

## 12DPW\_1.5 series

12W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

### DC-DC Converter

12 Watt

- ⊕ Wide 2:1 input voltage range
- ⊕ Input/Output Isolation Voltage: 1.5kVDC
- ⊕ Operating Temperature Range: -40°C to +85°C
- ⊕ Short circuit protection (SCP)
- ⊕ Remote On/Off
- ⊕ High efficiency
- ⊕ 12W DIL package
- ⊕ Meet EN55022, Class A (Radiation)
- ⊕ Shielded Metal Case with Insulated Baseplate
- ⊕ Lead Free Design, RoHS Compliant
- ⊕ 24pin DIP Package with Industry-Standard Footprint
- ⊕ Customer Design Available



The 12DPW\_1.5 series are isolated 12W DC-DC converters. Designed with high efficiency, they allow the operating temperature range of these units to be -40°C to +85°C in a 24 pin DIP package 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:	Continuous, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C~+125°C
Maximum case temperature:	100°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

#### Input specifications

Item	Test condition	Min	Typ	Max	Units
Input filter	Pi Type				
Protection	Fuse recommended				
Input surge voltage (100ms max.)	<ul style="list-style-type: none"> <li>• Nominal input (12V)</li> <li>• Nominal input (24V)</li> <li>• Nominal input (48V)</li> </ul>		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	<ul style="list-style-type: none"> <li>• Converter: ON</li> <li>• Converter: OFF</li> </ul>		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

#### Output specifications

Item	Test condition	Min	Typ	Max	Units
Output power				12	W
Minimum load	10% of full load				
Output voltage accuracy	Full load and nominal Vin			±2	%
Overload protection			150		%
Line regulation	High Line to Low Line		±0.5		%
Load regulation	Single & Dual (F.L-25%F.L)		±0.5		%
Ripple and noise	20MHz Bandwidth			100	mVp-p
Transient response settling time	50% load step change		350		µs

#### Isolation specifications

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

#### Example:

##### 12DPW\_2415S1.5

12 = 12Watt; D = DIP; P = series; W = wide input (2:1) 18-36Vin; 15Vout; S = single output; 1.5 = 1500VDC

#### 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.

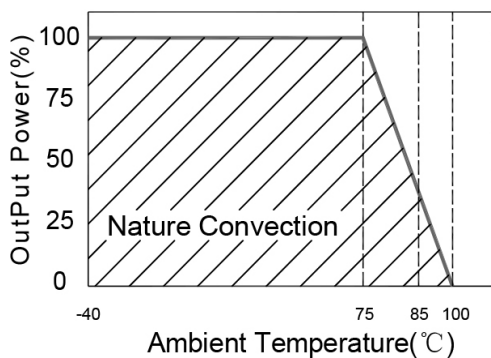
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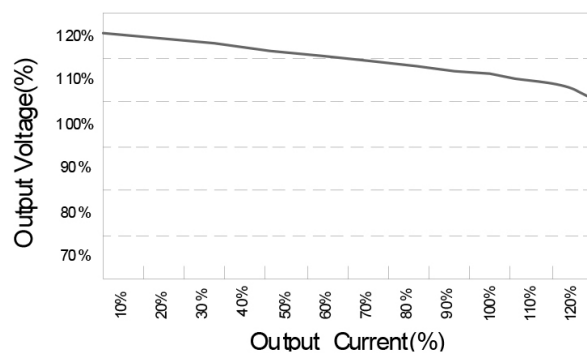
Part Number	Input Voltage [VDC] Range	Input Current [mA]		Output Voltage [VDC]	Output Current [mA] Full load	Efficiency [% , Typ.]
		No load	Full load			
12DPW_1203S1.5	9-18	30	1203	3.3	3500	80
12DPW_1205S1.5	9-18	30	1220	5	2400	82
12DPW_1212S1.5	9-18	30	1205	12	1000	83
12DPW_1215S1.5	9-18	30	1205	15	800	83
12DPW_2403S1.5	18-36	30	602	3.3	3500	80
12DPW_2405S1.5	18-36	30	610	5	2400	82
12DPW_2412S1.5	18-36	30	602	12	1000	83
12DPW_2415S1.5	18-36	30	602	15	800	83
12DPW_4803S1.5	36-75	20	301	3.3	3500	80
12DPW_4805S1.5	36-75	20	305	5	2400	82
12DPW_4812S1.5	36-75	20	301	12	1000	83
12DPW_4815S1.5	36-75	20	301	15	800	83
12DPW_1205D1.5	9-18	30	1205	±5	±1200	83
12DPW_1212D1.5	9-18	30	1205	±12	±500	83
12DPW_1215D1.5	9-18	30	1205	±15	±400	83
12DPW_2405D1.5	18-36	30	602	±5	±1200	83
12DPW_2412D1.5	18-36	30	602	±12	±500	83
12DPW_2415D1.5	18-36	30	602	±15	±400	83
12DPW_4805D1.5	36-75	20	301	±5	±1200	83
12DPW_4812D1.5	36-75	20	301	±12	±500	83
12DPW_4815D1.5	36-75	20	301	±15	±400	83

## Typical characteristics

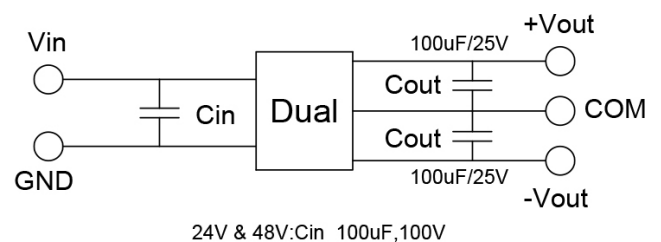
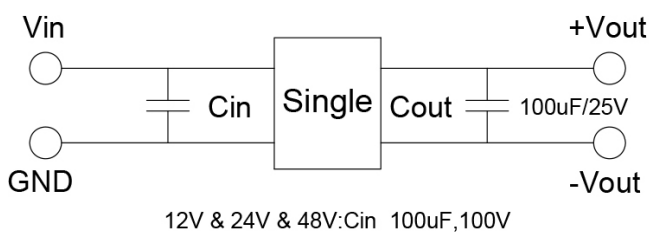
Temperature derating graph



Tolerance envelope graph



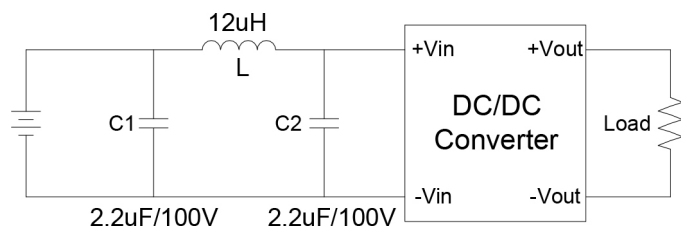
## Recommended test circuit



## 12DPW\_1.5 series

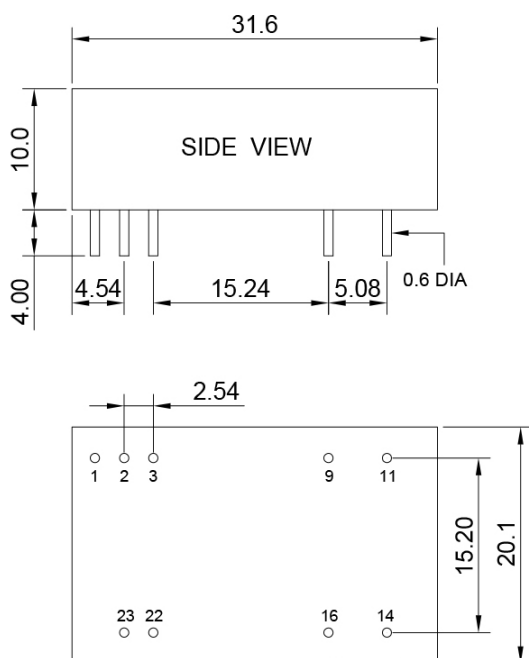
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### External filter



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