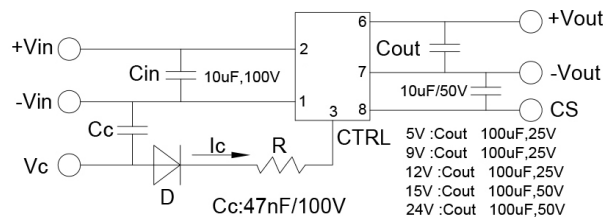
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Recommended test circuit

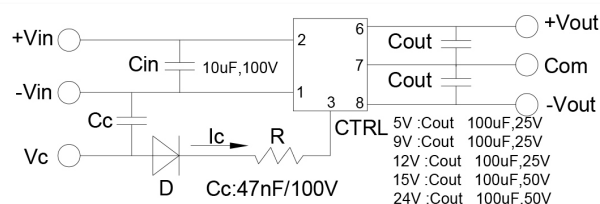
When open or high impedance, the converter works well; when this pin is ,high', the converter shuts down. It should be noted that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to the converter.

To make sure the product works at perfect operation status with full loading, external capacitor is necessary and it is recommended to use high frequency low resistance electrolytic capacitor.

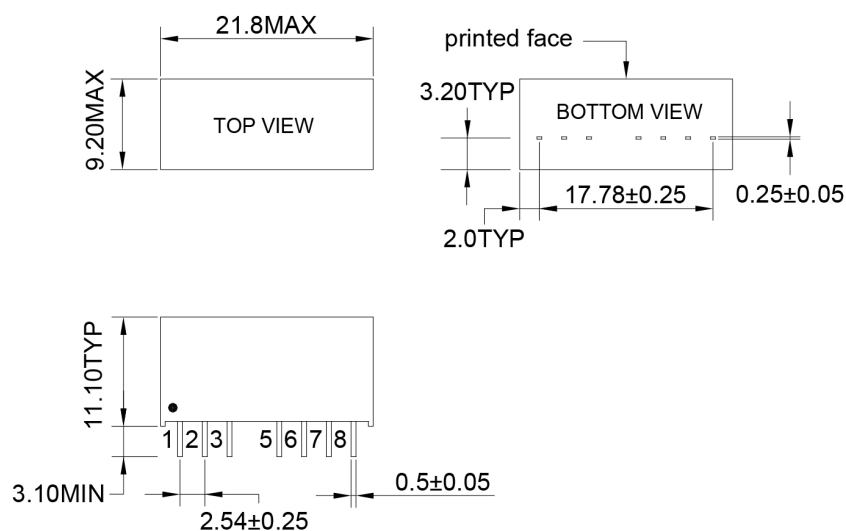
Single



Dual



Mechanical specifications



| Pin number | Single | Dual |
|------------|--|--|
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | Ctrl-Control input can (can be left open) | Ctrl-Control input can (can be left open) |
| 5 | No Pin | No Pin |
| 6 | +Vout | +Vout |
| 7 | -Vout | COM |
| 8 | NC | -Vout |