

AC To DC Converter

30W PCB Mount

multicomp PRO

**RoHS
Compliant**



Applications

These series are compact in size, high efficiency modular power supplies with global adapted input voltage range (both AC & DC available), low ripple, low temperature rise, low standby power consumption, high efficiency, high reliability, safety isolated and good EMC performance. This series of products can be widely used in the fields of Electric power, Industrial, Instrument and Smart home devices, etc. The additional EMC circuit diagram is recommended for the application with high EMC requirement.

Features

- Wide input voltage range 85-305V AC/100-430V DC
- Efficiency up to 90% (Typ.)
- No load power consumption 0.2W (Typ.) @220VAC
- Operating temperature from -40°C to +85°C
- Switching frequency 65KHz
- Short circuit, over current & over voltage protections
- Isolation Voltage 4200V AC
- Altitude during operating 5000m Max
- With CE certificate
- Safety Class II

Typical Product List

Part Number	Input Voltage Range		Output Specifications			Max. Capacitive Load @220V AC	Ripple & Noise @20MHz (Max)	Efficiency @Full load 220V AC (Typ.)
	Nominal	Range	Power	Voltage	Current			
	(V DC)	(V DC)	P(W)	Vo (V)	Io (m A)			
MPFA30-220S05G2N5	220	85-305	30	5	6	6000	100	86
MPFA30-220S12G2N5				12	2.5	4400	100	90
MPFA30-220S24G2N5				24	1.25	1000	150	88

Note 1: Please contact Aipu sales for other output voltages requirements of this series but not in this table.

Note 2: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 3: The minimum efficiency could be -2% of the typical value in this table.

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Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit	
Input voltage range	AC Input	85	220	305	V AC	
	DC Input	100	310	430	V DC	
Input frequency range	-	47	50	63	Hz	
Input current	Input 115V AC	--	--	0.75	A	
	Input 220V AC			0.5		
Surge current	Input 115V AC		25	-		
	Input 220V AC		50	-		
No-load power consumption	Input 115V AC		-	0.45		W
	Input 220V AC		0.2			
Leakage current	--	0.5mA TYP/230V AC/50Hz				
Recommended External Fuse		2A/300V AC Time-delay fuse				
Hot plug		Unavailable				
ON/OFF Control		Unavailable				

Output Specifications

Item	Operating Condition	Min	Typ.	Max	Unit	
Voltage accuracy	Full input voltage range, any load	Vo	-	±2.0	±3	%
Line regulation	Nominal load	Vo		±1	%	
Load regulation	Nominal input voltage, 20%~100% load	Vo		±1.5	%	
Minimum load	Single Output	0		-	%	
Temperature Drift Coefficient	-	-		±0.03%	%/°C	
Turn-on Delay Time	Input 220V AC (full load)	-		1500	mS	
Power-off hold up time	Input 115V AC (full load)	8	-	mS		
	Input 220V AC (full load)	65	-	mS		
Dynamic Response	Overshoot range	25%~50%~25%	-10	+10	%	
	Recovery time	50%~75%~50%		-	+5	mS
Output overshoot	Full input voltage range	≤10		%Vo		
Short circuit protection		Continuous, Self-recovery		Hiccup		
Over current protection	Input 220V AC	200%≥ Io ≥120%, self-recovery				
Over Voltage Protection	5VDC output	≤16V DC				
	12VDC output	≤16V DC				
	24VDC output	≤35V DC				
Ripple & Noise	5%-100% load, 20MHz bandwidth	-	60	150	mV	

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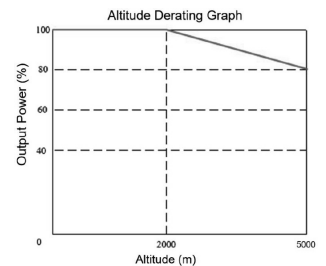
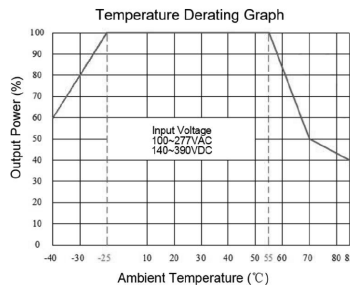
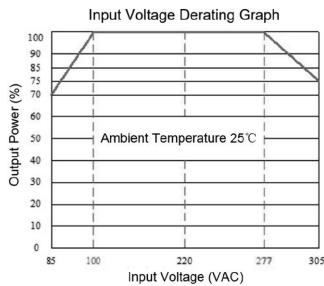
General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Switching frequency	-	-	65	-	KHz
Operating temperature	Refer to the Temperature Derating Graph	-40	-	+85	°C
Storage temperature	-	-40	-	+105	
Soldering temperature	Wave soldering	260±4°C, time 5-10S			
	Manual soldering	360±8°C, time 4-7S			
Relative humidity	-	10	-	90	%RH
Isolation voltage	Input-Output, 1min, leakage current ≤5mA	4200	-	-	V AC
Insulation resistance	Input-Output, @DC500V	100	-	-	MΩ
MTBF	MIL-HDBK-217F@25°C	2799	-	-	K Hours
Safety Standard	-	EN/IEC62368			
Vibration	-	10-55Hz, 10G, 30 Min, along X,Y,Z			
Safety Class	-	CLASS II			
Case Flame Class	-	UL 94-V0			
Weight & Dimensions	Part No.	Weight (Typ)	Dimensions L x W x H		
	MPFA30-220SXXG2N5	100g	69.5 × 39 × 25.5mm	2.736 × 1.535 × 1.004 inch	

EMC Performance

Total Items	Sub Items	Test Standard	Performance/Class	
EMC	EMI	CE	CISPR32/EN55032 CLASS B (with the Recommended Circuit)	
		RE	CISPR32/EN55032 CLASS B (with the Recommended Circuit)	
	EMS	RS	IEC/EN61000-4-3	10V/m Perf. Criteria A (with the Recommended Circuit)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf. Criteria A (with the Recommended Circuit)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf. Criteria B
			IEC/EN61000-4-5	Line to line ±2KV / line to ground ±4KV Perf. Criteria B
		Surge	IEC/EN61000-4-4	Line to line ±1KV Perf. Criteria B
		EFT	IEC/EN61000-4-4	±2KV Perf. Criteria B
Voltage dips & interruptions	IEC/EN61000-4-11	0%~70% Perf. Criteria B		

Product Characteristics Graphs

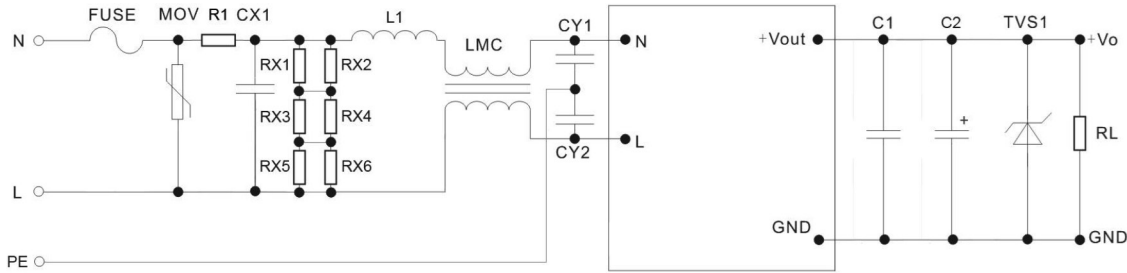


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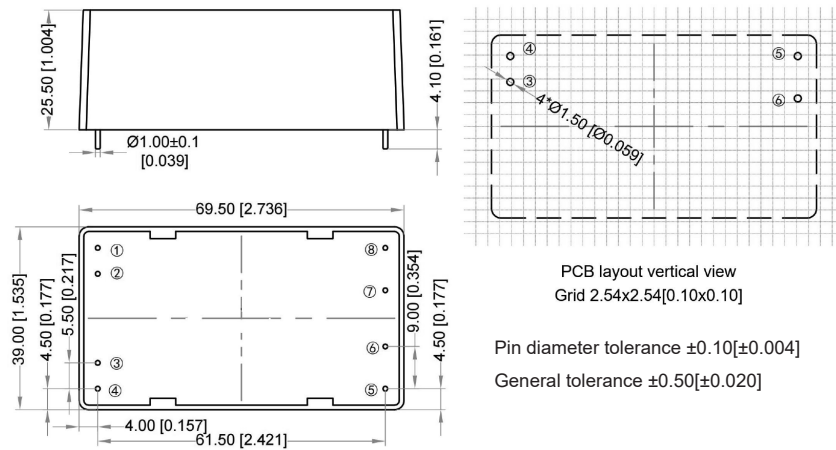
Recommended EMC Circuit for Application



Part Number	FUSE (*)	MOV	R1 (*)	CX1	RX1,RX2 RX3,RX4 RX5,RX6	L1	LMC	CY1 CY2	C1	C2	TVS1
MPFA30-220S05G2N5	3.15A/ 300V (Time- delay Fuse)	14D561K/ 4500A	6.8Ω /5W (Wire- wound Resis- tor)	X2/ 334K/ 305VAC	1206/ 1.5M	1.2mH/ 0.75A	20mH 0.75A	Y1/ 2.2nF/ 400VAC	1uF /100V	10uF /50V	SMBJ7.0A
MPFA30-220S12G2N5											SMBJ20A
MPFA30-220S24G2N5											SMBJ30A

Note: Both the * marked Fuse & R1 are necessary for the application, not optional.

Mechanical Dimensions



Dimensions : Millimetres

Pin-out Function Description

Pin No.	3	4	5	6	1, 2, 7, 8
Function	AC(N)	AC(L)	-Vo	+Vo	No Pin

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Part Number Table

Description	Part Number
AC to DC Converter, 30W, Vin 220V AC, Vout 5V DC	MPFA30-220S05G2N5
AC to DC Converter, 30W, Vin 220V AC, Vout 12V DC	MPFA30-220S12G2N5
AC to DC Converter, 30W, Vin 220V AC, Vout 24V DC	MPFA30-220S24G2N5

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