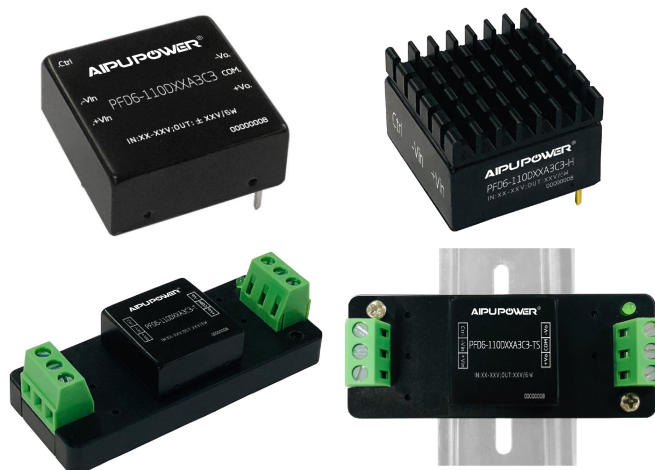


Product Typical Features

- ◆ Wide input voltage range (4:1)
- ◆ Efficiency up to 85% (typ.)
- ◆ No-load power consumption 0.5W
- ◆ Continuous short circuit protection, self-recovery
- ◆ Input under-voltage protection, output short circuit, over current, over voltage protections
- ◆ Operating Temperature from -40°C to +85°C
- ◆ Isolation Voltage 2250VDC
- ◆ Good EMC performance



Application Field

PFD6-110DXXA3(C)3 series ----- Output power 6W DC-DC converters with 1"x1" size packaging, 4:1 wide input voltage range, isolated & regulated dual outputs. This series of products can be widely used in industrial control, instrumentation, communications, Electricity power, IoT and other application fields. The additional EMC circuit in the datasheet is recommended for higher EMC requirement.

Typical Product List

Certificate	Part No.	Input Voltage Range (VDC)		Output Voltage/Current (Vo/Io)		Input Current (mA) Typ. @ Rated Voltage		Max. Capacitive Load	Ripple & Noise (mVp-p)		Full Load Efficiency (%)	
		Rated	Range	Voltage (VDC)	Current (mA) Max./ Min.	Full Load	No Load	uF	Typ.	Max.	Min.	Typ.
-	PFD6-110D15A3(C)3	110	40~160	±15	200/0	70	8	100	50	100	83	85

Note 1 - In the part numbers C indicates the part with Control function, N indicates with NO Control. The suffix -H indicates the part with Heat sink, -T (H) indicates a kind of chassis packaging (with heat sink), -TS (H) indicates a kind of packaging of DIN Rail (with heat sink) which width is 35mm.

Note 2 - The typical value of efficiency is tested at rated input voltage and rated load.

Note 3 - The maximum capacitive load is the capacitance allowed to be used when the power supply operates at full load. The converter may not start if the capacitor exceeds this value.

Note 4 - Please contact Aipu sales for other output voltages requirement in this series but not listed in this table.

Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Stand-by Power	Rated input voltage, no load	/	0.9	/	W
Input Inrush voltage	Full input voltage range	-0.7	/	180	VDC
Start-up voltage	/	/	/	40	
Input Under-voltage Protection	/	28	33	/	
Turn-on Delay	/	/	10	/	mS
Reflected Ripple Current	Full input voltage range	/	25	/	mA
Hot Plug	/	Unavailable			
Input Filter	/	π filter			
*Ctrl	Turn on the Converter	Ctrl no connection or connect to TTL high level (3.5-12VDC)			

	Shunt off the Converter	Ctrl connects to the GND or low volt. level (0-1.2VDC)
	Current value to shut off	3mA (TYP)

Note: *Ctrl voltage is relative to input -Vin.

Output Specifications

Item	Test Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full input voltage range, rated load		/	±1	±3	%
Voltage Regulation	Full input voltage range, rated load	Vo1	/	±0.2	±0.5	%
		Vo2	/	±0.5	±1	
Load Regulation	5%-100% load	Vo1	/	±0.5	±1	
		Vo2	/	±1	±1.5	
Cross Regulation	Vo1 50% load, Vo2 25%-100% load		/	/	±10	%
Ripple & Noise	5%-100% load, rated input, 20MHz bandwidth		/	50	100	mVp-p
Dynamic response deviation	25% of rated load step, rated input voltage		/	±3	±5	%
Dynamic response Time			/	250	500	uS
Output over voltage protection	Full input voltage range, rated load		110	120	160	%Vo
Output over current protection			110	150	210	%Io
Short circuit protection			Continuous, self-recovery			

Note: The ripple & noise ≤5%Vo at 0% - 5% load, it is tested by the twisted pair method (20MHz bandwidth).

General Specifications

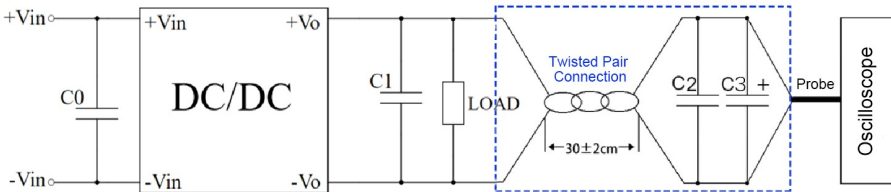
Item	Test Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	Operating Mode (PWM)	/	300	/	KHz
Operating Temperature	Refer to the Temperature Derating Curve	-40	/	+85	°C
Storage Temperature	/	-55	/	+125	
Case Temperature	/	/	/	+105	
Pin soldering temperature	≥1.5mm from the case, time ≤10S	/	/	300	
Relative Humidity	No condensing	5	/	95	%RH
Isolation Voltage	Input-Output, 1 Min, leakage current <0.5mA	2250	/	/	VDC
	Input & Output – Case, 1Min, leakage current <1mA	1600	/	/	VDC
Insulation resistance	Input-output, @ 500VDC	1000	/	/	MΩ
Isolation capacitor	Input-output, @100KHz/0.1V		1000		pF
MTBF	MIL-HDBK-217F@25°C	1000	/	/	K hours
Cooling Method	Nature air				
Case Material	Aluminum				
Weight / Dimensions	Part No.	Weight Typ.	L x W x H		
	PFD6-110DXXA3(C)3	15g	25.4X 25.4X12.5 mm		1.0X1.0X0.492 inch
	PFD6-110DXXA3(C)3-H	19g	25.4X25.4X18.0 mm		1.0X1.0X0.708 inch

	PFD6-110DXXA3(C)3-T	37g	76X31.5X21.3 mm	2.99X1.24X0.838 inch
	PFD6-110DXXA3(C)3-TH	40g	76X31.5X26.0 mm	2.99X1.24X1.023 inch
	PFD6-110DXXA3(C)3-TS	57g	76X31.5X26.0 mm	2.99X1.24X1.023 inch
	PFD6-110DXXA3(C)3-TSH	60g	76X31.5X30.8 mm	2.99X1.24X1.212 inch

EMC Performance

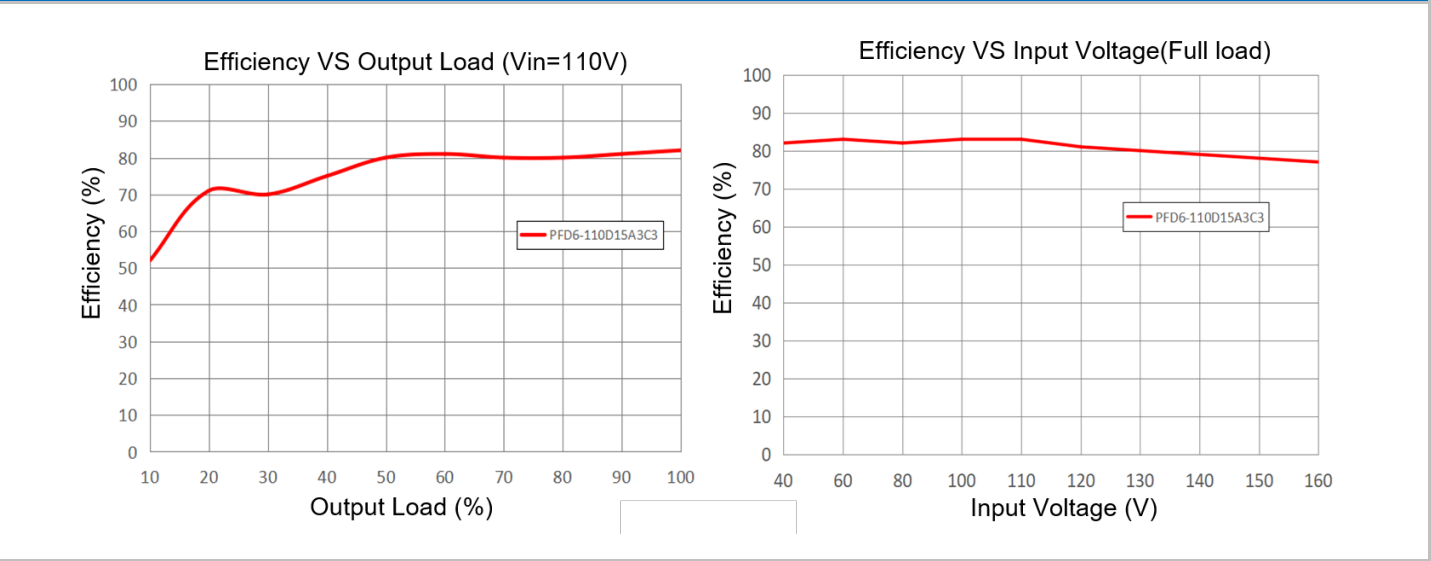
Total Items		Sub Items	Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS B (with EMC Recommended Circuit)
		RE	CISPR32/EN55032	CLASS B (with EMC Recommended Circuit)
	EMS	CS	IEC/EN61000-4-6	10V r.m.s Perf.Criteria B (with EMC Recommended Circuit)
		RS	IEC/EN61000-4-3	20V/m Perf.Criteria B (with EMC Recommended Circuit)
		ESD	IEC/EN61000-4-2	Contact ±6KV, Air±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B (with EMC Recommended Circuit)
		EFT	IEC/EN61000-4-4	±4KV Perf.Criteria B (with EMC Recommended Circuit)

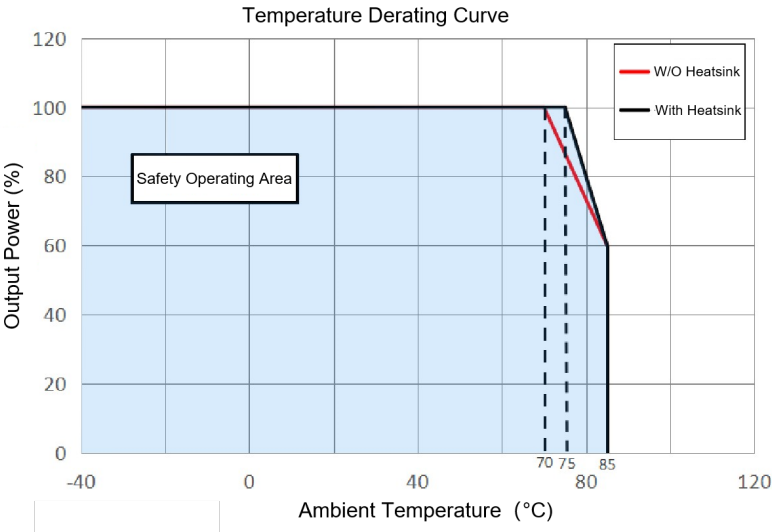
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHZ bandwidth)



- 1) Ripple noise test need 12# twisted pair cables, an oscilloscope which should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. C2(0.1uF) polypropylene capacitor and C3(10uF) high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes and one side of the twisted pair. C0 & C1 refer to the application circuit recommended.
- 2) The power supply output connects to the load by the cables. The other side of the twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the polarity of the output and the oscilloscope probe should not be reversed. The test can be started after input power on.

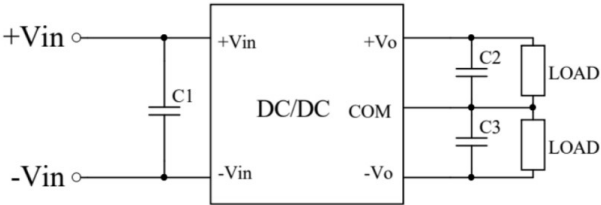
Product Performance Curves





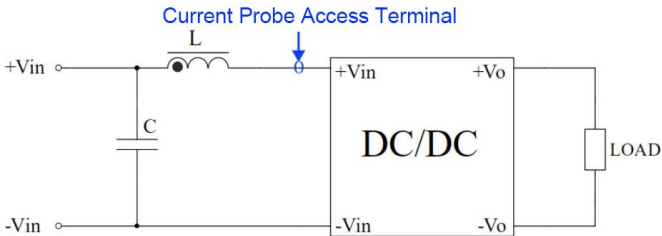
Recommended Circuits for Application

1. Typical DC-DC test circuit



Component	Parameter
C1	47-100uF/200V
C2、C3	470uF/25V

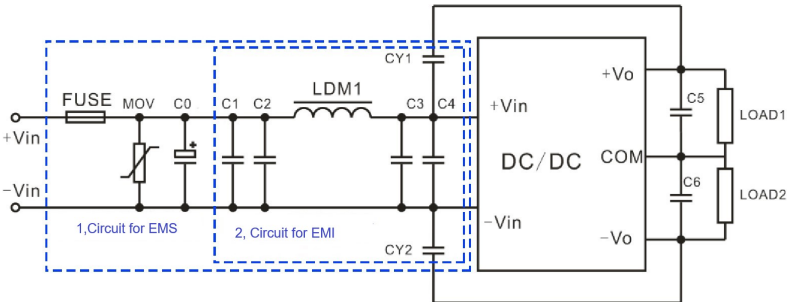
2. Input reflected ripple current test circuit



Component	Parameter
C	220uF/100V
L	4.7uH/15A

C should be a low ESR Capacitor, it's withstand voltage should be more than the Max input voltage.

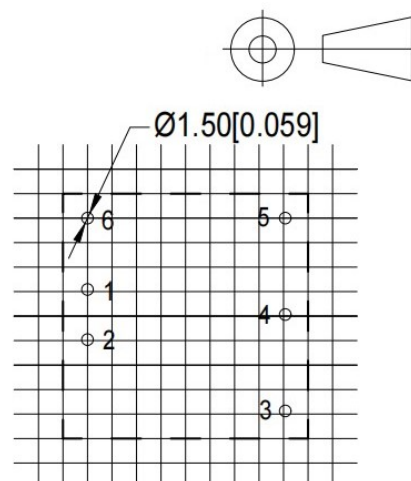
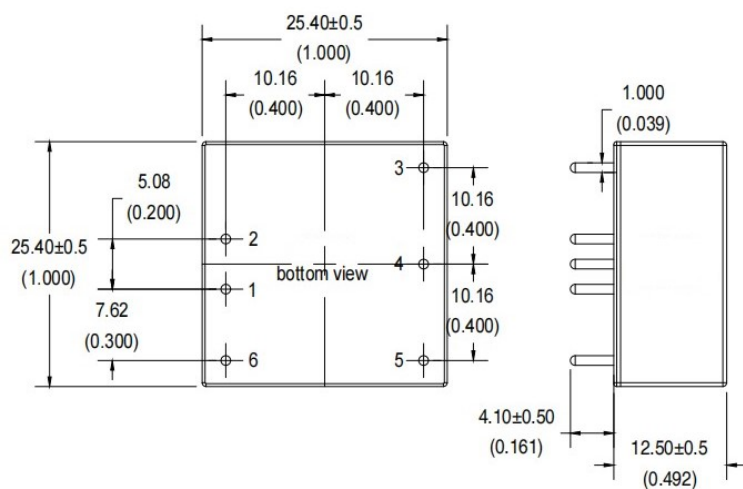
3. Recommended Circuit for EMC



Component	Vin=110V
FUSE	TBD by customer
MOV	14D201K
C0	470uF/200V
C1,C2,C3,C4,C5,C6	10uF/200V
LDM1	68uH
CY1,CY2	1nF/3KV

Note: Part 1 in the circuit for EMS and part 2 for EMI filtering, both can be adjusted according to actual situation.

A3C3 Packaging Dimensions

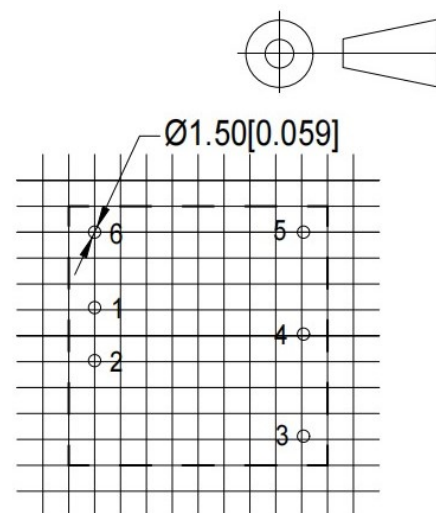
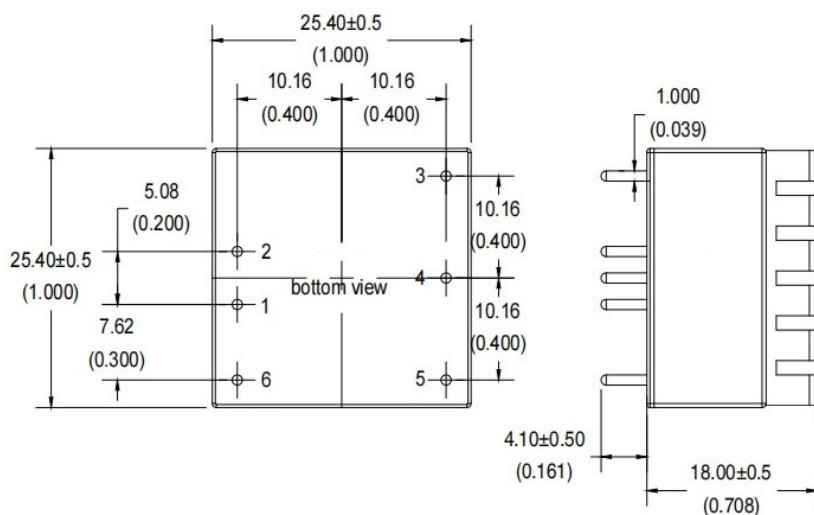


Unit: mm(inch)
Grid: 2.54X2.54(0.10X0.10)
General tolerance $\pm 0.50(\pm 0.020)$
Pin diameter tolerance $\pm 0.10(\pm 0.004)$

Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

A3C3-H Packaging Dimensions

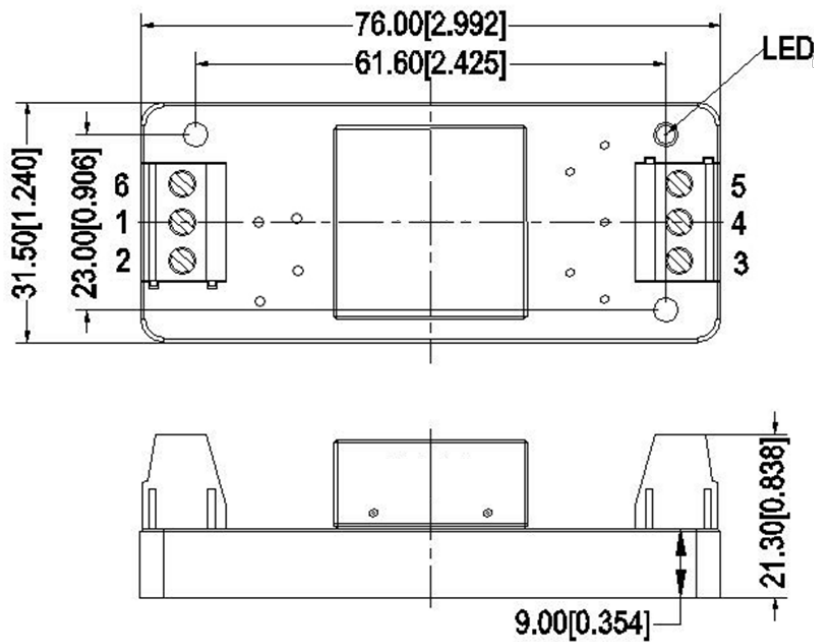


Unit: mm(inch)
Grid: 2.54X2.54(0.10X0.10)
General tolerance $\pm 0.50(\pm 0.020)$
Pin diameter tolerance $\pm 0.10(\pm 0.004)$

Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

A3C3-T Packaging Dimensions

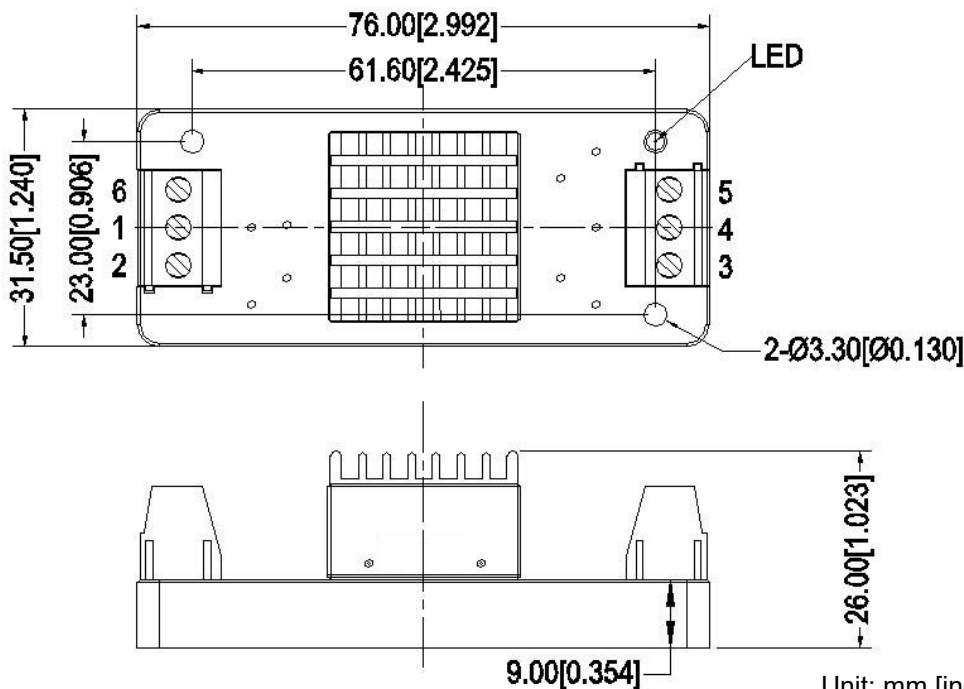


Unit: mm [inch]
General tolerance ± 1 [± 0.04]

Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

A3C3-TH Packaging Dimensions

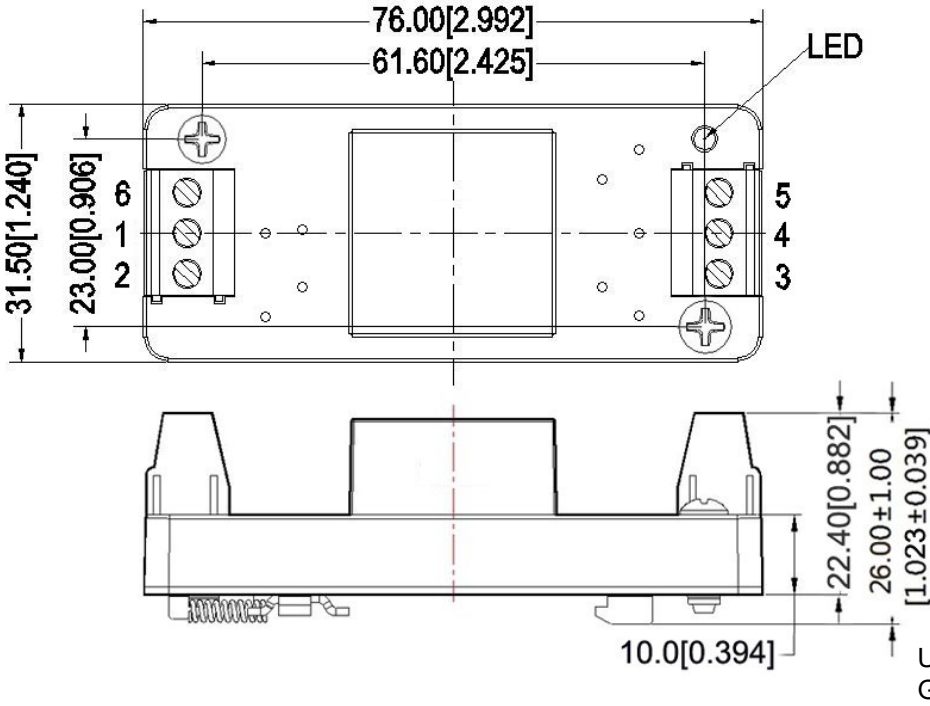


Unit: mm [inch]
General tolerance ± 1 [± 0.04]

Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

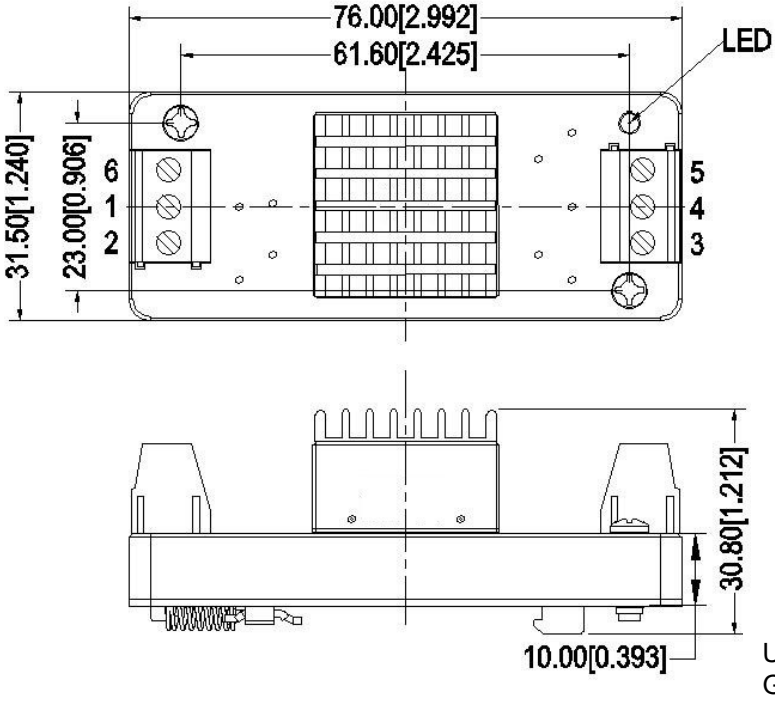
A3C3-TS Packaging Dimensions



Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

A3C3-TSH Packaging Dimensions



Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3C3	-Vin	+Vin	+Vo	COM	-Vo	Ctrl

Other Part numbers Pin function definition

Pin No.	1	2	3	4	5	6
PFD6-110DXXA3N3	-Vin	+Vin	+Vo	COM	-Vo	No pin

Application Notice

1. The product should be used according to the specifications in this manual, otherwise it could be permanently damaged.
2. This series of products should not be used in parallel for higher power output requirement.
3. The product performance in this manual cannot be guaranteed if it works at a lower load than the minimum load defined.
4. The product performances in this manual cannot be guaranteed if it works at over-load condition.
5. Unless otherwise specified, all values or indicators in this manual are tested at $T_a=25^{\circ}\text{C}$, humidity<75%RH, rated input voltage and rated load (pure resistance load).
6. All values or indicators in this manual had been tested based on Aipupower test specifications.
7. The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.
8. Aipupower can provide customization service.
9. The product specifications may be modified without prior notice. Please refer to the published data sheet at Aipupower website.

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