

15DPW Series

15W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

DC-DC Converter

15 Watt

- ⊕ Wide 2:1 input voltage range
- ⊕ Isolation Voltage: 1.6KVDC
- ⊕ Operating Temperature Range: -40°C to +85°C
- ⊕ Short circuit protection (SCP)
- ⊕ Remote On/Off
- ⊕ No minimum load required
- ⊕ High efficiency up to 91%
- ⊕ 15W DIL-24 package
- ⊕ Meet EN55022, Class A (Radiation)
- ⊕ RoHS Compliant
- ⊕ Over voltage protection
- ⊕ Over load protection
- ⊕ Customer Design Available

The 15DPW Series are high performance isolated 15W 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:	Continuous, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C~+125°C
Maximum case temperature:	105°C
Soldering temperature:	260°C MAX, 1.5mm from case for 10sec
Switching frequency:	250-330kHz TYP
Storage humidity range:	95% MAX
Radiated emissions:	EN55022/Class A
Safety standard:	IEC 60950-1
Case material:	Nickel coated copper with no-conductive base
Potting material:	Epoxy (UL94V-0)
MTBF (MIL-HDBK-217F @25°C):	>460,000 hours
Weight:	20g

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Minimum load	10% of full load					
Voltage accuracy				±1	%	
Line regulation	• Single • Dual			±0.2 ±0.5	%	
Load regulation	• Single • Dual (balanced load)			±0.5 ±1	%	
Cross regulation	Dual (25% to 100% load)			±5	%	
Ripple and noise	20MHz Bandwidth			60	Vpk-pk	
Over voltage protection (Zener diode clamp)	• 3.3V output • 5.1V output • 12V output • 15V output • ±5V output • ±12V output • ±15V output			3.9 6.2 15 18 ±6.2 ±15 ±18	V	
Over current protection	of F.L.		150		%	
Transient recovery time	25% load step change		250		µs	
Transient response deviation	normal Vin, 25% load step change			±3	%	
Temperature coefficient				±0.02	%/°C	

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)			36 50 100	VDC	
Input reflected ripple* current	Nominal Vin and full load			20	mApk-pk	
Start-up time	Nominal Vin and constant resistive load		20		ms	
Remote ON/OFF (referenced to -Vin, pin 2 and pin 3)	• Converter: ON • Converter: OFF • OFF idle current	3.0V<Vr<12V or open circuit 0V<Vr<1.2V or short circuit			pin 1 and pin 2/3 5mA	
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	1600			VDC	
Isolation resistance	Test at 500VDC	1000			MΩ	
Isolation capacitance			2000		pF	

Model selection:

WCTV_xxyyN##

W= Watt; C= Case; T= Type; V= Voltage Variation (omitted ± 10%);
xx= Vin; yy= Vout; N= Numbers of Output; ##= Isolation (kVDC)

Example:

15DPW_2415S1.6

15= 15Watt; D= DIP; P= series; W= wide input (2:1) 18-36Vin;
15Vout; S= single output; 1.6= 1600VDC

* see recommended test circuit

Note:

- Only typical model listed. Non-standard models will be different from the above, please contact us for more details.
- All specifications are typical at nominal input, full load and 25°C unless otherwise stated.
- In this datasheet, all the test methods of indications are based on corporate standards.

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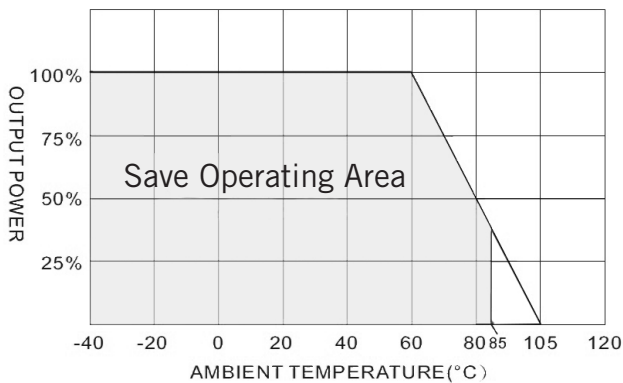
EMC specifications			
EMI	CE	EN55022	CLASS A
EMI	RE	EN55022	CLASS A
EMS	ESD	IEC61000-4-2	perf. Criteria B
EMI	RS	IEC61000-4-3	perf. Criteria A
EMI*	EFT	IEC61000-4-4	perf. Criteria B
EMS*	Surge	IEC61000-4-5	perf. Criteria B
EMI	CS	IEC61000-4-6	perf. Criteria A
EMS	PFMF	IEC61000-4-8	perf. Criteria A

* An external filter capacitor is required if the module has to meet IEC61000-4-4 and IEC61000-4-5.
The filter capacitor suggest: Nippon chemicon KY series, 2pcs 330uF/100V parallel construction or 680uF/100V.

Part Number	Input Voltage [VDC] Range	Input Current [mA, Typ.]		Output Voltage [VDC]	Output Current [mA] Full load	Efficiency [%, typ.]	Capacitor load [µF, max.]
		No load	Full load				
15DPW_1203S1.6	9-18	15	1309	3.3	4000	86	4700
15DPW_1205S1.6	9-18	15	1465	5.1	3000	89	3300
15DPW_1212S1.6	9-18	15	1436	12	1250	89	600
15DPW_1215S1.6	9-18	15	1420	15	1000	90	400
15DPW_2403S1.6	18-36	10	647	3.3	4000	87	4700
15DPW_2405S1.6	18-36	10	732	5.1	3000	89	3300
15DPW_2412S1.6	18-36	10	710	12	1250	90	600
15DPW_2415S1.6	18-36	10	702	15	1000	91	400
15DPW_4803S1.6	36-75	5	327	3.3	4000	86	4700
15DPW_4805S1.6	36-75	5	370	5.1	3000	88	3300
15DPW_4812S1.6	36-75	5	359	12	1250	89	600
15DPW_4815S1.6	36-75	5	359	15	1000	89	400
15DPW_1205D1.6	9-18	15	1488	±5	±1500	86	±1500
15DPW_1212D1.6	9-18	15	1420	±12	±625	90	±288
15DPW_1215D1.6	9-18	15	1420	±15	±500	90	±200
15DPW_2405D1.6	18-36	10	744	±5	±1500	86	±1500
15DPW_2412D1.6	18-36	10	710	±12	±625	90	±288
15DPW_2415D1.6	18-36	10	710	±15	±500	90	±200
15DPW_4805D1.6	36-75	5	372	±5	±1500	86	±1500
15DPW_4812D1.6	36-75	5	359	±12	±625	89	±288
15DPW_4815D1.6	36-75	5	355	±15	±500	90	±200

Typical characteristics

Temperature derating curve



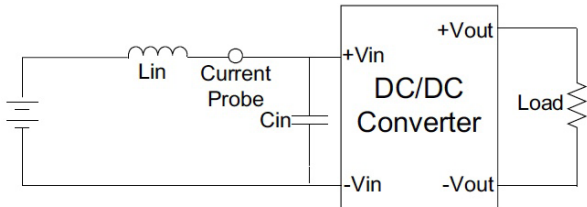
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Recommended test circuit

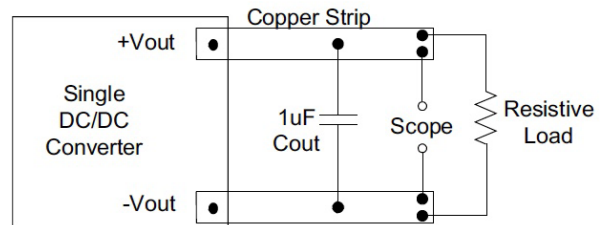
Input reflected ripple current test step

Input reflected ripple current is measured through a source inductor L_{in} (12 μ H) and a source capacitor C_{in} (47 μ F, ESR<1.0 Ω at 100KHz) at nominal input and full load.

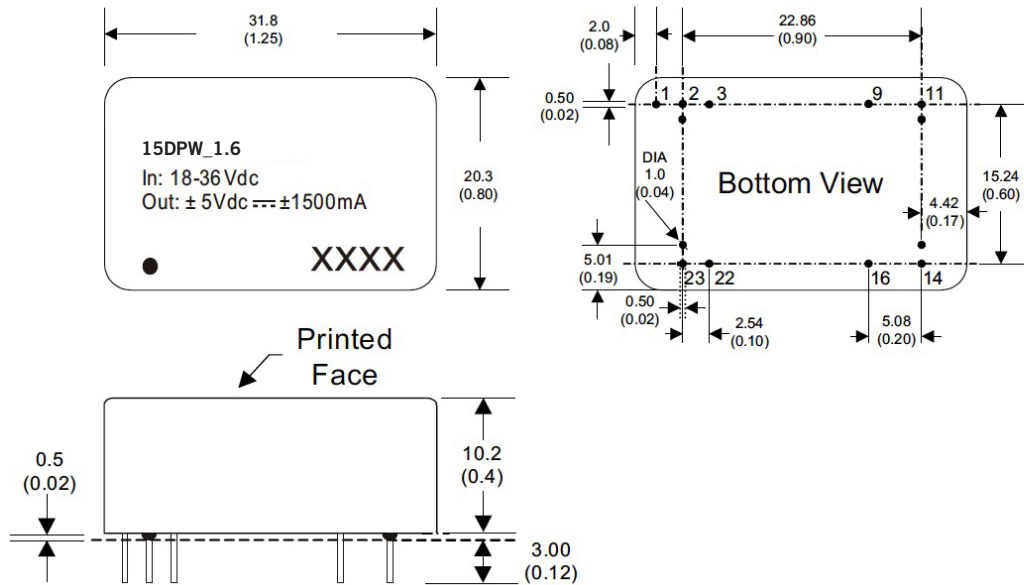


Output ripple & noise measurement test

Use a capacitor C_{out} (1.0 μ F) measurement. The scope measurement bandwidth is 0-20MHz.



Mechanical dimensions



Note:

Unit: mm[inch]

Pin diameter: 0.5 \pm 0.5mm [0.02 \pm 0.02inch]

Pin pitch and length tolerance: \pm 0.3mm [\pm 0.014inch]

Case tolerance: \pm 0.5mm [\pm 0.02inch]

Stand-off tolerance: \pm 0.1mm [\pm 0.004inch]

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