

FDD05 SERIES



DC - DC CONVERTER
5 ~ 6W 5V INPUT MODEL

FEATURES

- INPUT 4.5 V ~ 5.5 V
- INPUT FILTER BUILT - IN
- I/O ISOLATION
- HIGH EFFICIENCY UP TO 81 %
- SHORT CIRCUIT PROTECTION
- 2 " x 2 " METAL CASE
- 2 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	INPUT CURRENT (typ.)	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
Single Output Models								
FDD05 - 05S0	4.5~5.5 VDC	1.25 A	5 WATTS	+ 5 VDC	1000 mA	75%	77%	2200 μ F
FDD05 - 12S0	4.5~5.5 VDC	1.50 A	6 WATTS	+ 12 VDC	500 mA	80%	82%	1500 μ F
FDD05 - 15S0	4.5~5.5 VDC	1.45 A	6 WATTS	+ 15 VDC	400 mA	81%	83%	270 μ F
Dual Output Models								
FDD05 - 05D0	4.5~5.5 VDC	1.25 A	5 WATTS	$\pm$ 5 VDC	$\pm$ 500 mA	75%	77%	$\pm$ 680 μ F
FDD05 - 12D0	4.5~5.5 VDC	1.50 A	6 WATTS	$\pm$ 12 VDC	$\pm$ 250 mA	80%	82%	$\pm$ 150 μ F
FDD05 - 15D0	4.5~5.5 VDC	1.45 A	6 WATTS	$\pm$ 15 VDC	$\pm$ 200 mA	81%	83%	$\pm$ 68 μ F

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		200		KHz
Isolation voltage	Input - Output	1500			VDC
Isolation resistance	Input - Output, @ 500VDC	100			MΩ
Isolation capacitance	100KHz / 1V			330	PF
Ambient temperature	Operating at Vi nom, Io nom	-25		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			
Storage temperature	Non operational	-40		+ 100	°C
Relative humidity	Vi nom, Io nom	20		95	% RH
Temperature coefficient	Vi nom, Io min			± 0.02	% / °C
Dimension		L50.8 x W50.8 x H12.0			mm
MTBF	Bellcore issue 6@40°C, GB		1120000		Hours
Cooling	Free air convection				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	4.5	5	5.5	VDC
No load input current	Vi nom, Io = 0			15	mA
Input voltage w/o damage	Io nom			7	VDC
Startup voltage	Io nom		4		VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom, single output models	0			%
	Vi nom, dual output models (each output)	20			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 2	%
	Vi nom, Io min ... Io nom, dual output models			± 5	%
Cross regulation (Dual model)	Aymmetrical load 20% - 100% FL			± 10	%
Startup time	Vi nom, Io nom			50	ms
Transient recovery time	Vi nom, I ~ 0.5 Io nom			3	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz			100	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 83%, See model list and efficiency curve			

CONTROL AND PROTECTION

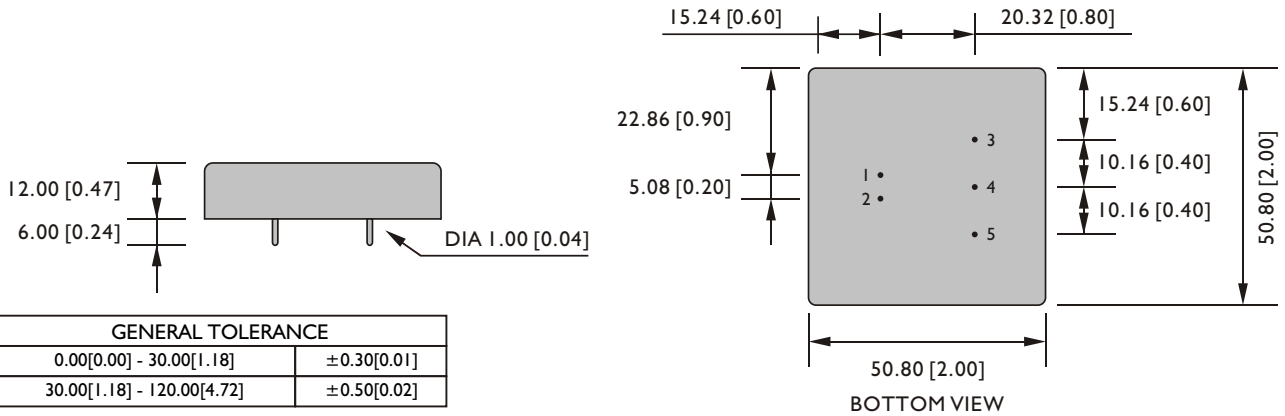
Input reversed	External shunt diode, external fuse recommended 2A
Output short circuit	Current limited (Auto-recovery)

PHYSICAL CHARACTERISTICS

Case size	50.8 x 50.8 x 12.0 mm (2 x 2 x 0.47 inches)
Case material	Plastic base / Metal case
Weight	70 g
Patting material	Epoxy

MECHANISM & PIN CONFIGURATION

mm [inch]

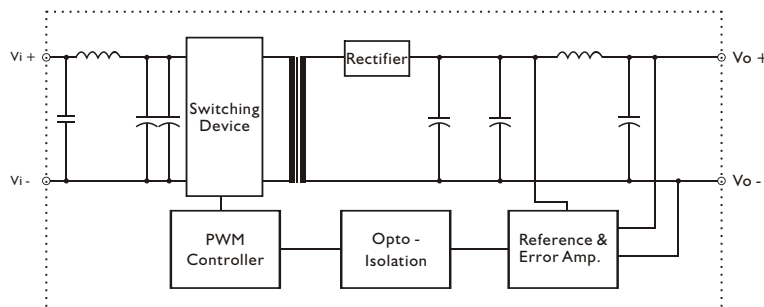


PIN ASSIGNMENT

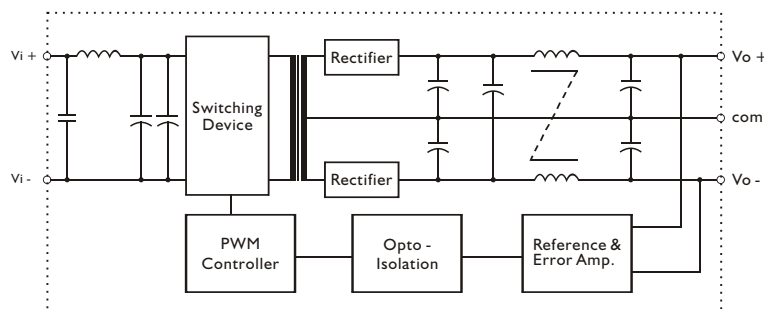
GENERAL					
PIN NO.	1	2	3	4	5
SINGLE	Vi+	Vi-	Vo+	NO PIN	Vo-
DUAL	Vi+	Vi-	Vo+	com	Vo-

CIRCUIT SCHEMATIC

- Block diagram for FDD05 5V input model with single output

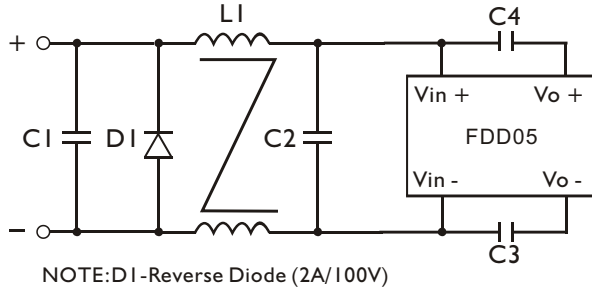


- Block diagram for FDD05 5V input model with dual output



RECOMMENDED CIRCUIT

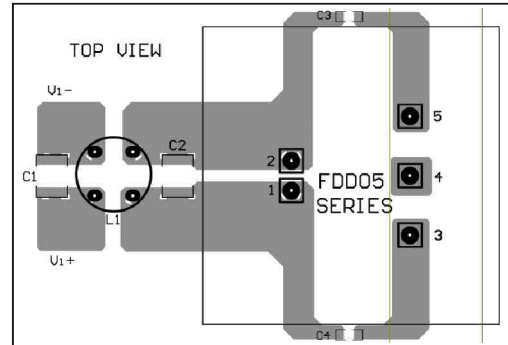
- Recommended filter for EN55022 Class B compliance



- The components used in the above figure, together with the manufacturer part numbers for these components, are as follows.

	C1	C2	C3	C4	L1
FDD05-XXS0 FDD05-XXD0	6.8 μ F / 50V MLCC	3.3 μ F / 50V MLCC	1nF / 2KV MLCC	1nF / 2KV MLCC	0.5mH Common Choke

- Recommended EN 55022 Class B filter circuit layout.



DERATING AND EFFICIENCY CURVE

