

FDD12 SERIES



DC - DC CONVERTER

10 ~ 12W SINGLE & DUAL OUTPUT

FEATURES

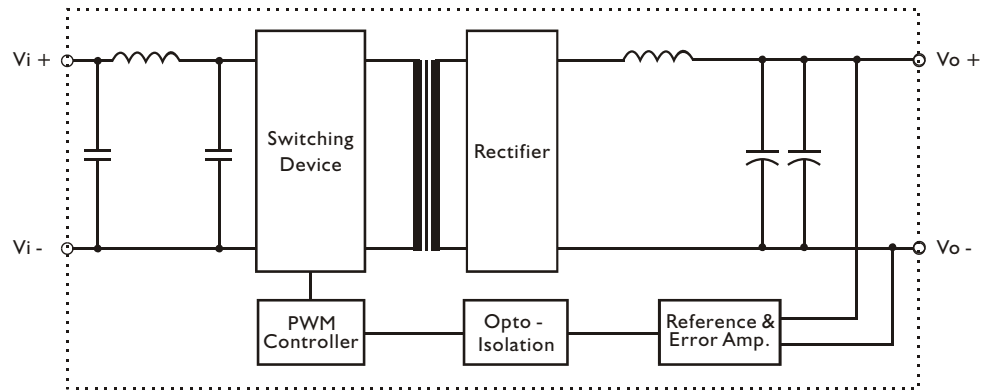
- LOW COST
- 4:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

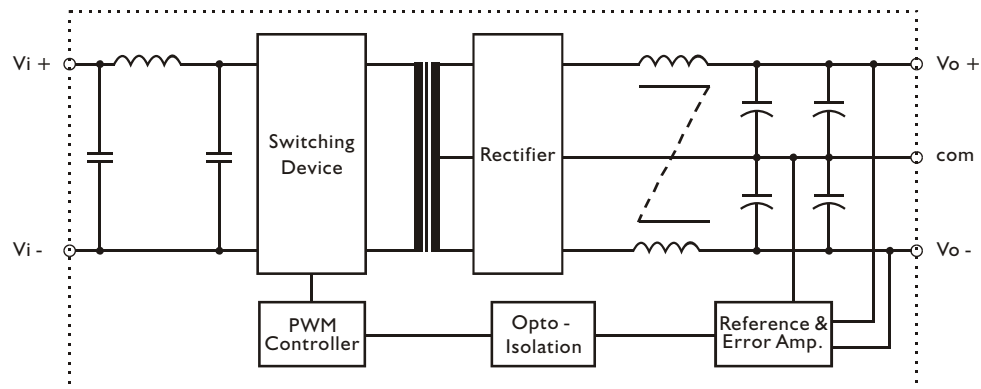
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Single Output Models					
FDD12 - 03S4	10~36 VDC	10 WATTS	+3.3 VDC	3000 mA	75%
FDD12 - 05S4	10~36 VDC	12 WATTS	+ 5 VDC	2400 mA	77%
FDD12 - 12S4	10~36 VDC	12 WATTS	+ 12 VDC	1000 mA	77%
FDD12 - 15S4	10~36 VDC	12 WATTS	+ 15 VDC	800 mA	77%
FDD12 - 03S5	18~72 VDC	10 WATTS	+3.3 VDC	3000 mA	77%
FDD12 - 05S5	18~72 VDC	12 WATTS	+ 5 VDC	2400 mA	77%
FDD12 - 12S5	18~72 VDC	12 WATTS	+ 12 VDC	1000 mA	77%
FDD12 - 15S5	18~72 VDC	12 WATTS	+ 15 VDC	800 mA	77%
Dual Output Models					
FDD12 - 05D4	10~36 VDC	12 WATTS	± 5 VDC	± 1200 mA	77%
FDD12 - 12D4	10~36 VDC	12 WATTS	± 12 VDC	± 500 mA	77%
FDD12 - 15D4	10~36 VDC	12 WATTS	± 15 VDC	± 400 mA	77%
FDD12 - 05D5	18~72 VDC	12 WATTS	± 5 VDC	± 1200 mA	77%
FDD12 - 12D5	18~72 VDC	12 WATTS	± 12 VDC	± 500 mA	77%
FDD12 - 15D5	18~72 VDC	12 WATTS	± 15 VDC	± 400 mA	77%

CIRCUIT SCHEMATIC

- Block diagram for FDD I2 series with single output



- Block diagram for FDD I2 series with dual output



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	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
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			% / °C
Storage temperature	Non operational	-40		+ 100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40		661,000		Hrs
Dimension	L50.8 x W50.8 x H11.9				mm
Cooling	Free air convection				
Case material	Metal				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	10	24	36	VDC
		18	48	72	VDC
No load input current	Vi nom, Io = 0	24V models		20	mA
		48V models		15	mA
Input voltage w/o damage	Io nom	24V models		40	VDC
		48V models		75	VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

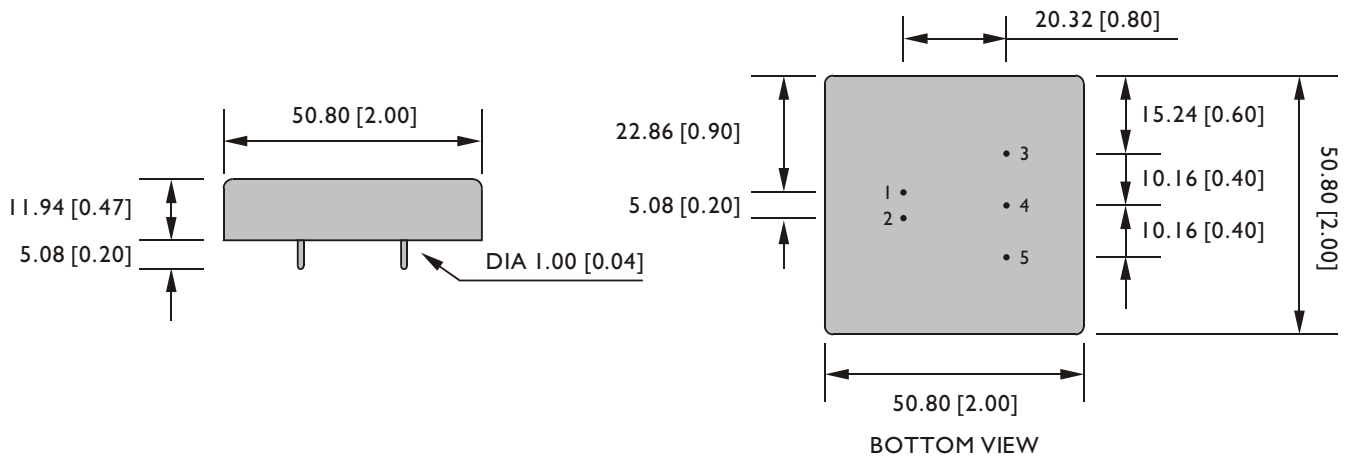
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	20			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 2	%
	Vi nom, Io min ... Io nom, dual output models			± 5	%
Transient recovery time	Vi nom, Io nom ... 1/2 Io nom		500		μs
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, 3.3V model			100	mV
	BW = 20MHz 5V, 12V, 15V & dual			Vout x ± 1%	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 77%, See model list			

CONTROL AND PROTECTION

Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous

MECHANISM & PIN CONFIGURATION

mm [inch]



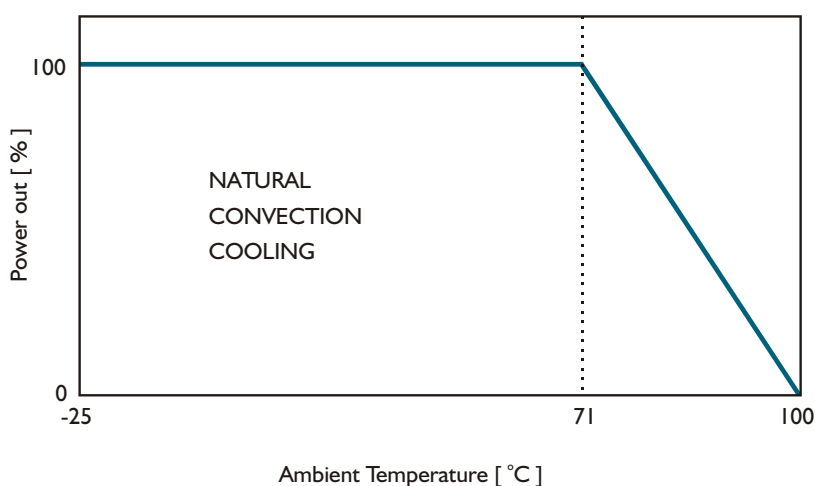
PHYSICAL CHARACTERISTICS

CASE SIZE	50.8 x 50.8 x 11.9 mm 2 x 2 x 0.47 inches
CASE MATERIAL	Metal
WEIGHT	65 g (typ.)

PIN ASSIGNMENT

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

DERATING



FDDI2 SERIES



DC - DC CONVERTER
12W TRIPLE OUTPUT

FEATURES

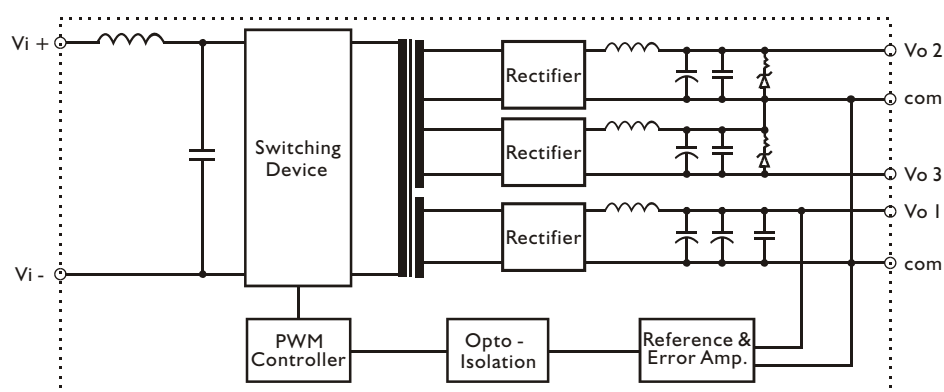
- LOW COST
- 4:1 WIDE INPUT RANGE
- I/O ISOLATION
- LC INPUT FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Single Output Models					
FDDI2 - 0512T4	10~36 VDC	12 WATTS	+5 / ± 12 VDC	1.5A / ± 0.2 A	80%
FDDI2 - 0515T4	10~36 VDC	12 WATTS	+5 / ± 15 VDC	1.5A / ± 0.16 A	80%
FDDI2 - 0512T5	18~72 VDC	12 WATTS	+5 / ± 12 VDC	1.5A / ± 0.2 A	80%
FDDI2 - 0515T5	18~72 VDC	12 WATTS	+5 / ± 15 VDC	1.5A / ± 0.16 A	80%

CIRCUIT SCHEMATIC

Block diagram for FDDI2 series with triple output



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	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
Ambient temperature	Operating at Vi nom, Io nom	-25		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 95	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-40		+ 100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40		661,100		Hrs
Dimension	L50.8 x W50.8 x H11.9				mm
Cooling	Free air convection				
Case material	Metal				

INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	10	24	36	VDC
		18	48	72	VDC
No load input current	Vi nom, Io = 0	24V models		22	mA
		48V models		15	mA
Input voltage w/o damage	Io nom	24V models		40	VDC
		48V models		75	VDC
Input filter	LC type				

OUTPUT SPECIFICATIONS

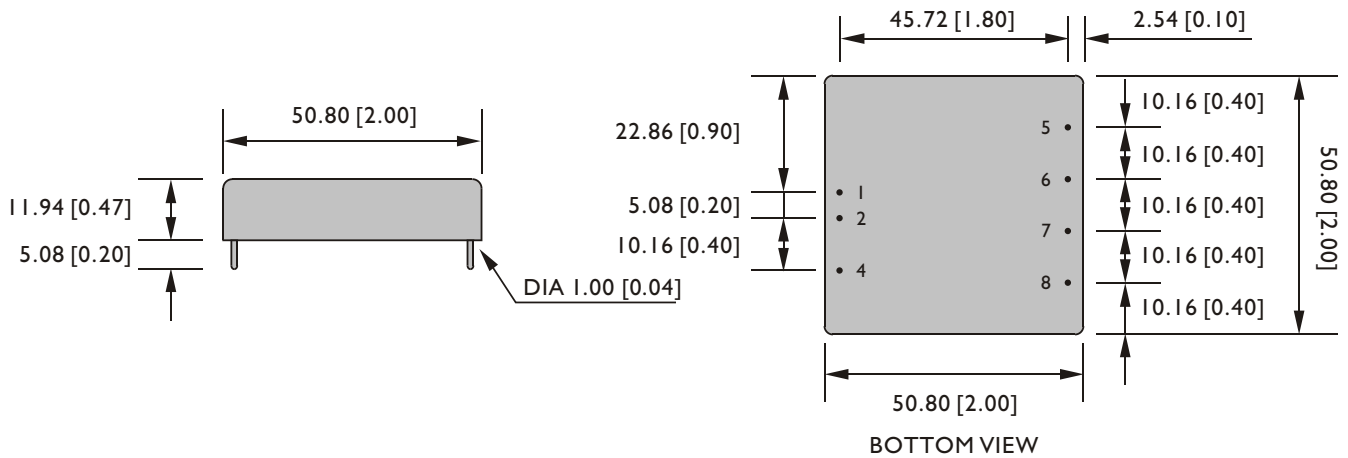
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
				± 6	%
Minimum load	Vi nom	+ 5V	10		%
		± 12V or ± 15V	20		%
Line regulation	Io nom, Vi min ... Vi max			± 2	%
Load regulation	Vi nom, Io min ... Io nom	+ 5V		± 2	%
		± 12V or ± 15V		± 6	%
Transient recovery time	Vi nom, Io nom ... 1/2 Io nom		500		μs
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz			Vout x ± 1%	mV
Efficiency	Vi nom, Io nom, Po / Pi		Up to 80%, See model list		

CONTROL AND PROTECTION

Remote ON / OFF	ON: opened or 8 ~ 10VDC applied, reference to input GND
	OFF: -0.3 ~ 2VDC applied, reference to input GND
Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous

MECHANISM & PIN CONFIGURATION

mm [inch]



PHYSICAL CHARACTERISTICS

CASE SIZE	50.8 x 50.8 x 11.9 mm 2 x 2 x 0.47 inches
CASE MATERIAL	Metal
WEIGHT	70 g

PIN ASSIGNMENT

GENERAL							
PIN NO.	1	2	4	5	6	7	8
TRIPLE	Vi+	Vi-	ON / OFF	Vo2 (+ OUT)	Vo1 (+ 5V)	com	Vo3 (- OUT)

DERATING

