AC/DC Converter
FA5-220SXXY2 Series

Typical Features

- ◆Wide Input Voltage Range :85-305VAC/120-430VDC
- ◆No load power consumption≤0.1W
- ◆Transfer Efficiency: 82% (typ.)
- ◆Switching Frequency:65KHz
- ◆Protections: Short-circuit, Over-current, Over-voltage, Over-temp
- ◆Isolation voltage:4000Vac
- ◆Meet IEC60950/UL60950/EN60950 test standard
- ◆Conform to CE, RoHS
- ◆Plastic Case , meet UL94 V-0
- ◆PCB Mounting

Application Field

FA5-220SXXY2 *Series-----a compact size, high efficient , meet CE standard power converter offered by Aipu.*

It features universal input voltage range, AC and DC dual-use, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation, with good EMC performance, meet EN55032, IEC/EN61000 standard.

The series widely used for power, industry, instrument , smart home application, ect.

The application circuit in the datasheet is strongly recommended for harsh EMC environment.

Product Named Method

XX XX-XXX X XX X X

⑦Case Material
⑥Packing Code
⑤Output Voltage
④Output Ways
③Input Voltage
②Output Power
①Product Series

For example: FA 5-220 S 12 Y 2

⑦Plastic Case
⑥Packing Size:50.8*25.4*15.16mm
⑤Output Voltage(12Vdc)
④Single Output
③Input Voltage(Nominal 220Vac)
②Output Power(5W)
①AC-DC wide input FA series

Typical Product List

Certificate	Part No	Output Specification					Max. Capacitive Load	Ripple& Noise 20MHz (MAX)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage 1	Current 1	Voltage 2	Current 2			
		(W)	Vo1 (V)	Io1 (m A)	Vo2(V)	Io2(m A)	u F	mVp-p	%
Applying CE	FA5-220S05Y2	5	5	1000	-	-	1000	80	75
	*FA5-220S09Y2	5	9	556	-	-	680	80	78
	FA5-220S12Y2	5	12	416	-	-	560	80	80
	*FA6-220S24Y2	5	24	208	-	-	220	120	82
	*FA5-220S48Y2	5	48	104	-	-	100	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:."*" is model under developing.

Note 3: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.

Note 4: The fluctuation range of full load efficiency(%,TYP) is ±2%, full load output efficiency= total output power/module's input power.

Rongtech Indusctry (ShangHai) Inc.,
Tel:0086-21-64516109 Fax:0086-21-54481689
E-mail:rongtech@263.net Http:www.rongtechpower.com

AC/DC Converter
FA5-220SXXY2 Series

Input Specifications					
Item	**Operating Condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Input Voltage Range	AC Input	85	220	305	VAC
	DC Input	120	310	430	VDC
Input Frequency Range	-	47	50	63	Hz
Input Current	115VAC	-	-	0.12	A
	220VAC	-	-	0.08	
Surge Current	115VAC	-	-	10	
	220VAC	-	/	20	
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
External Fuse Recommend Value	-	1A-3A/250VAC slow-fusing			
Hot Plug	-	Unavailable			
Remote Control Terminal	-	unavailable			

Output Specifications						
Item	**Operating Condition**		**Min.**	**Typ.**	**Max.**	**Unit**
Voltage Accuracy	Full input voltage range, Any load	Vo1	-	±1.0	±2.0	%
		Vo2	-	±3.0	±5.0	%
Line Regulation	Nominal Load	Vo1	-	-	±0.5	%
		Vo2	-	-	±1.5	%
Load Regulation	Nominal input voltage, 20%~100%	Vo1	-	-	±1.0	%
		Vo2	-	-	±3.0	%
No Load Power Consumption	Input 115VAC				0.1	W
	Input 220VAC					
Minimum Load	Single Output		0	-	-	-
	Dual output common ground		-	-	10	%
	Dual output isolated		-	-	10	
Turn-on Delay Time	Nominal input voltage (full load)		-	100	-	mS
Power-off Holding Time	Input 115Vac (full load)		-	10	-	mS
	Input 220Vac (full load)		--	60	-	

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Dynamic Response	25%~50%~25% 50%~75%~50%	Overshoot range (%):≤±5.0				%
		Recovery time (mS) ≤5.0				mS
Output Over-shoot	Full input voltage range	≤10%Vo				%
Short circuit protection		Continuous, Self-recovery				Hiccup
Drift Coefficient	-	-		±0.03%	-	%/℃
Over Current Protection	Full input voltage range	≥150% Io Self-recovery				Hiccup
Over Voltage Protection	Output 5.0VDC	≤7.5				VDC
	Output 12VDC	≤18				
	Output 15VDC	≤20				
	Output 24VDC	≤30				
Ripple & Noise	-	-		50	100	mV
	Note: Ripple& Noise is tested by Twisted Pair Method, details please see Ripple& Noise Test at back.					

General Specifications

Items	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+75	℃
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 Resistance	Input-Output@DC500V	100	-		MΩ
Safety Standard	-	EN60950, IEC60950			
Vibration	-	10-55Hz,10G,30Min,alongX,Y,Z			
Safety Class	-	CLASS Ⅱ			
Class of Case Material	-	UL94 V-0			
MTBF	-	MIL-HDBK-217F@25℃＞300,000H			

EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B

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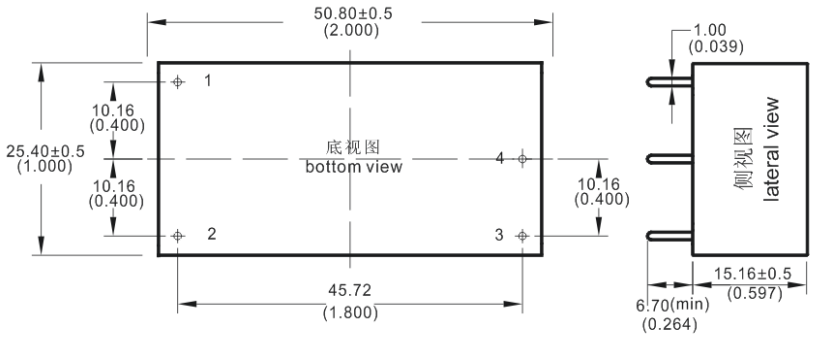
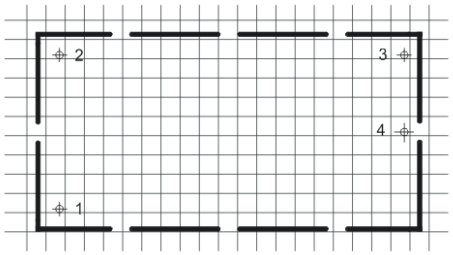
		RE	CISPR22/EN55032	CLASS B
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (see recommended circuit Photo 1)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (see recommended circuit Photo 1)
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±1KV Perf.Criteria B
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

Packing Dimension





Unit: mm(inch); Grid:2.54mm(0.1inch);
Printed board vertical view;
General tolerances: ±0.25mm;
General Pin Diameter tolerances: ±0.10mm

Packing Code	L x W x H	
Y2	50.8X25.4X15.16 mm	2.000X1.000X0.597inch

Pin Definition

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

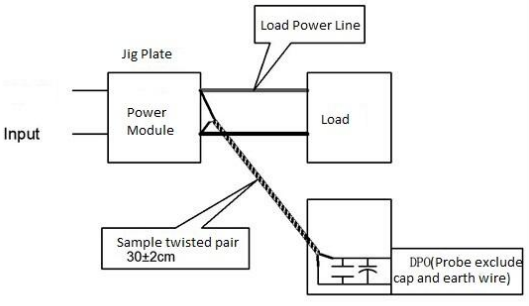
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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.



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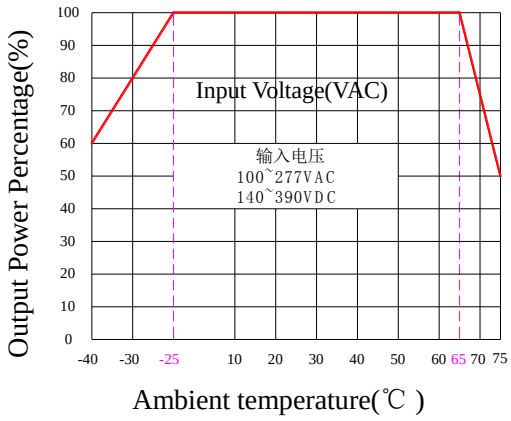
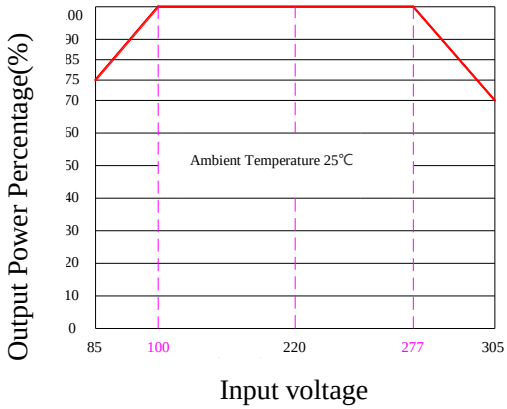
Product Characteristic Curve

Temperature Derating Curve



Input Voltage Derating Curve



Note1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 85~100VAC/277~305VAC/120~140VDC/ 390~430VDC.

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

Typical EMC Recommended Application Circuit

图1

Note:

1. FUSE: necessary, suggest 2A~250Vac, slow fusing, block form.
2. MOV is voltage dependent resistor, suggest model: 10D561K
3. NTC1 is thermistors, suggest model:5D-11, to prevent the module from damage when lightning surge.
4. C1 is high frequency low impedance electrolytic capacitor whose capacitance value less than capacitive load', withstand voltage is above 1.5 times or more of output voltage.
5. C2 is 0.1uF ceramic chip capacitors, withstand voltage is 1.5 times more than output voltage.
6. TVS1 is TVS tube:

5V output recommend: SMBJ7.0A，9V output recommend:SMBJ12.0A, 12V output recommend:SMBJ20A, 15V output recommend :SMBJ20.0A, 24V output recommend:SMBJ30.0A, 48V output recommend:SMBJ64A

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