

Typical Features

- ◆ Wide input voltage range 2:1, Output Power: 10W
- ◆ Efficiency up to 83% (Typ.)
- ◆ Fast Output Start-up
- ◆ Continuous short circuit protection, self-recovery
- ◆ Input under-voltage protection, output short circuit, over current, over voltage protections
- ◆ Switching Frequency: 330kHz
- ◆ Isolation voltage 1500VDC
- ◆ Operating temperature from -40°C to +85°C
- ◆ Standard pin-out alignment



Application Field

PFD10-XXDXXA3C2 series features 10W output power and 1500VDC isolation. The modules provide input under-voltage, output over-voltage, short-circuit, and over-current protections. Ideally suited for industrial control, instrumentation, communications, power, and IoT applications. For harsh EMC environments, please refer to the recommended application circuits.

Typical Product List

Certificate	Part No.	Input Voltage Range		Output Voltage/Current (Vo/Io)		Max. Capacitive Load (μF)	Ripple & Noise(mV) Max.	Efficiency (%) @Full load, nominal volt.	
		Nominal (VDC)	Range (VDC)	Vo (VDC)	Current (mA) Max. / Min.)			Min	Typ.
-	PFD10-05D12A3C2	5	4.5~9	±12	±417/0	470	100	81	83
	PFD10-05D24A3C2	5	4.5~9	±24	±209/0	100	100	79	81

Notes

- "C" suffix denotes models with control function; "N" suffix denotes models without control function.
- Max. Capacitive Load refers to the maximum allowable output capacitance when the power supply starts up at full load. Exceeding this value may cause the power supply to fail to start.
- Due to space limitations, the above list only shows some of our products. For models not listed, please contact our Sales Department.

Input Specifications

Standby power consumption	0.15W (Typ)	
Input Filter	Capacitor Filter	
Input Under-voltage Protection (UVP)	3.5VDC (Typ)	
ON/OFF Control (Ctrl)	Turn ON the converter	Ctrl no connection or connected to the high level (3.3-9VDC)
	Turn OFF the converter	Ctrl connected to -Vin or the low level (0-0.7VDC)
	Input current for switching OFF	2mA (Typ)

Note: The voltage of Ctrl is relative to the input -Vin.

Output Specifications

Output voltage accuracy	0%-100% load	Vo1/Vo2	±1% Typ ; ±3% Max
Line Regulation	Nominal Load, Full Input Voltage Range	Vo1	±0.2% Typ ; ±0.5% Max
		Vo2	±0.5% Typ ; ±1% Max
Load regulation	10% ~ 100% Rated Load: Dual Output Power Balance	Vo1	±0.5% Typ ; ±1% Max
		Vo2	±0.5% Typ ; ±1.5% Max
Ripple & Noise	20MHz Bandwidth, Twisted Pair Test Method	50mV Typ ; 100mV Max	
Over voltage protection	120%~200%Vo		
Over current protection	110%~280%Io		
Short circuit protection	Continuous, Self-recovery		
Dynamic response time	25% Nominal Load Step, ΔVo/Δt	±3% Typ , ±5% Max /500us	

Note: Ripple & Noise are measured using the twisted pair test method. For details, please refer to the Ripple & Noise Test Instruction.

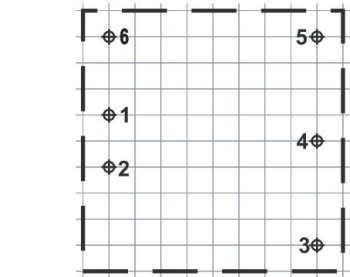
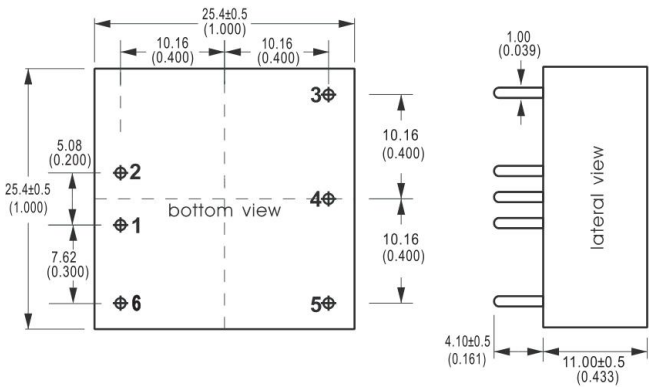
General Specifications

Switching frequency	Typical Value	330KHz
Operating temperature	Refer to the Temperature Derating Graph	-40℃ ~ +85℃
Storage temperature	-	-55℃ ~ +125℃
Relative humidity	No condensing	5%~95%
Case Material:	-	Aluminum alloy
Cooling Method:	-	Natural convection
Isolation Voltage:	Input to Output:	1500Vdc ≤ 1mA / 1min
Insulation Resistance:	Input to Output	500Vdc ≥ 1000MΩ
Minimum MTBF	MIL-HDBK-217F	1000 K hours @25℃ Min.
Weight:	Typ.	18g

EMC Performance

Items			Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (Recommended circuit refers to Figure 3)
		RE	CISPR32/EN55032	CLASS B (Recommended circuit refers to Figure 3)
	EMS	CS	IEC/EN61000-4-6	10V/m Perf.Criteria B
		RS	IEC/EN61000-4-3	3Vr.m.s Perf.Criteria B
		ESD	IEC/EN61000-4-2	Contact ±4KV Perf. Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf. Criteria B (Recommended circuit refers to Figure 3)
		EFT	IEC/EN61000-4-4	±2KV Perf. Criteria B (Recommended circuit diagram refers to Figure 3)

Mechanical Dimensions

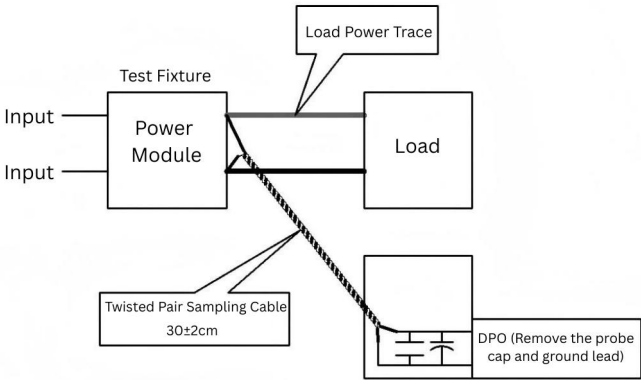


Package Code	L x W x H	
A3	25.4X 25.4X11 mm	1X1 X0.433inch

Pin Definition

Pin No.	1	2	3	4	5	6
PFD10-XXDXXA3C2	-Vin	+Vin	+Vout	COM	-Vout	Ctrl
PFD10-XXDXXA3N2	-Vin	+Vin	+Vout	COM	-Vout	NP

Ripple & Noise Test Instruction (Twisted Pair Method, 20MHZ bandwidth)



Test Methods:

1. Ripple & Noise: Measured using the twisted pair method (12# twisted pair). The oscilloscope bandwidth is set to 20MHz with a 100MHz bandwidth probe. A 0.1μF polypropylene capacitor and a 10μF high-frequency low-resistance electrolytic capacitor are connected in parallel at the probe terminal. The oscilloscope sampling is set to Sample mode.
2. Output Ripple & Noise Test Diagram: Connect the input terminal to the power source. The output is connected to the electronic load via a test fixture. Measurement is taken directly from the output ports using a 30cm±2cm sampling cable. For power cables, use insulated wires with an appropriate gauge (diameter) based on the output current.

Application Reference:

1. Dual output products are tested under balanced load conditions.
2. Max. Capacitive Load is measured under conditions of pure resistive full load.
3. We provide total power solutions and customized products. Due to space limitations, please contact our technical staff for any further inquiries.

Product Characteristic Curves

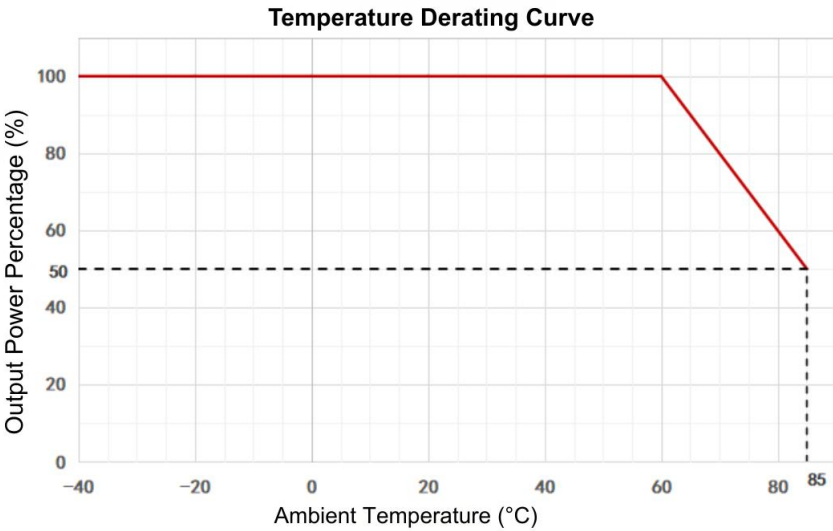


Figure 1: Temperature Derating Curve

Recommended Circuits for Application

1. DC/DC Recommended Test Circuit. All products in this series are tested according to the recommended test circuit shown in (Figure 2) before leaving the factory.

C1,C2,C3: 100μF/50V

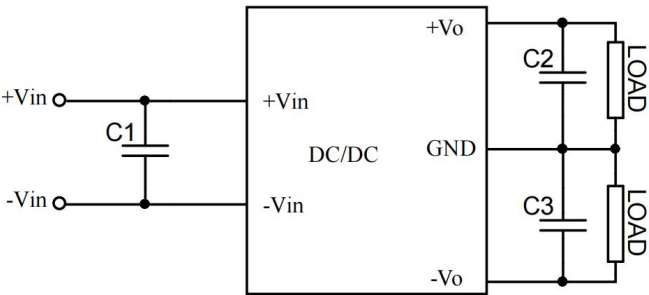


Figure 2: Recommended Test Circuit

2. EMC Recommended External Circuit

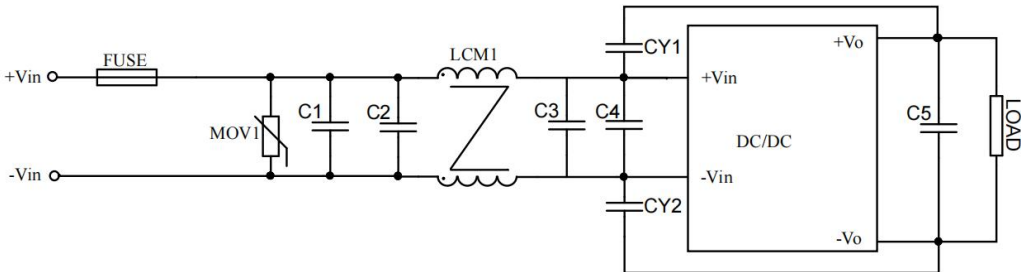


Figure 3: Recommended EMC Filter Circuit

Component Code	PFD10-XXDXXA3C2
FUSE	Select fuse rating according to actual application load.
MOV1	14D470K
C1,C4	330μF/50V
LCM1	5mH

C2,C3	10 μ F/50V
C5	100 μ F/50V
CY1,CY2	2.2nF/2000V

Notes:

1. Operating Limits: Products must be used within the specified ranges; otherwise, permanent damage may occur.
2. Load Conditions: If the product operates outside the specified load range, performance indicators in this manual cannot be guaranteed.
3. Test Conditions: Unless otherwise specified, all data are measured at Ta = 25℃, humidity < 75%, nominal input voltage, and rated output load (pure resistive load).
4. Standardization: All indicators are tested according to our company's internal standards.
5. Updates: Product specifications are subject to change without prior notice. Please refer to our official website for the latest manual.

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