

FDD 12 SERIES



DC - DC CONVERTER
10 ~ 12W SINGLE & DUAL OUTPUT

FEATURES

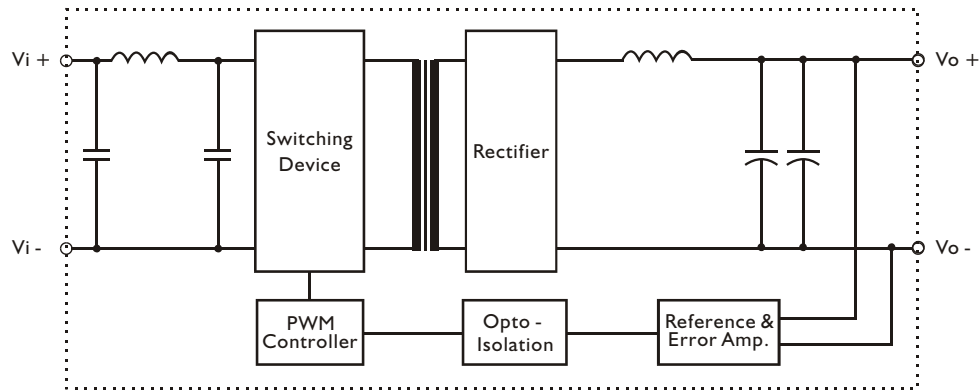
- LOW COST
- 4:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

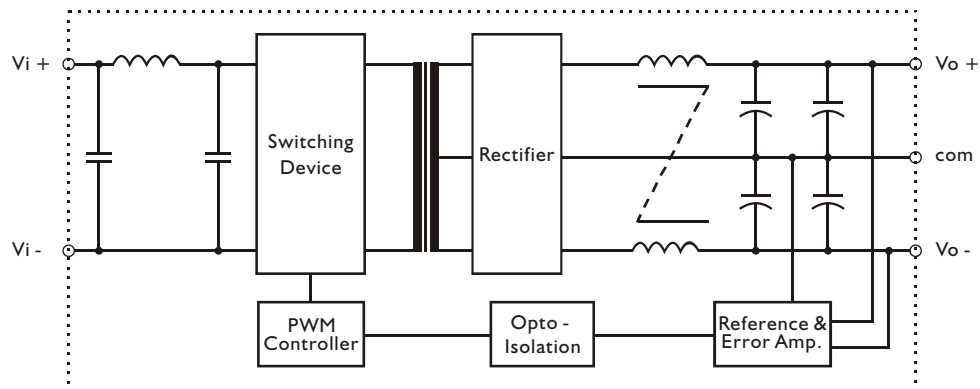
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Single Output Models					
FDD12 - 03S4	10~36 VDC	10 WATTS	+3.3 VDC	3000 mA	75%
FDD12 - 05S4	10~36 VDC	12 WATTS	+ 5 VDC	2400 mA	77%
FDD12 - 12S4	10~36 VDC	12 WATTS	+ 12 VDC	1000 mA	77%
FDD12 - 15S4	10~36 VDC	12 WATTS	+ 15 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 FDD12 series with single output



- Block diagram for FDD12 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	V_i nom, I_o nom		200		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
Ambient temperature	Operating at V_i nom, I_o nom	-25		+ 71	°C
Case temperature	Operating at V_i nom, I_o nom			+ 100	°C
Derating	V_i 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	T_a min ... T_a max, I_o nom	10	24	36	VDC
		18	48	72	VDC
No load input current	V_i nom, $I_o = 0$	24V models		20	mA
		48V models		15	mA
Input voltage w/o damage	I_o nom	24V models		40	VDC
		48V models		75	VDC
Input filter	Pi type				

OUTPUT SPECIFICATIONS

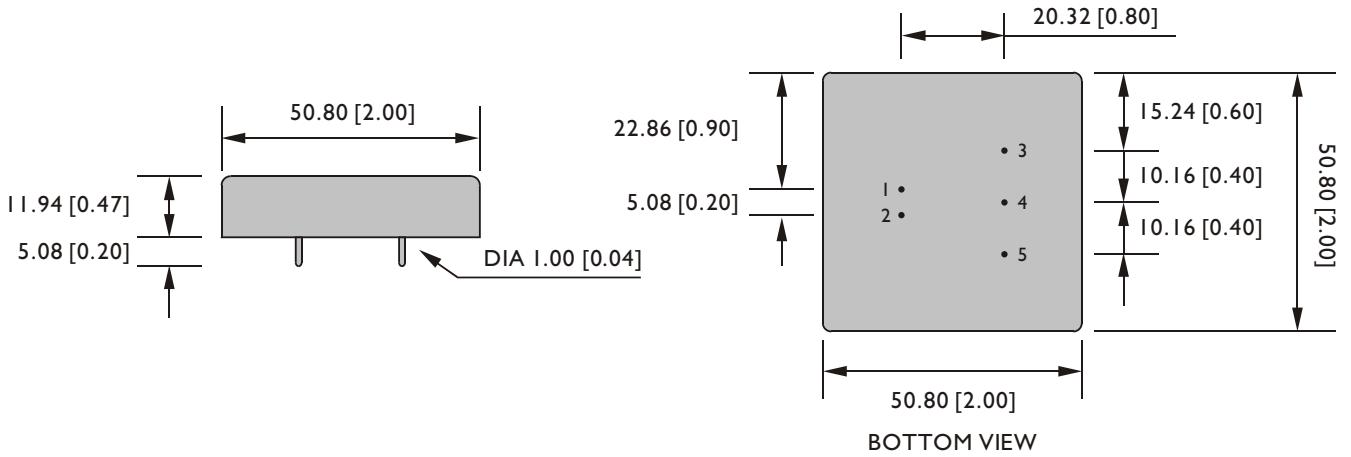
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	V_i nom, I_o nom			± 2	%
Minimum load	V_i nom	0			%
	single output models dual output models (each output)	20			%
Line regulation	I_o nom, V_i min ... V_i max			± 1	%
Load regulation	V_i nom, $I_o 0 \dots I_o$ nom, single output models			± 2	%
	V_i nom, I_o min ... I_o nom, dual output models			± 5	%
Transient recovery time	V_i nom, I_o nom ... 1/2 I_o nom		500		μs
Temperature coefficient	V_i nom, I_o nom			± 0.02	% / °C
Ripple & noise	V_i nom, I_o nom, BW = 20MHz	3.3V model		100	mV
	5V, 12V, 15V & dual			$V_{out} \times \pm 1\%$	mV
Efficiency	V_i nom, I_o nom, P_o / P_i	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]



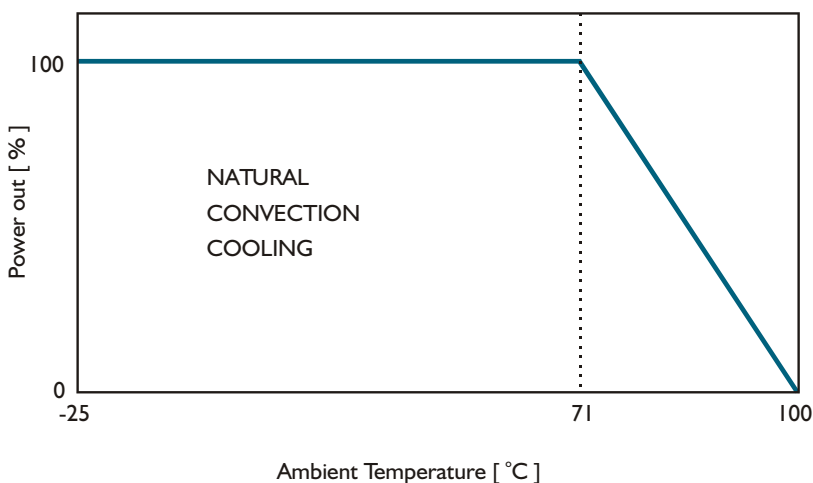
PHYSICAL CHARACTERISTICS

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



FDD12 SERIES



DC - DC CONVERTER
12W TRIPLE OUTPUT

FEATURES

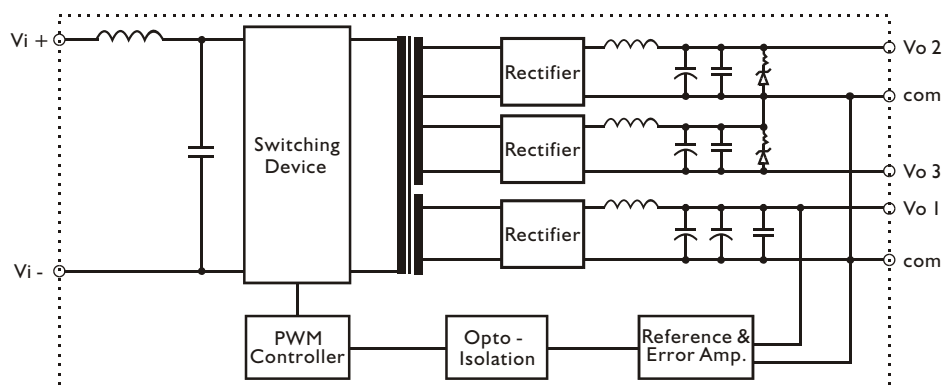
- LOW COST
- 4:1 WIDE INPUT RANGE
- I/O ISOLATION
- LC INPUT FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- 2 YEARS WARRANTY

MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
Single Output Models					
FDD12 - 0512T4	10~36 VDC	12 WATTS	+5 / \pm 12 VDC	1.5A / \pm 0.2 A	80%
FDD12 - 0515T4	10~36 VDC	12 WATTS	+5 / \pm 15 VDC	1.5A / \pm 0.16A	80%
FDD12 - 0512T5	18~72 VDC	12 WATTS	+5 / \pm 12 VDC	1.5A / \pm 0.2 A	80%
FDD12 - 0515T5	18~72 VDC	12 WATTS	+5 / \pm 15 VDC	1.5A / \pm 0.16A	80%

CIRCUIT SCHEMATIC

Block diagram for FDD12 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	V_i nom, I_o nom		200		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
Ambient temperature	Operating at V_i nom, I_o nom	-25		+ 71	°C
Case temperature	Operating at V_i nom, I_o nom			+ 95	°C
Derating	V_i 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	T_a min ... T_a max, I_o nom	10	24	36	VDC
		18	48	72	VDC
No load input current	V_i nom, $I_o = 0$	24V models		22	mA
		48V models		15	mA
Input voltage w/o damage	I_o nom	24V models		40	VDC
		48V models		75	VDC
Input filter	LC type				

OUTPUT SPECIFICATIONS

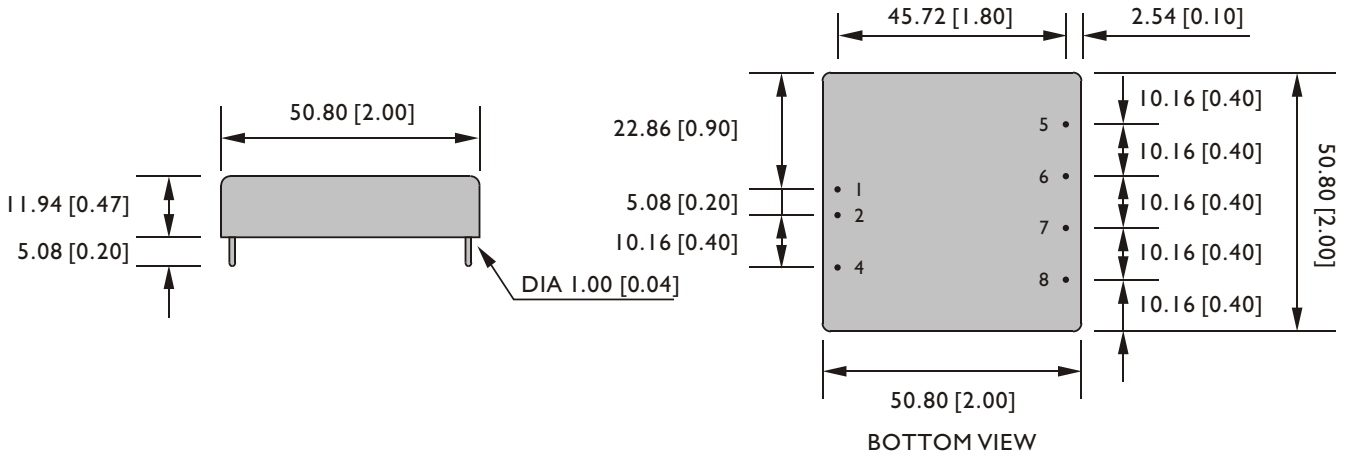
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	V_i nom, I_o nom	+ 5V		± 2	%
		$\pm 12V$ or $\pm 15V$		± 6	%
Minimum load	V_i nom	+ 5V	10		%
		$\pm 12V$ or $\pm 15V$	20		%
Line regulation	I_o nom, V_i min ... V_i max			± 2	%
Load regulation	V_i nom, I_o min ... I_o nom	+ 5V		± 2	%
		$\pm 12V$ or $\pm 15V$		± 6	%
Transient recovery time	V_i nom, I_o nom ... 1/2 I_o nom		500		μ S
Temperature coefficient	V_i nom, I_o nom			± 0.02	% / °C
Ripple & noise	V_i nom, I_o nom, BW = 20MHz			$V_{out} \times \pm 1\%$	mV
Efficiency	V_i nom, I_o nom, P_o / P_i	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

