



10DPW_1.5 series

10W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

DC-DC Converter

10 Watt

- ⊕ Wide 2:1 input voltage range
- ⊕ Input/Output Isolation
Voltage: 1.5kVDC
- ⊕ Operating Temperature
Range: -40°C to +100°C
- ⊕ Short circuit protection (SCP)
- ⊕ Remote On/Off
- ⊕ High efficiency
- ⊕ 10W DIL package
- ⊕ Meet EN55022, Class A
(Radiation)
- ⊕ Shielded Metal Case with
Insulated Baseplate
- ⊕ RoHS Compliant
- ⊕ Customer Design Available

The 10DPW_1.5 Series are isolated 10W DC/DC converters. Designed with high efficiency, they allow the operating temperature range of these units to be -40°C to +85°C with industry-standard footprint. Further features include wide 2:1 input voltage range, remote on/off control, short-circuit protection and over voltage protection.

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network and industry control systems. Everywhere where isolated, tightly regulated voltages and compact size are required.



| Common specifications | |
|------------------------------|-----------------------------|
| Short circuit protection: | Hiccup, automatic recovery |
| Cooling: | Free air convection |
| Operation temperature range: | -40°C~+100°C, with derating |
| Storage temperature range: | -55°C~+125°C |
| Maximum case temperature: | 95°C |
| Switching frequency: | 400kHz typ. |
| Storage humidity range: | 95% max. |
| Radiated emissions: | EN55022/Class A |
| Conducted emissions: | EN55022/Class A |
| Case material: | Five-Side Shielded Case |
| Potting material: | Epoxy (UL94V-0) |
| MTBF (MIL-HDBK-217F @25°C): | 900,000 hours |
| Weight: | 17.5g |

| Output specifications | | | | | | |
|----------------------------------|--|-----|------|-------------------|----------------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Minimum load | 10% of full load | | | | | |
| Output voltage accuracy | Full load and nominal Vin | | | ±2 | % | |
| Overload protection | | | 150 | | % | |
| Cross regulation | Dual (25%-100% load) | | | ±5 | % | |
| Line regulation | | | ±0.5 | | % | |
| Load regulation | Single & Dual (F.L-25%F.L) | | ±0.5 | | % | |
| Ripple and noise | 20MHz Bandwidth • 3-15V output • <15V output | | | 100 1% of Vout | mVp-p mVp-p | |
| Transient response settling time | 50% load step change | | 350 | | µs | |

| Input specifications | | | | | | |
|--|---|-----|--|-----|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Input filter | Pi Type | | | | | |
| Protection | Fuse recommended | | | | | |
| Input surge voltage (100ms max.) | • Nominal input (12V) • Nominal input (24V) • Nominal input (48V) | | 25 50 100 | | VDC | |
| Input reflected ripple current | Nominal Vin and full load | | 50 | | mAp-p | |
| Start-up time | Nominal Vin and constant resistive load | | 500 | | ms | |
| Remote ON/OFF | • Converter: ON • Converter: OFF | | Open or 3.5V<Vr<12V Short or 0V<Vr<1.2V | | | |
| Sourcing current of remote control pin | Nominal Vin | | <0.2 | | mA | |
| Idle input current (at Remote OFF state) | Nominal Vin | | <2.5 | | mA | |

| Isolation specifications | | | | | | |
|--------------------------|-----------------|------|------|-----|-------|--|
| Item | Test condition | Min | Typ | Max | Units | |
| Isolation voltage | Input to output | | 1500 | | VDC | |
| Isolation resistance | Test at 500VDC | 1000 | | | MΩ | |

Example:

10DPW_2415S1.5

10 = 10Watt; D = DIP; P = series; W = wide input (2:1) 18-36Vin;
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 typical at nominal input, full load and 25°C unless otherwise stated.
3. In this datasheet, all the test methods of indications are based on corporate standards.

10DPW_1.5 series

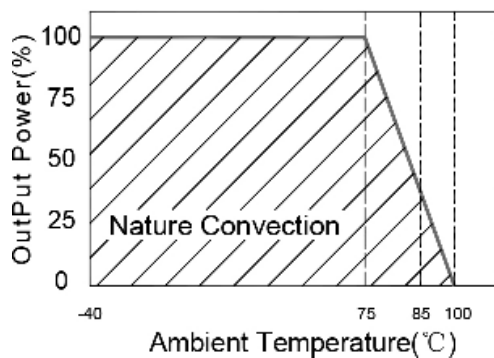
10W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

Product Selection Guide

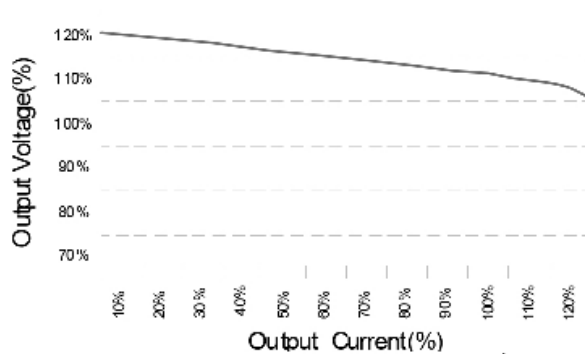
| Part Number | Input Voltage [VDC] Range | Input Current [mA] | | Output Voltage [VDC] | Output Current [mA] Full load | Efficiency [% Typ.] |
|----------------|------------------------------|--------------------|-----------|----------------------|----------------------------------|---------------------|
| | | No load | Full load | | | |
| 10DPW_1203S1.5 | 9-18 | 50 | 1006 | 3.3 | 3000 | 82 |
| 10DPW_1205S1.5 | 9-18 | 50 | 1016 | 5 | 2000 | 82 |
| 10DPW_1212S1.5 | 9-18 | 30 | 1004 | 12 | 833 | 83 |
| 10DPW_1215S1.5 | 9-18 | 30 | 1009 | 15 | 670 | 83 |
| 10DPW_2403S1.5 | 18-36 | 40 | 503 | 3.3 | 3000 | 82 |
| 10DPW_2405S1.5 | 18-36 | 40 | 508 | 5 | 2000 | 82 |
| 10DPW_2412S1.5 | 18-36 | 30 | 502 | 12 | 833 | 83 |
| 10DPW_2415S1.5 | 18-36 | 30 | 504 | 15 | 670 | 83 |
| 10DPW_4803S1.5 | 36-75 | 30 | 251 | 3.3 | 3000 | 82 |
| 10DPW_4805S1.5 | 36-75 | 30 | 254 | 5 | 2000 | 82 |
| 10DPW_4812S1.5 | 36-75 | 20 | 251 | 12 | 833 | 83 |
| 10DPW_4815S1.5 | 36-75 | 20 | 252 | 15 | 670 | 83 |
| 10DPW_1205D1.5 | 9-18 | 30 | 1004 | ±5 | ±1000 | 83 |
| 10DPW_1209D1.5 | 9-18 | 30 | 1004 | ±9 | ±555 | 86 |
| 10DPW_1212D1.5 | 9-18 | 30 | 1012 | ±12 | ±420 | 83 |
| 10DPW_1215D1.5 | 9-18 | 30 | 1024 | ±15 | ±340 | 83 |
| 10DPW_2405D1.5 | 18-36 | 30 | 502 | ±5 | ±1000 | 83 |
| 10DPW_2412D1.5 | 18-36 | 30 | 506 | ±12 | ±420 | 83 |
| 10DPW_2415D1.5 | 18-36 | 30 | 512 | ±15 | ±340 | 83 |
| 10DPW_4805D1.5 | 36-75 | 20 | 251 | ±5 | ±1000 | 83 |
| 10DPW_4812D1.5 | 36-75 | 20 | 253 | ±12 | ±420 | 83 |

Typical characteristics

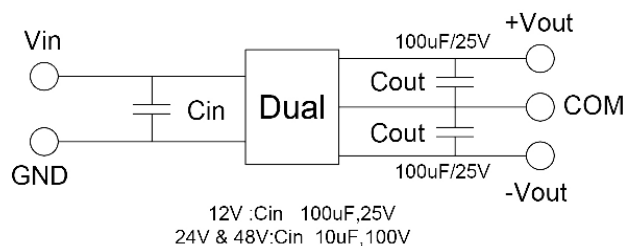
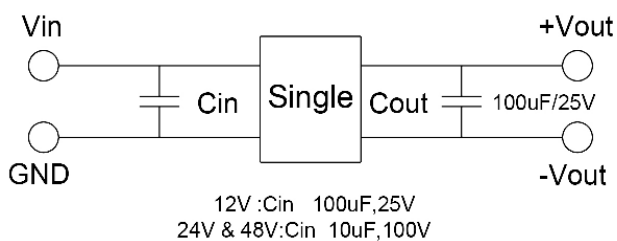
Temperature derating graph



Tolerance envelope graph



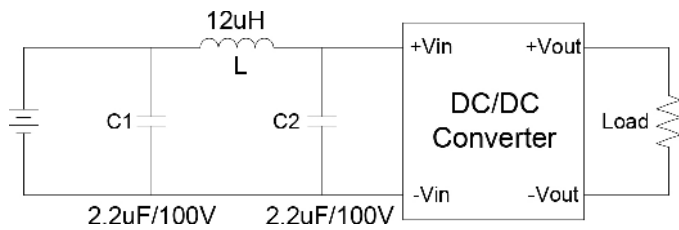
Recommended test circuit



10DPW_1.5 series

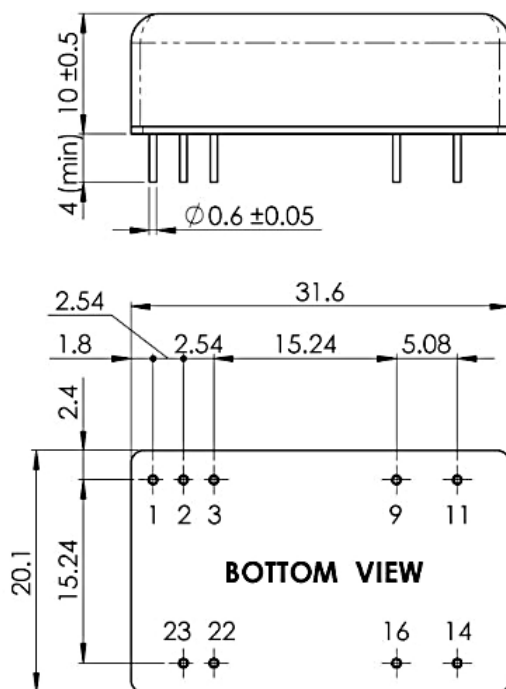
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External filter



Input filter components (C1, C2, L) are used to help meet conducted emissions (EN55022 class A) requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.

Mechanical dimensions



Note:
Unit: mm[inch]
Tolerances: $\pm 0.5\text{mm}$ [$\pm 0.02\text{inch}$]
Pin size tolerance: $0.6\phi \pm 0.05\text{mm}$

| PIN connection | | | | | | | |
|----------------|---------------|------|--------|-------|-------|--------|--------|
| PIN | 1 | 2, 3 | 9 | 11 | 14 | 16 | 22, 23 |
| Single | Remote on/off | -Vin | NC | NC | +Vout | -Vout | +Vin |
| Dual | Remote on/off | -Vin | Common | -Vout | +Vout | Common | +Vin |