



VFA_YMD-5W & VFB_YMD-5W Series

5W, WIDE INPUT ISOLATED & REGULATED DUAL/SINGLE OUTPUT DC-DC CONVERTER

multi-country patent protection **RoHS**

FEATURES

Operating Temperature: -40°C to +85°C
 I/O-Isolation 1.5KVDC
 Metal Case Package
 No Heat sink Required
 Industry Standard Pin out
 MTBF>1,000,000 hours
 RoHS Compliance

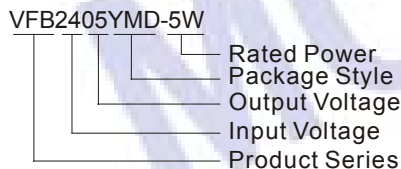
APPLICATIONS

The VFA_YMD-5W/ VFB_YMD-5W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range $\leq 2:1$);
- 2) Where isolation is necessary between input and output (Isolation voltage ≤ 1500 VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION



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PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)			
	Voltage (VDC)			Voltage (VDC)	Current (mA)					
	Nominal	Range	Max**		Max	Min				
VFA1205YMD-5W*	12	9-18	20	±5	±500	±50	75			
VFA1212YMD-5W*				±12	±210	±21	77			
VFA1215YMD-5W*				±15	±166	±17	79			
VFA1224YMD-5W*				±24	±105	±10	81			
VFB1205YMD-5W				5	1000	100	78			
VFB1212YMD-5W*				12	420	42	82			
VFB1215YMD-5W*				15	330	33	82			
VFB1224YMD-5W*				24	200	20	83			
VFA2405YMD-5W*				24	18-36	40	±5	±500	±50	80
VFA2412YMD-5W*							±12	±210	±21	83
VFA2415YMD-5W*	±15	±166	±17				83			
VFA2424YMD-5W*	±24	±105	±10				84			
VFB2405YMD-5W	5	1000	100				80			
VFB2412YMD-5W	12	420	42				84			
VFB2415YMD-5W*	15	330	33				84			
VFB2424YMD-5W	24	200	20				85			
VFA4805YMD-5W*	48	36-72	80				±5	±500	±50	82
VFA4812YMD-5W*							±12	±210	±21	85
VFA4815YMD-5W*				±15	±166	±17	85			
VFA4824YMD-5W*				±24	±105	±10	86			
VFB4805YMD-5W*				5	1000	100	82			
VFB4812YMD-5W*				12	420	42	85			
VFB4815YMD-5W*				15	330	33	85			
VFB4824YMD-5W*				24	200	20	86			

* Designing.

** Input voltage can't exceed this value, or will cause the permanent damage.

COMMON SPECIFICATION

Item	Test Conditions	Min	Typ	Max	Units
Operating temperature		-40		85	°C
Storage Temperature Range		-55		125	
Storage Humidity Range				95	%
Cooling	Free Air Convection				
Lead Temperature	1.5mm from case for 10 seconds			300	°C
Temperature Rise at Full Load			50		
Isolation voltage	Flash tested for 60 seconds		1500		VDC
Isolation resistance	Test at 500VDC		1000		MΩ
Isolation capacitance	Input/Output		100		pF
No-load Power Consumption			500		mW
Output Short Circuit Protection	Continuous, automatic recovery				
Case Material	Aluminium alloy				
MTBF		1000K			Hour
Weigh			12		g

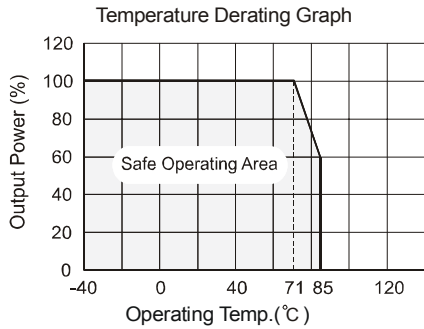
OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	See above products program			5	W
Positive Voltage Accuracy	Refer to recommended circuit		±1	±3	%
Negative Voltage Accuracy	Refer to recommended circuit		±3	±5	
Load Regulation	From 10% To 100% load		±0.5	±1*	
Line Regulation(at full load)	Input voltage from low to high		±0.2	±0.5	
Temperature Drift(Vout)	Refer to recommended circuit		0.02		%/°C
Ripple	20MHz bandwidth		30	50	mVp-p
Noise	20MHz bandwidth		75	150	
Switching Frequency	100% load, nominal Input voltage		300		KHz

* Dual output models unbalanced load: ±5%.

Note:
1. All specifications measured at $T_A=25^{\circ}\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.

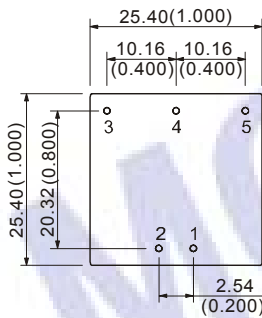
TYPICAL CHARECTERISTICS



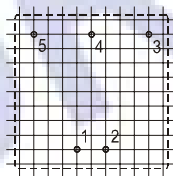
OUTLINE DIMENSIONS & FOOTPRINT DETAILS

First Angle Projection

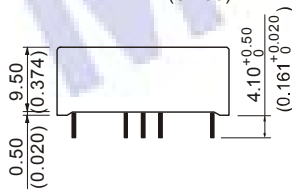
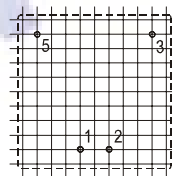
RECOMMENDED FOOTPRINT
Top View, grid: 2.54mm(0.1inch),
diameter: 1.60mm(0.063inch)



Dual Output



Single Output



Note:

Unit:mm(inch)
Pin diameter:0.80mm(0.031inch)
Pin tolerances:±0.05mm(±0.002inch)
General tolerances:±0.25mm(±0.010inch)

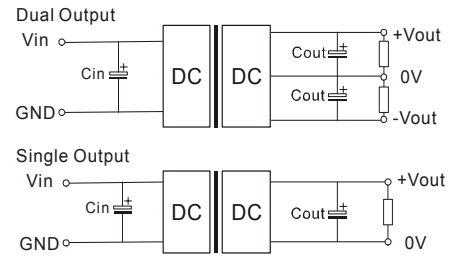
FOOTPRINT DETAILS

Pin	Single	Dual
1	GND	GND
2	V _{in}	V _{in}
3	+V _o	+V _o
4	NO Pin	0V
5	0V	-V _o

APPLICATION NOTE

Recommended Circuit

All the VFA_YMD-5W & VFB_YMD-5W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (see Figure 1).



(Figure 1)

If you want to further decrease the output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high.(Table 1).

External Capacitor Table(Table 1)

Vin (VDC)	Cin (uF)	Vout (VDC)	Cout
12	100	5	100uF/1A
24	100	12	
48	100	15	
--	--	24	