



15DMW_S & 15DMW_D Series

15W - Single/Dual Output - Wide Input - Isolated & Regulated
1" x 1" DC-DC Converter

DC-DC Converter

15 Watt

- ⊕ Wide 2:1 input voltage range
- ⊕ High efficiency up to 89%
- ⊕ Remote On/Off
- ⊕ Input/output isolation voltage: 1.5K VDC
- ⊕ Short circuit protection (SCP)
- ⊕ Operating temperature range: -40°C to +85°C
- ⊕ 100% burned in
- ⊕ 15W DIL package
- ⊕ RoHS compliant
- ⊕ Customer design available

The 15DMW_S & 15DMW_D series are 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 derating) in a 6 pin DIP package with industry-standard footprint. Further features include wide 2:1 input voltage range, remote on/off control, trimmable output, short-circuit protection and over voltage protection.

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



Common specifications	
Short circuit protection:	Hiccup, continuous, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C (with derating)
Storage temperature range:	-55°C~+125°C
Maximum case temperature:	100°C MAX
Switching frequency (fixed):	400kHz TYP, pulse width modulation PWM
Storage humidity range:	95% MAX
Case material:	Nickel-coated copper (six-sided)
Base material:	Non-conductive FR4
Potting material:	Epoxy (UL94V-0)
MTBF (MIL-HDBK-217F @25°C):	560,000 hours
Weight:	16.5g

Input specifications						
Item	Test condition	Min	Typ	Max	Units	
Input filter	Pi Type					
Protection	Fuse recommended					
Starting voltage	<ul style="list-style-type: none"> • 12VDC input • 24VDC input • 48VDC input 		9	17	33	VDC
Under-voltage turn-off	<ul style="list-style-type: none"> • 12VDC input • 24VDC input • 48VDC input 	5.5	8	14	16.5	VDC
Remote ON/OFF	<ul style="list-style-type: none"> • Converter: ON • Converter: OFF • Off idle current 		Open or 3.0V<Vr<12V			mA
					Short circuit pin 6 and pin 2 or 0V<Vr<1.2V	

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

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Voltage tolerance				±2	%	
Line regulation	Vmin - Vmax			±0.5	%	
Load regulation	<ul style="list-style-type: none"> • 25% load to full load • Balanced load (dual) 			±0.5	%	
Output voltage adjustment range	only for single output models			±10	%	
Temperature drift (Vout)				±0.05	%/°C	
Ripple and noise	20MHz Bandwidth			100	mVp-p	
Output current limitation	at 150 % typ.of Iout max., constant current					
Transient response setting time	25% load step change		250		μs	
Transient response over shoot	di/dt=0.8A/μs			≤ ±5% of Vo	(≤ ±6% for 3.3Vout)	
Start-up time	Nominal Vin and constant resistive load		450		ms	
Over load protection	% of full load at nominal input		110		%	
Over voltage protection	<ul style="list-style-type: none"> • 3.3V output • 5V output • 12V output • 15V output 	3.7	5.6	13.5	19.6	VDC
				16.8	20.5	VDC

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:
15DMW_2415S1.5
15= 15Watt; **D=** DIP; **M=**series; **W=** wide input (2:1) **18-36Vin**;
15Vout; **S=** single output; **1.5=**1500VDC

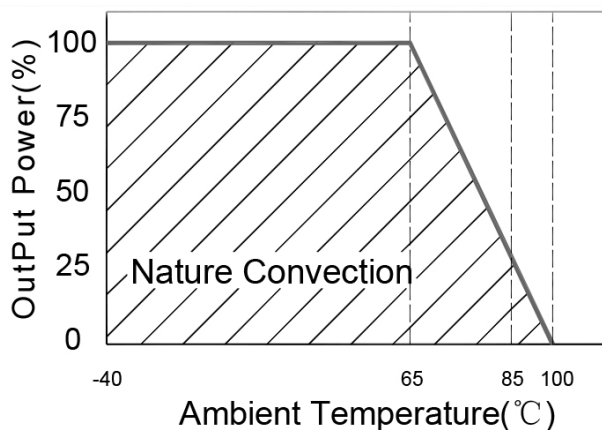
Note:
1. Only typical model listed. Non-standard models will be different from the above, please contact us for more details.
2. All specifications are measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. In this datasheet, all the test methods of indications are based on corporate standards.

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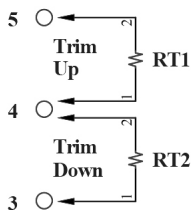
Part Number	Input Voltage [VDC]		Output Voltage [VDC]	Output Current [mA] Full load	Input Current [mA]		Efficiency [%, Typ.]	Capacitive load [μF, Max.]
	Nominal	Range			No load	Full load		
15DMW_1203S1.5	12	9-18	3.3	4000	60	1294	85	1000
15DMW_1205S1.5	12	9-18	5	3000	40	1453	86	1000
15DMW_1212S1.5	12	9-18	12	1250	30	1420	88	330
15DMW_1215S1.5	12	9-18	15	1000	30	1420	88	220
15DMW_2403S1.5	24	18-36	3.3	4000	40	647	85	1000
15DMW_2405S1.5	24	18-36	5	3000	50	718	87	1000
15DMW_2412S1.5	24	18-36	12	1250	20	702	89	330
15DMW_2415S1.5	24	18-36	15	1000	20	702	89	220
15DMW_4803S1.5	48	36-75	3.3	4000	30	323	85	1000
15DMW_4805S1.5	48	36-75	5	3000	40	363	86	1000
15DMW_4812S1.5	48	36-75	12	1250	10	359	87	330
15DMW_4815S1.5	48	36-75	15	1000	10	351	89	220
15DMW_1212D1.5	12	9-18	±12	±625	30	1420	88	±150
15DMW_1215D1.5	12	9-18	±15	±500	30	1420	88	±100
15DMW_2412D1.5	24	18-36	±12	±625	20	710	88	±150
15DMW_2415D1.5	24	18-36	±15	±500	20	710	88	±100
15DMW_4812D1.5	48	36-75	±12	±625	10	355	88	±150
15DMW_4815D1.5	48	36-75	±15	±500	10	355	88	±100

Typical characteristics

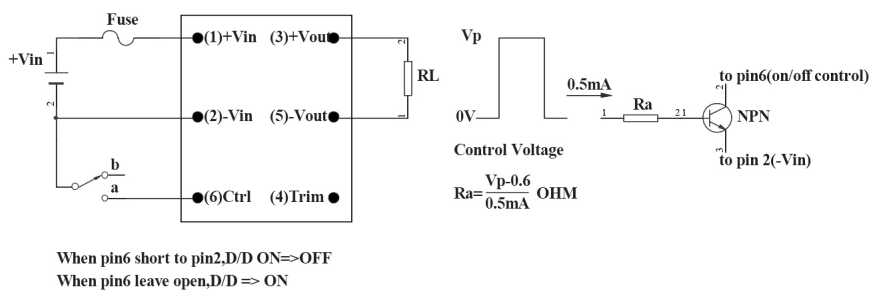


Output voltage adjustment

Output can be externally trimmed by using the method shown below.



Control pin suggest circuit

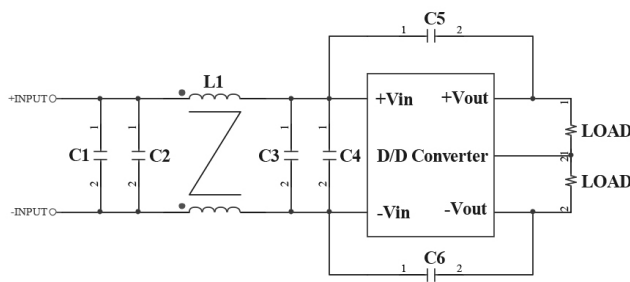
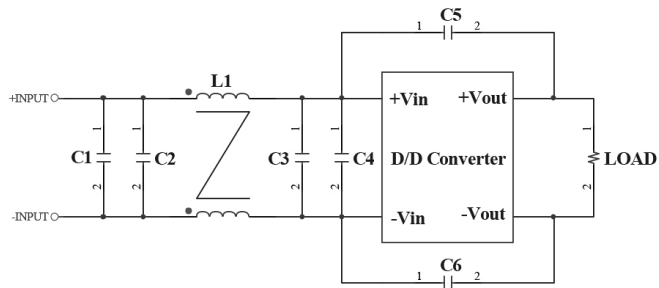


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EMC considerations

Suggested Schematic to comply with EN55022 Conducted Noise emission Class B



Following components are needed to comply with EN55022 Class B conducted noise:

15DMW_12xxS1.5

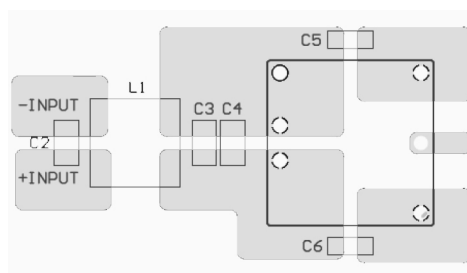
Component	Value	Voltage	Reference
C2, C3	10µF	25V	1812 MLCC
C5, C6	1000pF	25KV	1206 MLCC
L1	325µH		Common Mode Choke

15DMW_24xxS1.5

Component	Value	Voltage	Reference
C2, C3	6.8µF	50V	1812 MLCC
C5, C6	1000pF	2KV	1206 MLCC
L1	325µH		Common Mode Choke

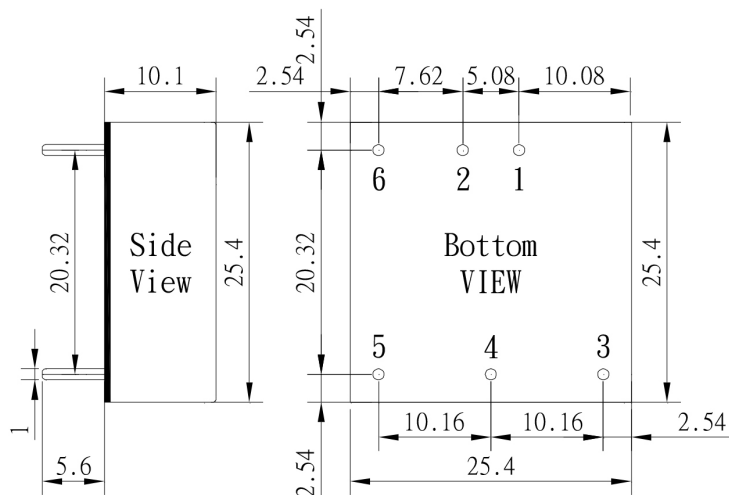
15DMW_48xxS1.5

Component	Value	Voltage	Reference
C2, C3	2.2µF	1000V	1812 MLCC
C5, C6	1000pF	2KV	1206 MLCC
L1	325µH	2KV	Common Mode Choke



Recommended Layout with input Filter

Mechanical dimensions



Note:
Unit: mm
General tolerances: ±0.5mm
Pin size tolerances: ±0.35mm

Pin connection						
Pin	1	2	3	4	5	6
Single	+Vin	-Vin	+Vout	Trim	-Vout	Remote On/Off
Dual	+Vin	-Vin	+Vout	COM	-Vout	Remote On/Off