

Typical Features

- ◆ Wide input voltage range(90-265VAC) 127-380VDC
- ◆ Transfer efficiency 83%(Typ.)
- ◆ Switching Frequency: 65KHz(Typ.)
- ◆ Over current, short circuit Protection
- ◆ Isolation:3000VAC
- ◆ 4000m Altitude Application
- ◆ Meet IEC62368/UL62368/EN62368 test standard
- ◆ With CE, RoHS certificate
- ◆ Plastic case shielded, meet flammability UL94 V-0



Application Field

UA10-220SXXP2D Series-----a compact size, high efficient, conform to CE power converter offered by Aipu.

It features universal input voltage range, taking both DC and AC input, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, with good EMC performance. EMC and Safety specification meet international EN55032, IEC/EN61000 standard. It is widely used in power, industrial, instrument, smart home applications. Please refer to this datasheet when module being used in a bad EMC environment.

Typical Product List

Certificate	Part No.	Input voltage range	Output voltage/current		Max. Capacitive Load	Ripple & Noise 20MHz	Efficiency @full load , nominal input voltage(TYP)
			Vo1(V)	Io1(m A)	u F	mVp-p	%
-	UA10-220S3V3P2D	90-265VAC 127-380VDC	3.3	2000	6000	100	74
CE/RoHS	UA10-220S05P2D		5	1500	6000	100	74
-	UA10-220S5V3P2D		5.3	1887	6000	100	75
-	UA10-220S06P2D		6	1667	3000	100	75
-	UA10-220S09P2D		9	1111	5000	150	81
CE/RoHS	UA10-220S12P2D		12	833	5000	150	81
-	UA10-220S12V5P2D		12.5	800	5000	150	82
-	UA10-220S15P2D		15	667	4000	150	82
CE/RoHS	UA10-220S24P2D		24	417	500	150	83

Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items;

Note 2: "*" are models under developing.

Note 3: The lowest efficiency is -2% of typical value due to instrument tolerance of test equipment.

Note 4: Output Efficiency(Typ.) is based on that product is full loaded and burned-in after half an hour;

Input Specifications

Item	Min.	Typ.	Max.	Note
Input voltage(Vac)	90Vac(127Vdc)	220Vac	265Vac (380Vdc)	-
Input Frequency range(Hz)	47	50	63	
Standby power consumption	0.2 W(MAX)			
Input current	0.18A (MAX) @Vin=100Vac		0.12A(MAX) @Vin=220Vac	
Surge current	10A (MAX) @Vin=100Vac		20A (MAX) @Vin=220Vac	

Output Specifications

Voltage Accuracy	Vo1±2.0%		
Line Regulation	Nominal load, full input voltage range	Vo1	±0.5%
Load Regulation	20% ~ 100% Nominal load	Vo1	±1.0%
Minimum Load	Single Output		0% Load
Ripple & Noise	20MHz BM (full load)		
	Vo≤6.0V, ≤100mVp-p	Vo≥48V, ≤180mVp-p	Other≤150 mVp-p
Turn-on Delay Time	Nominal input voltage, full load	≤1000mS	
Power-off Holding Time	Nominal input voltage, full load	80ms(typ.)	
Output Dynamic Characteristics	25%~50%~25% 50%~75%~50%	Overshoot range(%):≤±5%; Recovery time(mS) ≤5.0mS;	
Output Short Circuit Protection	Continuous, Self-recovery	Output Switched off	Hiccup
Output Over load/current Protection	≥110%Po/Io	Output Switched off	Hiccup

General Specifications

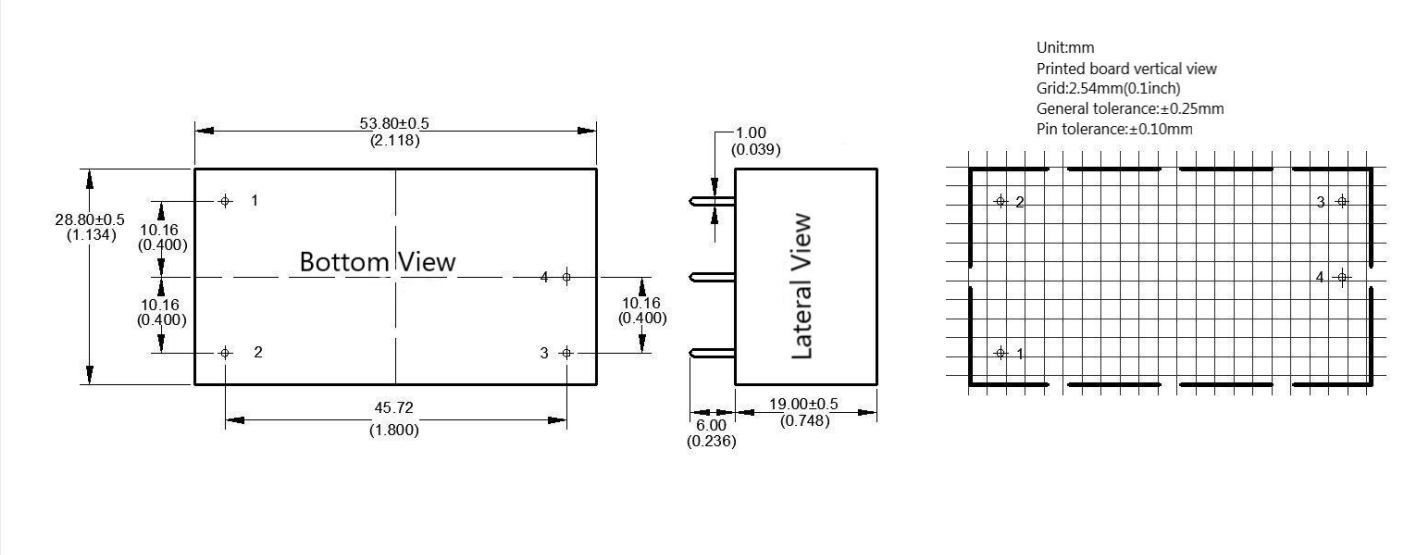
Transfer Efficiency	Nominal input voltage, full load	-	82%(typ.)
Switching Frequency	-	jitter	65KHz(typ.)
Operating Temperature	The operating temperature range please refer to the temperature derating curve		-40℃ ~ +105℃
Temperature Drift	-	-	0.03%/℃
Storage Temperature	-	-	-40℃ ~ +110℃
Max Case Temperature	-	-	+95℃
Relative Humidity	-	-	10%~90%
Isolation Voltage	Input to Output 3000Vac ≤ 5.0mA/1min;		
MTBF	>300,000H 25℃		

EMC Characteristics

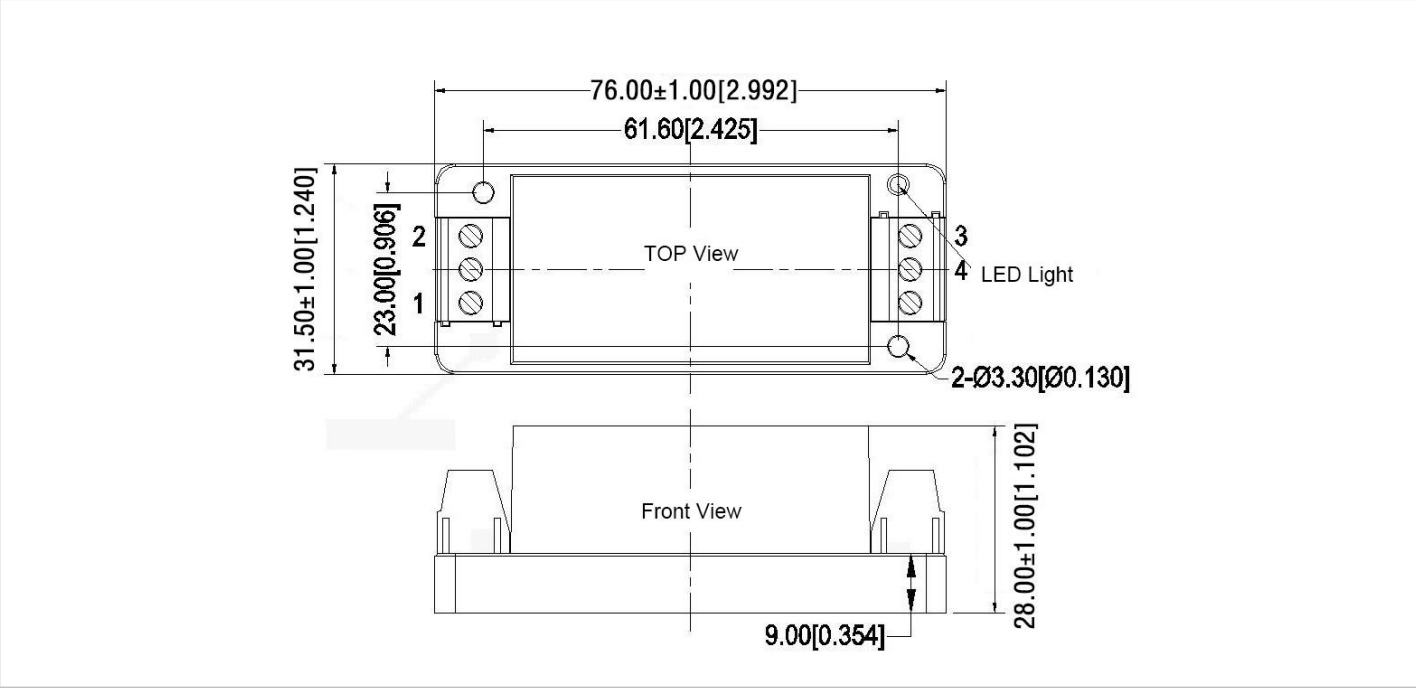
EMI	CE	CISPR22/EN55022 CLASS B (bare board)		
	RE	CISPR22/EN55022 CLASS B (bare board)		
EMC	ESD	IEC/EN61000-4-2	±6KV/8KV (bare board)	Perf.Criteria B

	RS	IEC/EN61000-4-3	10V/m	Perf.Criteria B
	EFT	IEC/EN61000-4-4 ±2KV (Recommended Circuit 1)		Perf.Criteria B
		IEC/EN61000-4-4 ±4KV (Recommended Circuit 2)		Perf.Criteria B
	Surge	IEC/EN61000-4-5 ±2KV (Recommended Circuit 1)		Perf.Criteria B
		IEC/EN61000-4-5 ±4KV (Recommended Circuit 2)		Perf.Criteria B
	CS	IEC/EN61000-4-6	3Vr.m.s	Perf.Criteria B
	PFMF	IEC/EN61000-4-8	10A/m	Perf.Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%-70%	Perf.Criteria B

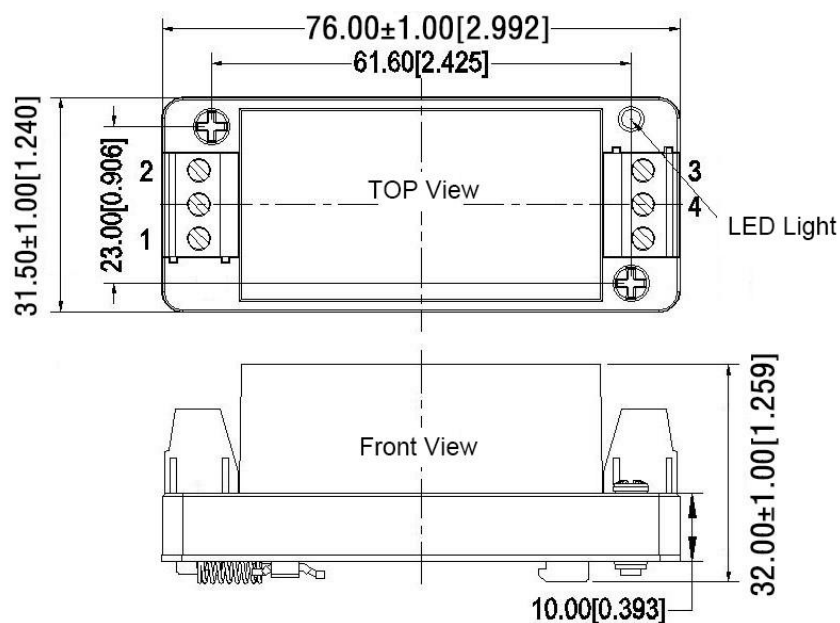
P2 Packing Dimension



P2-T Packing Dimension



P2-TS Packing Dimension



Packing Code	L x W x H	
P2	53.8X28.8X19.0mm	2.118X1.134X0.748inch
P2-T	76.0X31.5X28.0 mm	2.992X1.240X1.102inch
P2-TS	76.0X31.5X32.0 mm	2.992X1.240X1.259inch

Pin Definition

Pin-Out	1	2	3	4
Single(S)	AC(N)	AC(L)	+Vo	-Vo

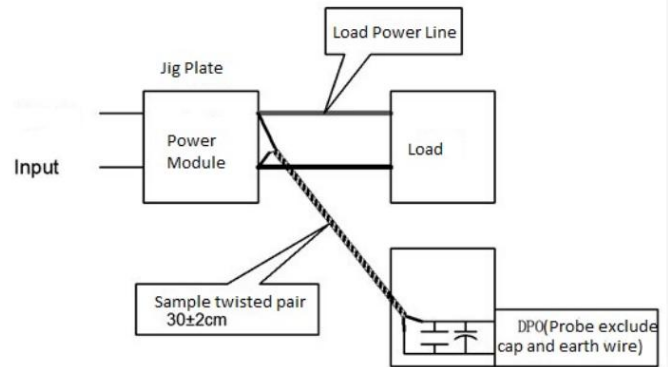
Note: If the definition of pin not is in accordance with the model selection manual, please refer to the label on actual item.

Ripple & Noise Test: (Twisted Pair Method 20MHz bandwidth)

Test Method:

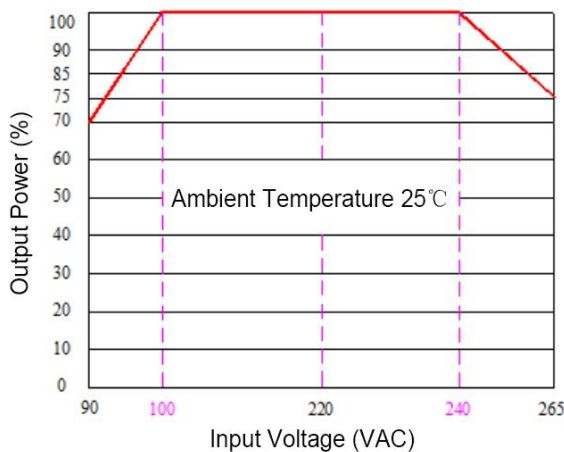
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.

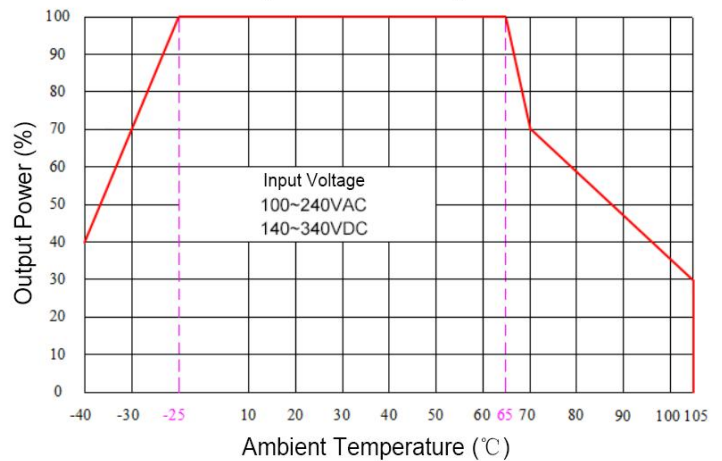


Product Characteristic Curve

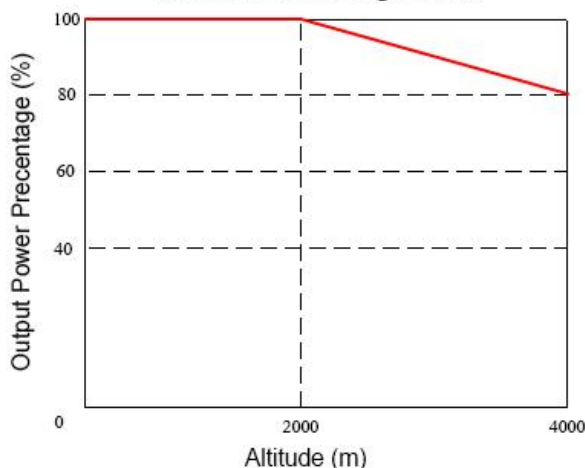
Input Voltage Derating Curve



Temperature Derating Curve



Altitude Derating Curve

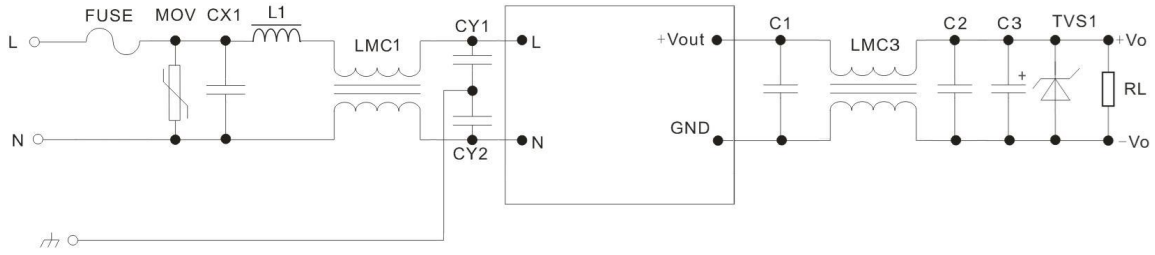


Note 1: Input voltage should be derated based on input voltage derating curve when it is 90~100VAC/240~265VAC/120~140VDC/ 340~370VDC;

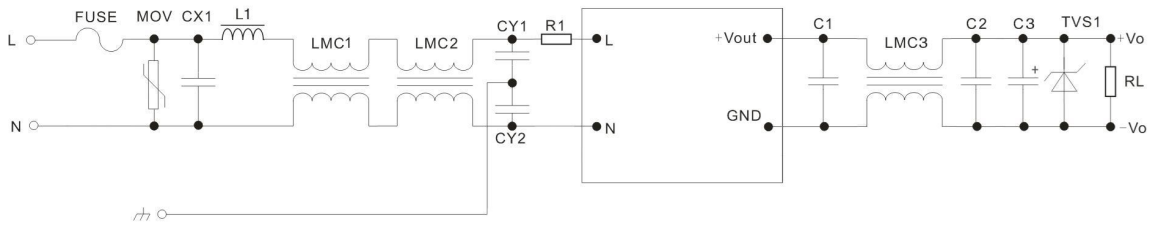
Note 2: This product is suitable to use in natural air cooling environments, if in a closed environment, please contact with us.

Typical Application Circuit

EMC Recommended Parameters and Application Circuit



Recommended Circuit 1



Recommended Circuit 2

Part no	FUSE (necessa ry)	MOV	CX1	L1	LMC1	LM C2	CY1, CY2	R1	C1, C2	LMC3	C3	TVS1
UA10-220S3V3P2D	3.15A/ 250V, slow fusing, necessar y	14D5 61K	0.22 uF, 275 V	2.5 uH, 2.5 A	UU9. 8,25 mH	UU9 .8,3 0m H	102M ,400 V	2W, 10Ω	0.1 uF/ 50V	Green ring, T13X8, 145uH	220uF	SMBJ7.0A
UA10-220S05P2D												SMBJ7.0A
UA10-220S5V3P2D												SMBJ7.0A
UA10-220S06P2D												SMBJ7.0A
UA10-220S09P2D												SMBJ20A
UA10-220S12P2D												SMBJ20A
UA10-220S15P2D											47uF	SMBJ20A
UA10-220S24P2D												SMBJ20A

Note1:

- Output filter capacitor C3 is an electrolytic capacitor. It is recommended to use a high-frequency, low-resistance electrolytic capacitor. For the capacity and current flowing through, please refer to the technical specifications provided by each manufacturer. The voltage resistance of C3 capacitor should be reduced to at least 80%.
- C1/C2 are ceramic capacitors. To remove high-frequency noise, 0.1uF/50V/1206 is recommended.
- TVS tube is recommended to protect the subsequent circuit when the module is abnormal.

Note 2:

1. The product should be used within the specification range, or it will cause permanent damage to it;
2. The input terminal should connect to fuse;
3. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
4. If the product worked beyond the load range, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of **Ta=25℃**, **humidity<75%** with nominal input voltage and rated output load(pure resistance load);
6. All index testing methods in this datasheet are based on our Company's corporate standards;
7. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, please directly contact our technician for specific information;
8. We can provide product customization service;
9. The datasheet is subject to change without prior notice.

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