

FDD15 SERIES



DC - DC CONVERTER
10 ~ 15W SINGLE & DUAL OUTPUT

FEATURES

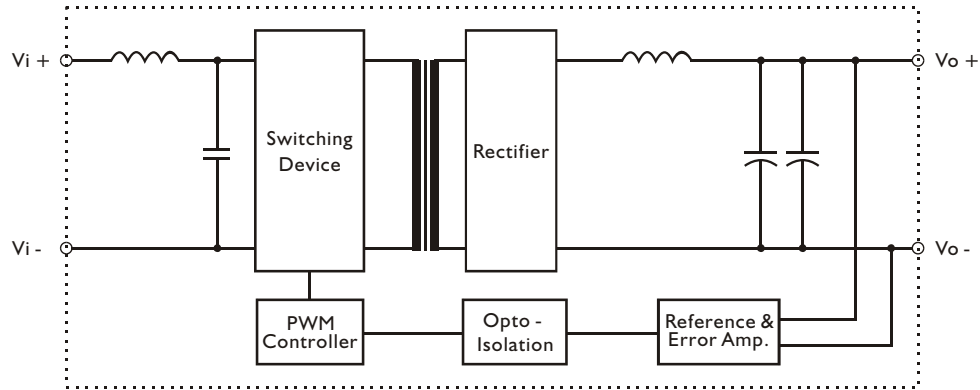
- LOW COST
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- LC INPUT FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

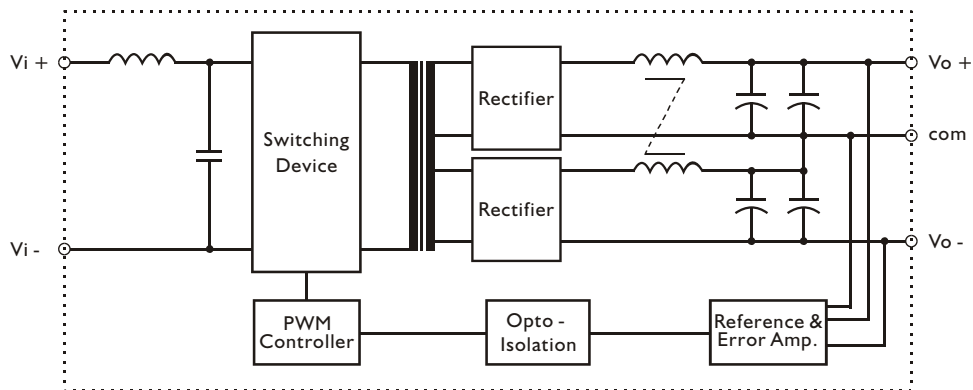
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Single Output Models					
FDD15 - 03S1	9~18 VDC	10 WATTS	+ 3.3 VDC	3000 mA	75%
FDD15 - 05S1	9~18 VDC	10 WATTS	+ 5 VDC	2000 mA	65%
FDD15 - 12S1	9~18 VDC	10 WATTS	+ 12 VDC	834 mA	65%
FDD15 - 15S1	9~18 VDC	10 WATTS	+ 15 VDC	667 mA	65%
FDD15 - 05S2	18~36 VDC	15 WATTS	+ 5 VDC	3000 mA	70%
FDD15 - 12S2	18~36 VDC	15 WATTS	+ 12 VDC	1250 mA	76%
FDD15 - 15S2	18~36 VDC	15 WATTS	+ 15 VDC	1000 mA	78%
FDD15 - 03S3	36~72 VDC	10 WATTS	+ 3.3 VDC	3000 mA	80%
FDD15 - 05S3	36~72 VDC	15 WATTS	+ 5 VDC	3000 mA	70%
FDD15 - 12S3	36~72 VDC	15 WATTS	+ 12 VDC	1250 mA	76%
FDD15 - 15S3	36~72 VDC	15 WATTS	+ 15 VDC	1000 mA	78%
Dual Output Models					
FDD15 - 12D1	9~18 VDC	10 WATTS	± 12 VDC	± 417 mA	73%
FDD15 - 15D1	9~18 VDC	10 WATTS	± 15 VDC	± 334 mA	75%
FDD15 - 12D2	18~36 VDC	15 WATTS	± 12 VDC	± 625 mA	80%
FDD15 - 15D2	18~36 VDC	15 WATTS	± 15 VDC	± 500 mA	80%
FDD15 - 12D3	36~72 VDC	15 WATTS	± 12 VDC	± 625 mA	80%
FDD15 - 15D3	36~72 VDC	15 WATTS	± 15 VDC	± 500 mA	80%

CIRCUIT SCHEMATIC

• Block diagram for FDD15 series with single output



• Block diagram for FDD15 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	-10		+ 50	°C
Case temperature	Operating at Vi nom, Io nom			+ 85	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-25		+100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40		695,900		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	9	12	18	VDC
		18	24	36	VDC
		36	48	72	VDC
No load input current	Vi nom, Io = 0	12V models		35	mA
		24V models		26	mA
		48V models		26	mA
Input voltage w/o damage	Io nom	12V models		22	VDC
		24V models		40	VDC
		48V models		75	VDC
Input filter	LC type				

OUTPUT SPECIFICATIONS

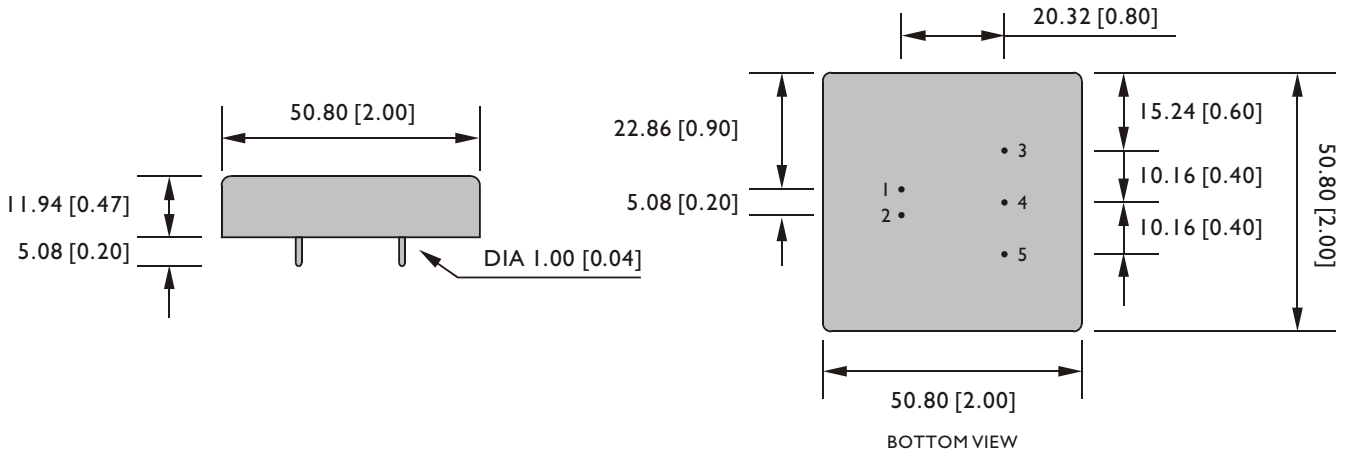
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	20			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 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, BW = 20MHz			100	mV
	3.3V output models 5V, 12V, 15V & dual			Vout x ± 1%	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 80%, See model list			

CONTROL AND PROTECTION

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

MECHANISM & PIN CONFIGURATION

mm [inch]



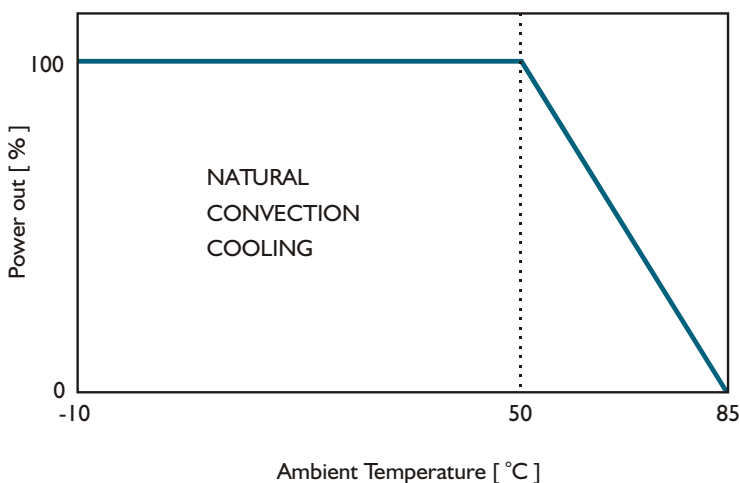
PHYSICAL CHARACTERISTICS

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



FDD I 5 SERIES



DC - DC CONVERTER
10 ~ 15W TRIPLE OUTPUT

FEATURES

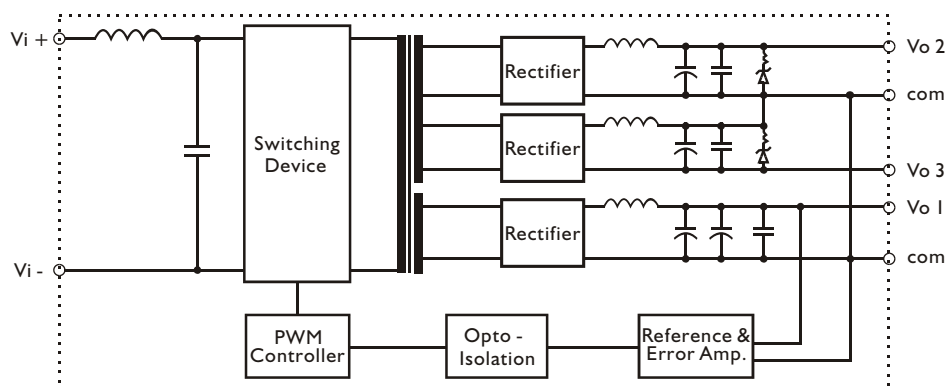
- LOW COST
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- LC INPUT FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Triple Output Models					
FDD15 - 0512T1	9~18 VDC	10 WATTS	+5 / \pm 12 VDC	1.5A / \pm 0.12A	77%
FDD15 - 0515T1	9~18 VDC	10 WATTS	+5 / \pm 15 VDC	1.5A / \pm 0.1 A	77%
FDD15 - 0512T2	18~36 VDC	15 WATTS	+5 / \pm 12 VDC	2 A / \pm 0.2 A	80%
FDD15 - 0515T2	18~36 VDC	15 WATTS	+5 / \pm 15 VDC	2 A / \pm 0.16A	80%
FDD15 - 0512T3	36~72 VDC	15 WATTS	+5 / \pm 12 VDC	2 A / \pm 0.2 A	80%
FDD15 - 0515T3	36~72 VDC	15 WATTS	+5 / \pm 15 VDC	2 A / \pm 0.16A	80%

CIRCUIT SCHEMATIC

Block diagram for FDD15 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		180		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
Ambient temperature	Operating at Vi nom, Io nom	-10		+ 50	°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		695,900		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	9	12	18	VDC
		18	24	36	VDC
		36	48	72	VDC
No load input current	Vi nom, Io = 0	12V models		28	mA
		24V models		22	mA
		48V models		15	mA
Input voltage w/o damage	Io nom	12V models		20	VDC
		24V models		40	VDC
		48V models		75	VDC
Input filter	LC type				

OUTPUT SPECIFICATIONS

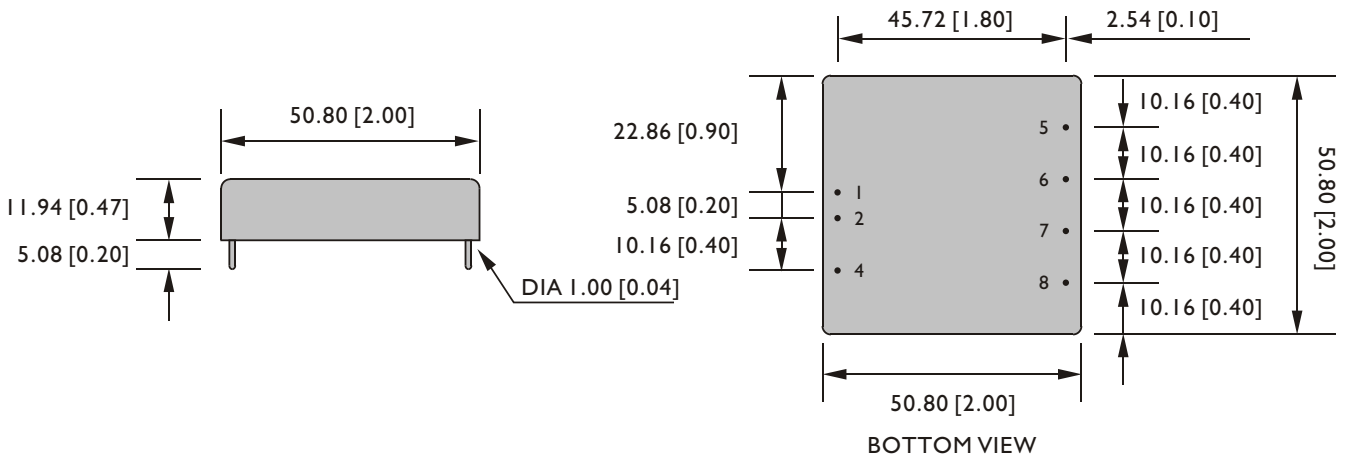
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom	+ 5V		± 2	%
		± 12V or ± 15V		± 6	%
Minimum load	Vi nom	+ 5V	10		%
		± 12V or ± 15V	20		%
Line regulation	Vi min ... Vi max, Io nom	+ 5V		± 2	%
		± 12V or ± 15V		± 6	%
Load regulation	Vi nom, Io min ... Io nom	+ 5V		± 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

