Typical Features

- ◆Wide input voltage range:85-305VAC/120-430VDC
- ◆No load power consumption≤0.5W
- ◆Transfer efficiency (typ.84%)
- ◆Switching frequency:65KHz
- ◆Protection: Over current / Short circuit
- ◆Isolation Voltage:4000VAC
- ◆Meet IEC60950/UL60950/EN60950 test standard
- ◆Pass the test of LPS(Limit Power Supply)
- ◆6 sided shielding plastic case, meet flammability UL94 V-0
- ◆PCB mounting

Application Field

UA10-220SXXP2 *Series----- a compact size, high efficient, conform to CE standard power converter offered by Aipu.*
It features universal input voltage range, DC and AC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, safe and reliable, with good EMC performance, meet EN55032, IEC/EN61000 standard.
It widely used in power, industrial, instrument and smart home applications.
For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Certificate	Part No	Output Specifications					Max. Capacitive Load	Ripple& Noise 20MHz (MAX)	Efficiency @Full load,220Vac (Typical)
		Power	Voltage1	Current1	Voltage2	Current2			
		(W)	Vo1(V)	Io1(m A)	Vo2(V)	Io2(m A)	u F	mVp-p	%
CE	UA10-220S3V3P2	10	+3.3	3030	--	--	5000	80	70%
	UA10-220S05P2	10	+5.0	2000	--	--	2000	80	77%
	UA10-220S09P2	10	+9.0	1111	--	--	1000	120	80%
	UA10-220S12P2	10	+12	834	--	--	680	120	81%
	UA10-220S15P2	10	+15	667	--	--	470	120	82%
	UA10-220S24P2	10	+24	417			330	120	84%

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 being developing.
Note 3:The typical value of output efficiency is based on full load and burn-in after half an hour.
Note 4: The fluctuation range of full load efficiency at table(%,TYP) is ±2%, full load efficiency = total output power/module's input power.

Input Specifications

Items	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC	85	220	305	VAC
	DC	120	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	100VAC	-	-	0.24	A

	220VAC		-	-	0.15	
Surge Current	100VAC		-	-	10	
	220VAC		-	/	20	
No Load Power Consumption	Input 115VAC		-	0.30	0.50	W
	Input 230VAC		-			
Leakage Current	-		0.5mA TYP/230VAC/50Hz			
External fuse recommended value	-		3.15A-5A/250VAC slow-fusing			
Hot Plug	-		Un-available			
Remote Control Terminal	-		Un-available			

Output Specifications

Items	Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy	Full input voltage range, any load	Vo1	-	±1.0	±2.0	%
		Vo2	-	-	-	%
Line Regulation	Nominal Load	Vo1	-	-	±0.5	%
		Vo2	-	-	-	%
Load Regulation	Nominal input voltage, 20%~100% Load	Vo1	-	-	±1.0	%
		Vo2	-	-	-	%
Minimum Load	Single Output		5	-	-	%
	Dual output common ground		-	-	-	%
	Dual output isolated		-	-	-	
Turn-on delay time	Input 115VAC (full load)		-	800	-	mS
	Input 220VAC (full load)		-		-	
Holding Time	Input 115VAC (full load)		-	14	-	mS
	Input 220VAC (full load)		-	70	-	
Dynamic Response	25%~50%~25% 50%~75%~50%		Overshoot range(%):≤±5.0			%
			Recovery time(mS)≤5.0			mS
Output Overshoot	Full input voltage range		≤10%Vo			%
Short Circuit Protection			Continuous, self-recovery			Hiccup
Drift Coefficient	-		-	±0.03%	-	%/℃
Over Current Protection	Input 100-265VAC		≥130% Io self-recovery			Hiccup

Over Voltage Protection	Output 3.3VDC	≤8			VDC
	Output 5.0VDC	≤10			
	Output 12VDC	≤18			
	Output 15VDC	≤20			
	Output 24VDC	≤30			
Ripple& Noise	-	-	80	120	mV
	Note 1: Ripple & Noise is tested by twisted pair method, for details please see(Ripple& Noise Test) at back. Note 2: Vo≤5Vdc, low voltage input below 85Vac, test need base on Input Voltage Derating Curve, please check the details of derating curve at back.				

General Specifications

Items	Operating Condition	Min	Typ.	Max	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+75	℃
	Need to derate base on temperature derating curve, please see Product Characteristics Curve at back.				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave-soldering	260±4℃, timing 5-10S			
	Manual-soldering	360±8℃, timing 4-7S			
Relative Humidity	-	10	-	90	%RH
Isolation Voltage	Input-Output Test 1min, leakage current≤5mA	4000	-	-	VAC
Insulation Resistor	Input-Output@ DC500V	100	-	-	MΩ
Safety Standard	-	EN60950, IEC60950			
Vibration	-	10-55Hz,10G,30Min, alongX,Y,Z			
Safety Class	-	CLASS Ⅱ			
MTBF	-	MIL-HDBK-217F@25℃＞300,000H			

Physical Characteristics

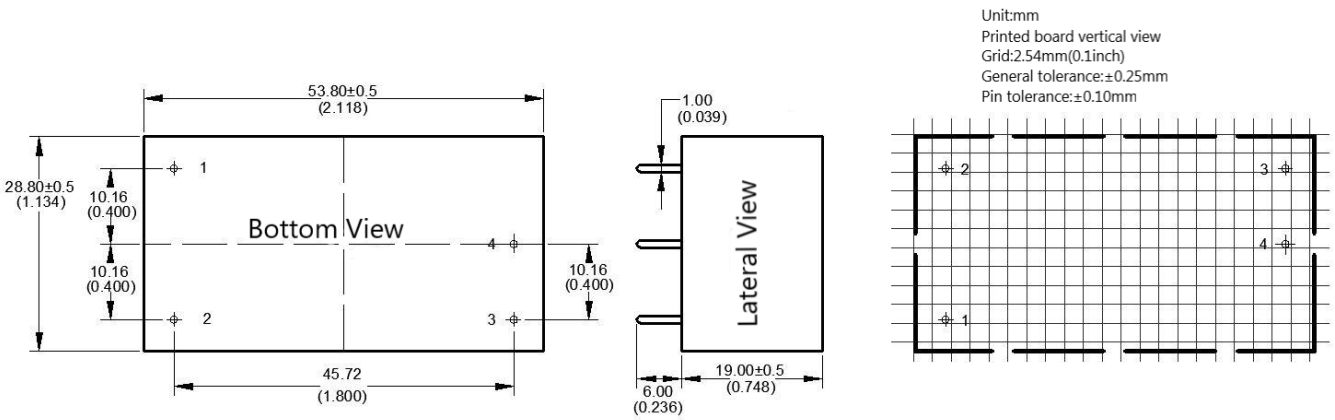
Case Material		Black flame-retardant heat-resistant plastic (UL94 V-0)
Packing Dimension	Horizontal package	53.8X 28.8X19.0 mm
Product Weight		50g(TYP)
Cooling Method		Free air convection

EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55022	CLASS A (bare board) CLASS B (recommend circuit see photo 1)

		RE	CISPR22/EN55022	CLASS A(bare board) CLASS B(recommend circuit see photo 1)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (recommend circuit see photo 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (recommend circuit see photo 1)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±1KV Perf.Criteria B(recommend circuit see photo 1)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B(recommend circuit see photo 1)
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Dimension



Packing Code	L x W x H	
P2	53.8X 28.8X19.0 mm	2.118X1.134X0.748inch

Pin Definition

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

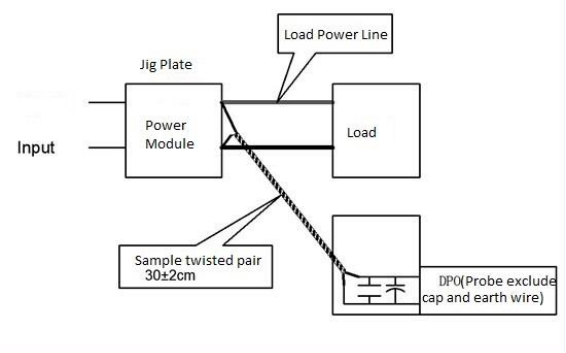
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

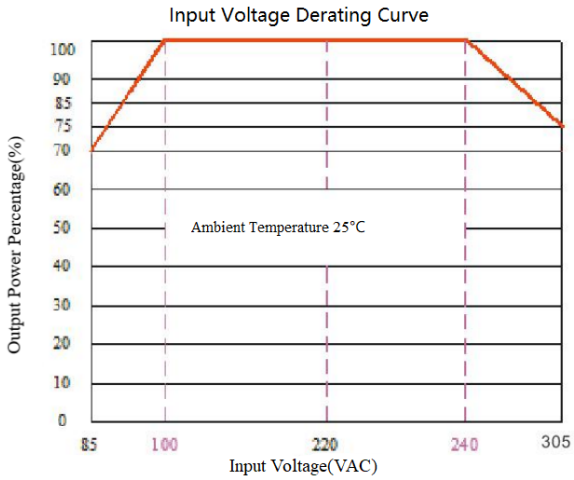
Test Method:

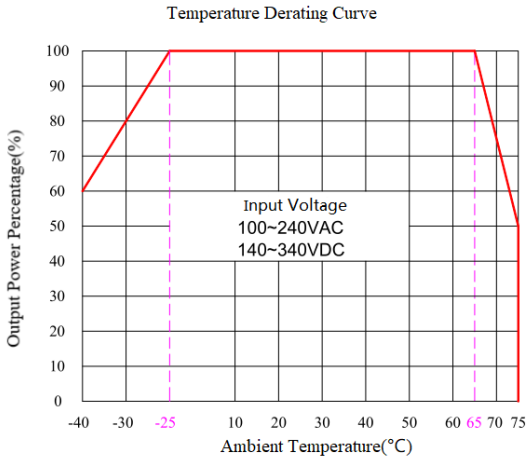
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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





Note

1:Input voltage should be derated based on input voltage derating curve when it is 85~100VAC/240~305VAC/120~140VDC/ 340~430VDC.

2:Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical Application Circuit

1.EMC Solution and Recommended Circuit

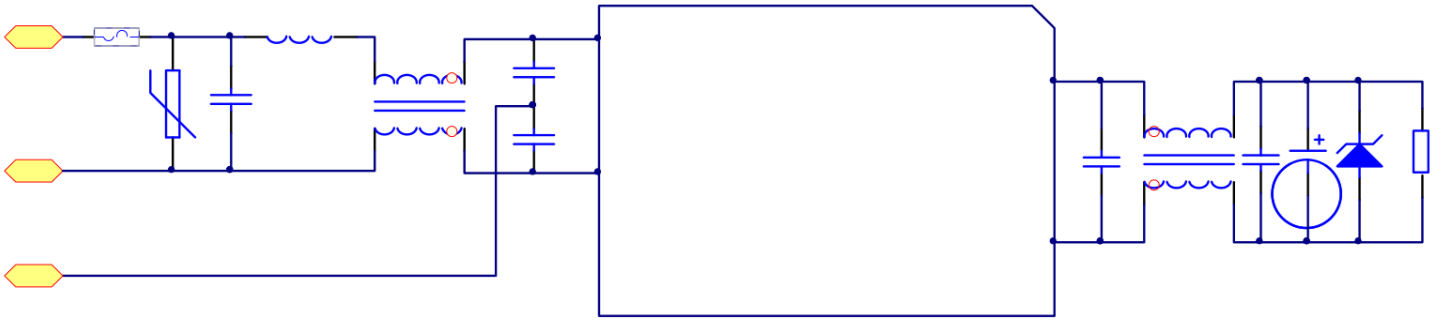


Photo 1: EMC Recommended Circuit

Part No	C3(u F)	TVS
UA10-220S05P2	470	SMBJ7.0A
UA10-220S09P2	330	SMBJ12A
UA10-220S12P2	220	SMBJ20A
UA10-220S15P2	100	SMBJ20A
UA10-220S24P2	68	SMBJ30A

Note 1:

Output filter capacitor C3 is electrolytic capacitor, recommended to use high frequency low resistance one, capacitance and current allowed please refer to each supplier's datasheet. C3 capacitors withstand voltage should be derated at least 80%. C1/C2 are ceramic capacitors, to filter high frequency noise, recommend to use 0.1uF/50V/1206. TVS is recommended to use to protect back circuit if converters fails.

Part No	Name	Recommended value
FUSE	FUSE	3.15A/250Vac,slow fusing, necessary
MOV	Voltage dependent resistor	14D471K
CX1	X capacitor	0.22uF/275Vac
L1	Differential mode inductor	2.5uH/2.5A, I inductor
L2	Common mode inductor	Green ring 15mH/2.5A T12X7X6mm
CY1	Y capacitor	102M-400Vac
CY2		
L3	Common mode inductor	Green ring,T13X8,145uH
RL	Customer terminal load(terminal product)	

Note:

1.The product cannot be used beyond the specification range, otherwise it will cause permanent damage to it;

2.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. 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);

5. All index testing methods in this datasheet are based on our Company's corporate standards;

6. 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, and please directly contact our technician for specific information;

7. We can provide product customized product;

8. Specifications are subject to change without prior notice (except customized items).