



2D16WA_1.5RP Series

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

DC-DC Converter

2 Watt

- ⊕ Miniature DIP package
- ⊕ 2:1 wide input voltage range
- ⊕ Operating temperature: -40°C to +85°C
- ⊕ 1500VDC isolation
- ⊕ No heat sink required
- ⊕ No external component required
- ⊕ Industry standard pinout
- ⊕ Internal SMD construction
- ⊕ Short circuit protection (SCP; automatic recovery)
- ⊕ RoHS Compliance

The 2D16WAA_1.5RP series is 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 $\leq 2:1$)
- 2) Where isolation is necessary between input and output (isolation voltage $\leq 1500\text{VDC}$)
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.



| Common specifications | |
|--------------------------------|---------------------------------------|
| Short circuit protection: | Continuous, automatic recovery |
| Filter: | Capacitor |
| Temperature rise at full load: | 15°C TYP |
| Cooling: | Free air convection |
| Operation temperature range: | -40°C~+85°C |
| Storage temperature range: | -55°C ~+125°C |
| Lead temperature range: | 300°C MAX, 1.5mm from case for 10 sec |
| Storage humidity range: | < 95% |
| Case material: | Plastic [UL94-V0] |
| MTBF: | >1,500,000 hours |
| Weight: | 5.2g |
| Dimensions: | 24.1x14.35x8.25mm |

| Output specifications | | | | | | |
|---------------------------------|------------------------------|-----|-----|-------|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Voltage tolerance | | | | ±2 | % | |
| Line regulation | Regulated | | | ±0.5 | % | |
| Load regulation | Regulated | | | ±0.8 | % | |
| Temperature drift | Refer to recommended circuit | | | ±0.03 | %/°C | |
| Transient response setting time | 50% load step change | | 350 | | µs | |
| Ripple & Noise | 20MHz Bandwidth | | | 100 | mVp-p | |
| Switching frequency | full load, nominal input | | 100 | | KHz | |

| Isolation specifications | | | | | | |
|--------------------------|---------------------------------|------|-----|-----|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Isolation voltage | Tested for 1 minute and 1mA max | 1500 | | | VDC | |
| Isolation resistance | Test at 500VDC | 1000 | | | MΩ | |

Example:

2D16WA_1205S1.5RP
 2= 2Watt; D16= DIP16; W= Wide Input 2:1; A= Pinning;
 12 VDC nominal= 9-18Vin; 5Vout; S= Single Output; 1.5= 1500VDC Isolation; R= Regulated Output; P= Short Circuit Protection

Note:

1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. All specifications measured at Ta=25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on corporate standards.
5. Only typical models listed, other models may be different, please contact our technical person for more details.

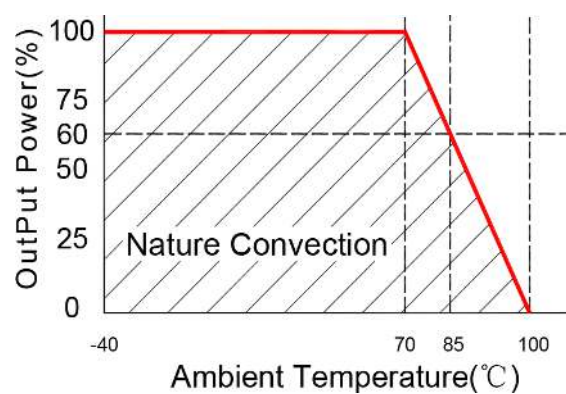
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| Part Number | Input Voltage [VDC] | | Output Voltage [VDC] | Current [mA, max.] | Efficiency [%, Typ.] |
|-------------------|---------------------|-------|----------------------|--------------------|----------------------|
| | Nominal | Range | | | |
| 2D16WA_0503S1.5RP | 5 | 4.5-9 | 3.3 | 500 | 70 |
| 2D16WA_0505S1.5RP | 5 | 4.5-9 | 5 | 400 | 70 |
| 2D16WA_0512S1.5RP | 5 | 4.5-9 | 12 | 167 | 75 |
| 2D16WA_0515S1.5RP | 5 | 4.5-9 | 15 | 133 | 78 |
| 2D16WA_0524S1.5RP | 5 | 4.5-9 | 24 | 84 | 80 |
| 2D16WA_1203S1.5RP | 12 | 9-18 | 3.3 | 500 | 70 |
| 2D16WA_1205S1.5RP | 12 | 9-18 | 5 | 400 | 75 |
| 2D16WA_1212S1.5RP | 12 | 9-18 | 12 | 167 | 80 |
| 2D16WA_1215S1.5RP | 12 | 9-18 | 15 | 133 | 80 |
| 2D16WA_1224S1.5RP | 12 | 9-18 | 24 | 84 | 83 |
| 2D16WA_2403S1.5RP | 24 | 18-36 | 3.3 | 500 | 70 |
| 2D16WA_2405S1.5RP | 24 | 18-36 | 5 | 400 | 76 |
| 2D16WA_2412S1.5RP | 24 | 18-36 | 12 | 167 | 80 |
| 2D16WA_2415S1.5RP | 24 | 18-36 | 15 | 133 | 80 |
| 2D16WA_2424S1.5RP | 24 | 18-36 | 24 | 84 | 83 |
| 2D16WA_0505D1.5RP | 5 | 4.5-9 | ±5 | ±200 | 70 |
| 2D16WA_0512D1.5RP | 5 | 4.5-9 | ±12 | ±83 | 75 |
| 2D16WA_0515D1.5RP | 5 | 4.5-9 | ±15 | ±67 | 78 |
| 2D16WA_0524D1.5RP | 5 | 4.5-9 | ±24 | ±42 | 80 |
| 2D16WA_1205D1.5RP | 12 | 9-18 | ±5 | ±200 | 75 |
| 2D16WA_1212D1.5RP | 12 | 9-18 | ±12 | ±83 | 80 |
| 2D16WA_1215D1.5RP | 12 | 9-18 | ±15 | ±67 | 80 |
| 2D16WA_1224D1.5RP | 12 | 9-18 | ±24 | ±42 | 83 |
| 2D16WA_2405D1.5RP | 24 | 18-36 | ±5 | ±200 | 76 |
| 2D16WA_2412D1.5RP | 24 | 18-36 | ±12 | ±83 | 80 |
| 2D16WA_2415D1.5RP | 24 | 18-36 | ±15 | ±67 | 80 |
| 2D16WA_2424D1.5RP | 24 | 18-36 | ±24 | ±42 | 83 |

*Input voltage can't exceed this value, or will cause permanent damage.

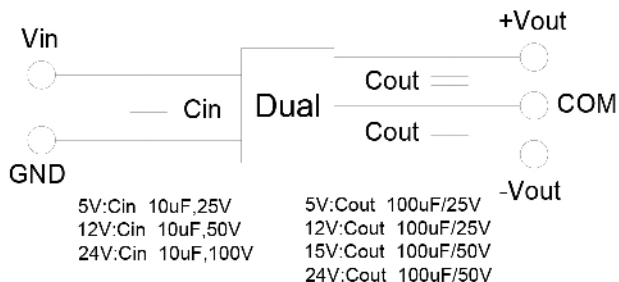
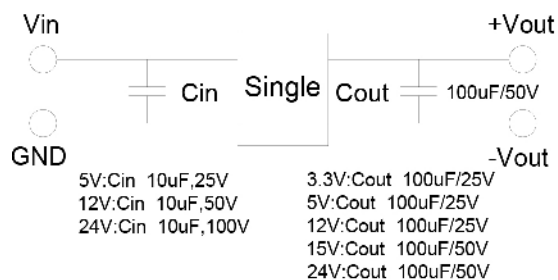
Typical characteristics



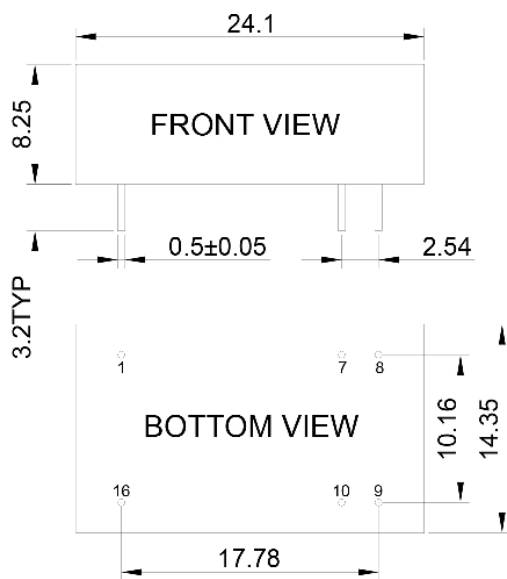
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Recommended test circuit



Mechanical dimensions



PIN connection

| PIN | 1 | 7 | 8 | 9 | 10 | 16 |
|--------|------|----|-----|-------|-------|------|
| Single | -Vin | NC | NC | +Vout | -Vout | +Vin |
| Dual | -Vin | NC | COM | +Vout | -Vout | +Vin |

Note:

Unit: mm[inch]

General tolerances: ±0.25mm [±0.010inch]