

FDWS SERIES

20W WIDE INPUT RANGE

DANUBE

FEATURES

- 20W DIL PACKAGE
- INDUSTRY STANDARD PACKAGE
- 9-18V, 18-36V, 36-75V WIDE INPUT RANGE
- REGULATED OUTPUT
- 100% BURNED IN
- HIGH EFFICIENCY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- 3 YEARS WARRANTY



OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy	+/-2% max
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise(20MHz BW) ¹	150mVp-p max
Line Regulation ²	+/-0.5% max
Load Regulation ³	+/-0.5% max
Minimum Load	10% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Over Load Protection	130%~180%
Transient Response ⁵	300uS max
External Trim Adj. Range	+/-10%

INPUT SPECIFICATIONS

Input Voltage Range	2:1 Input Range
Input Filter	PI Network
Protection	Fuse Recommended

GENERAL SPECIFICATIONS

Efficiency	80% min
Isolation Voltage ⁴	1500VDC min
Isolation Resistance	10 ⁹ ohms min
Isolation Capacitance	550pF max
Switching Frequency	300 KHz typ.
MTBF ⁶	>700,000 Hours
Weight	31.2g typ.
Case Material	Six-Side Shielded Case
Case Size	50.8mm*25.4mm*11.2mm
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to +71°C
Case Temperature	+100°C max
Storage Temperature	-55°C to +125°C
Humidity	95% max
Cooling	Free-Air Convection

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD, AND 25°C UNLESS OTHERWISE NOTED.

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² High Line to Low Line.

³ Load Regulation is for output load current change from 10% to 100%.

⁴ For 10 seconds.

⁵ 25% Step Load Change.

⁶ MIL-HDBK-217F @25°C, Ground Benign.

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● SELECTION GUIDE 2:1 20W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT ⁷		EFF (%) ⁸	ISOLATION (VDC)
				CURRENT(mA)			
				FULL LOAD	NO LOAD		
FDWS-1203.3	9-18	3.3	5000	1664	35	83	1500
FDWS-1205	9-18	5	4000	1971	30	85	1500
FDWS-1209	9-18	9	2222	1984	30	84	1500
FDWS-1212	9-18	12	1660	1916	30	87	1500
FDWS-1215	9-18	15	1330	1916	30	87	1500
FDWS-2403.3	18-36	3.3	5000	838	20	82	1500
FDWS-2405	18-36	5	4000	980	20	85	1500
FDWS-2409	18-36	9	2222	960	20	87	1500
FDWS-2412	18-36	12	1660	980	20	85	1500
FDWS-2415	18-36	15	1330	958	20	87	1500
FDWS-4803.3	36-75	3.3	5000	424	20	81	1500
FDWS-4805	36-75	5	4000	508	20	82	1500
FDWS-4809	36-75	9	2222	508	20	82	1500
FDWS-4812	36-75	12	1660	496	20	84	1500
FDWS-4815	36-75	15	1330	490	20	85	1500

Note: Other input to output voltages may be available. Please contact factory.

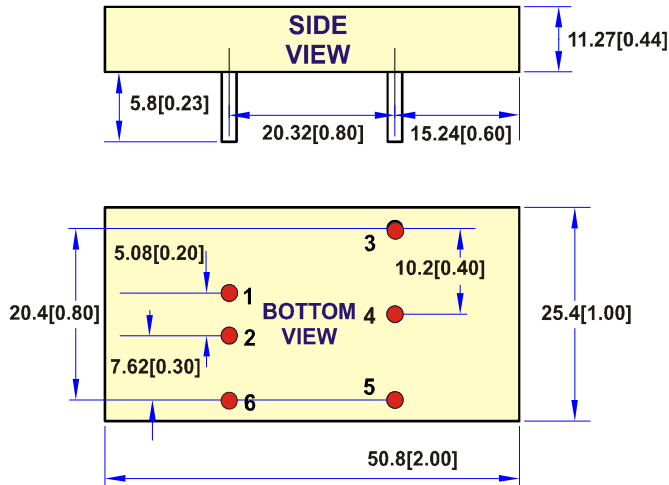
● PART NUMBERS STRUCTURE

Model Name	Difference
FDWv-x1x2 FDWv-x1x2-zzz	<p>FD=Series Name</p> <p>W=Wide Input Range</p> <p>v=Type of output voltage (S=single output)</p> <p>x1=Input voltage(9~18V ; 18~36V ; 36~75V)</p> <p>x2=Output voltage(03.3 ; 05 ; 09 ; 12 ; 15)</p> <p>zzz= 0~9 , A~Z or blank for market purpose.</p>

⁷ NOMINAL INPUT VOLTAGE.

⁸ NOMINAL INPUT VOLTAGE, FULL LOAD.

MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS



PIN	SINGLE
1	+Vin
2	-Vin
3	+Vout
4	NP
5	-Vout
6	Remote On/Off

NOTE:

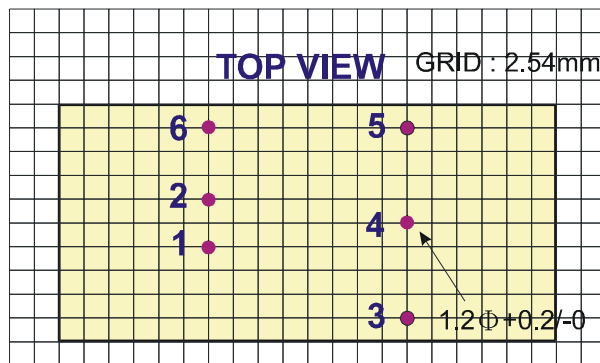
Pin Size is Tolerance 1.0Φ ±0.10mm

All Dimensions In mm(Inches)

Tolerance .X or .XX= ±0.80mm

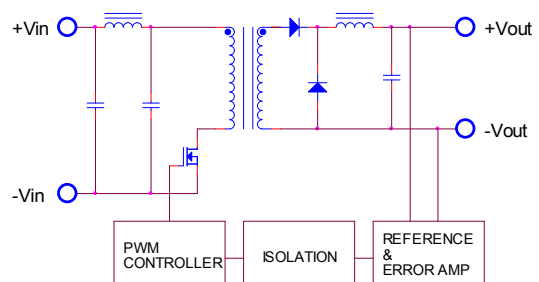
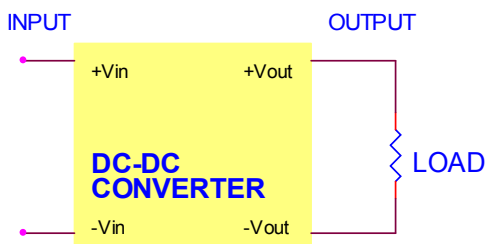
All dimensions are in millimeters[inches]

RECOMMENDED FOOTPRINT DETAILS



Remote On/Off Control			
Control Input	PIN6	Control Common	PIN2
Control Voltage		Converter Shutdown Idle Current	10mA
ON	>+2.5VDC or Open Circuit	Logic Compatibility	CMOS or Open
OFF	<+0.8VDC or Jumper to PIN2		Collector TTL

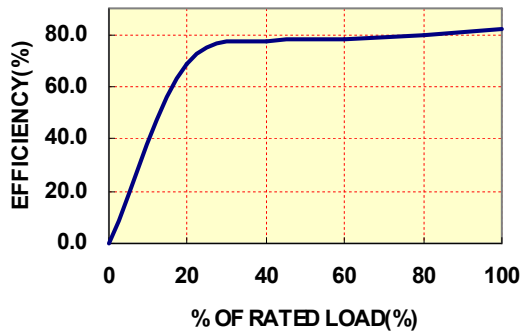
TYPICAL APPLICATIONS • SIMPLIFIED SCHEMATIC



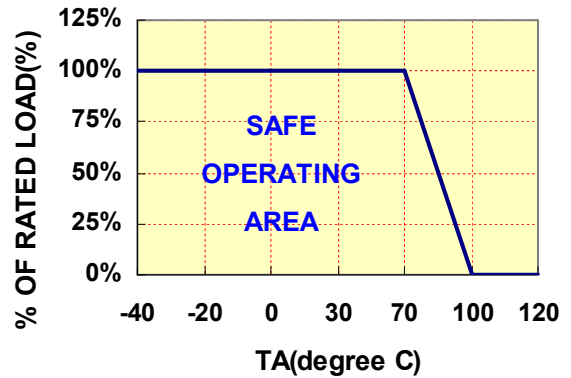
● TYPICAL PERFORMANCE CURVES

Specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

OUTPUT LOAD VS EFFICIENCY



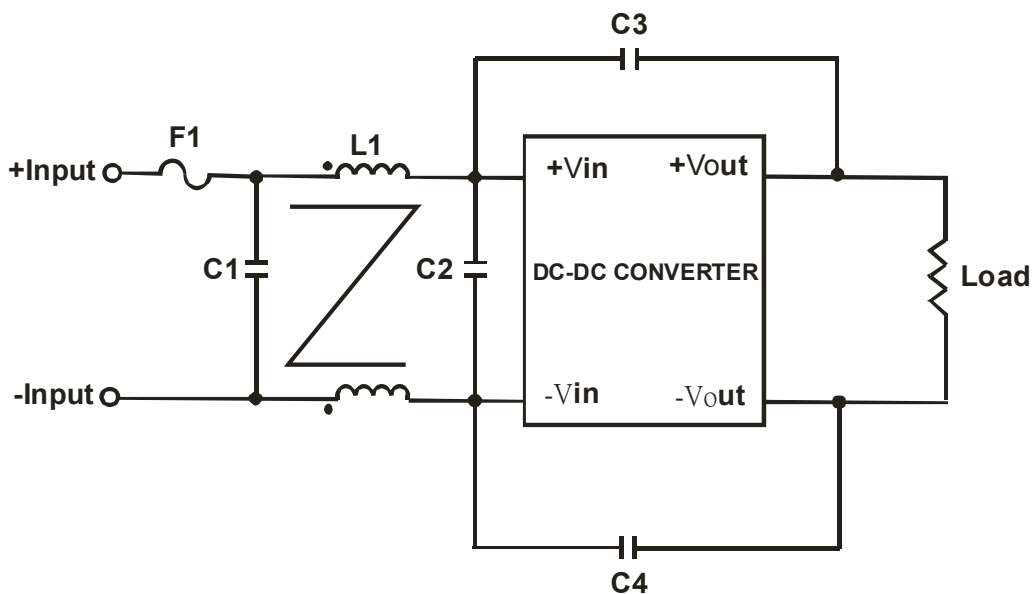
TEMPERATURE DERATING

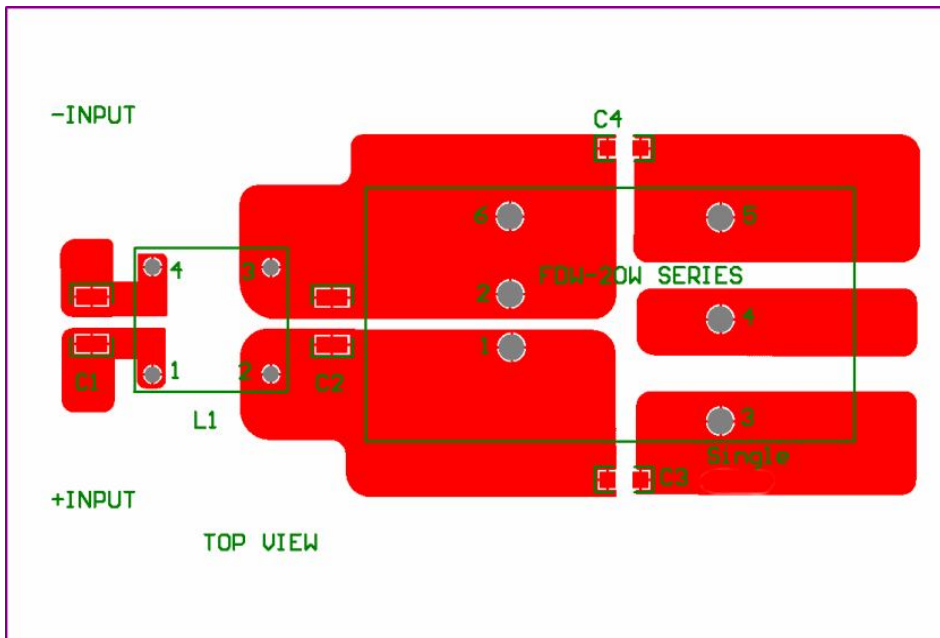


● Recommended Filter for EN55022 Class B Compliance

The components used in the above figure, together with the manufacturer's part numbers for these components, are as follows:

	C1	C2	C3	C4	L1
FDWS-12**	3.3uF/50V 1812 MLCC	3.3uF/50V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke
FDWS-24**	3.3uF/50V 1812 MLCC	N/A	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke
FDWS-48**	1.5uF/100V 1812 MLCC	1.5uF/100V 1812 MLCC	1000pF/2KV MLCC	1000pF/2KV MLCC	325uH Common Choke





Recommended EN55022 Class B Filter Circuit Layout

● INPUT FUSE SELECTION GUIDE

9-18V INPUT VOLTAGE(VDC)	18-36V INPUT VOLTAGE(VDC)	36-75V INPUT VOLTAGE(VDC)
5000mA Slow-Blow Type	3000mA Slow-Blow Type	1500mA Slow-Blow Type

Note: Certain applications may require the installation of external fuse in front of the input.

FDWS SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the FDWS series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 350KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 1000uF.

We Can Offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

FOR MORE INFORMATION CALL:

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Home Page

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