

Typical Features

- ◆ Wide input voltage range :85~305Vac
- ◆ Transfer Efficiency 82%(Typical)
- ◆ Switching Frequency: 65KHz (Typical)
- ◆ Protections of over current, short circuit, over temperature, Self-furbish
- ◆ Input and Output Isolated
- ◆ PCB mounting
- ◆ Plastic Case H2



Application Field

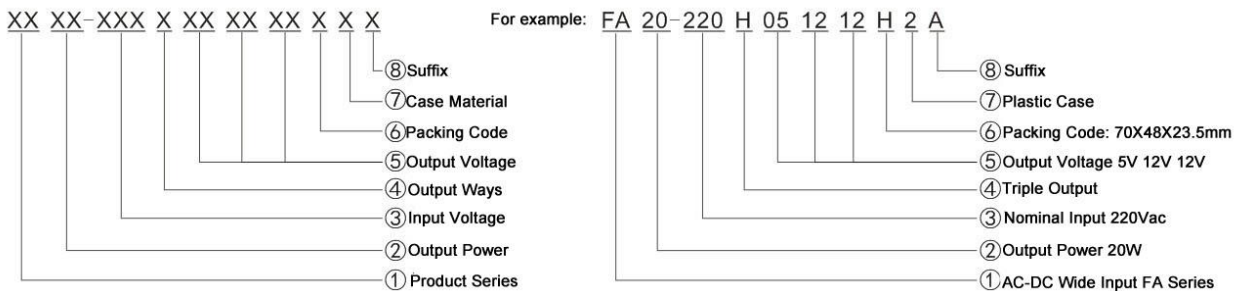
FA20-220HXXXXXXH2 Series-----a compact size, high efficient, triple output power converter offered by Aipu.

It features universal input voltage, taking both DC and AC input voltage, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, safer isolation.

It is widely used in industrial, office and civil applications.

For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Product Nominated Method



Typical Product List

Model	Input Voltage Range	Output Voltage(V)/Current(m A)				Max. Capacitive Load	Ripple & Noise 20MHz	Efficiency @full load, nominal input voltage
		Vo1	Io1	Vo2/-Vo2	Io2/-Io2			
		V	m A	V	m A			
FA20-220H051212H2A	85-305Vac (120-430Vdc)	+5	2000	+/-12.0	800/100	1000/470/100	80/120/120	80
FA20-220H051212H2		+5	2000	+/-12.0	400/400	1000/470/470	80/120/120	82
FA20-220H051515H2		+5	2000	+/-15.0	300/300	1000/330/330	80/150/150	83
FA20-220H052424H2		+5.0	2000	+/-24.0	200/200	1000/220/220	80/180/180	85

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 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 $\pm 2\%$, full load efficiency = total output power/module's input power.

Technical Parameters: Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and $T_a=25^\circ\text{C}$.

Input Specification	Min.	Typ.	Max.	Note
Input Voltage Vac	85(120Vdc)	220	305(430Vdc)	UA
Input Frequency Range Hz	47	50	63	
Stand-by Consumption	0.3 W(MAX)			
Input Current	0.45A (MAX) @Vin=110Vac		0.23A (MAX) @Vin=220Vac	
Inrush Current	16A (MAX) @Vin=110Vac		30A (MAX) @Vin=220Vac	
Output Specification				
Voltage Accuracy	Vo1 $\pm 2.0\%$; Vo2/-Vo2 $\pm 5.0\%$			
Line Regulation	Nominal Load, full voltage range	Vo1; Vo2; -Vo2		$\pm 0.2\%$; $\pm 2.5\%$; $\pm 2.5\%$;
Load Regulation	20% ~ 100% nominal load	Vo1; Vo2; -Vo2		$\pm 0.5\%$; $\pm 5.0\%$; $\pm 5.0\%$;
Minimum Load	Vo1	Main circuit cannot be no load when auxiliary circuit with load		10%Load
	Vo2	The proportion among 3 loads cannot exceed 10%, except UA20-220H051212H2A		10%Load
	-Vo2	The proportion among 3 loads cannot exceed 10%		10%Load
Ripple & Noise	20MHz BM full load			
	Vo $\leq 5.0\text{V}$, $\leq 80\text{mVp-p}$	Vo $\geq 48\text{V}$, $\leq 180\text{mVp-p}$	Other $\leq 120\text{mVp-p}$	
Turn-on delay time	Nominal input voltage, full load	$\leq 2000\text{ms}$		
Power-off Holding time	Nominal input voltage, full load	60ms(typ.)		
Turn-on output overshoot	-	$\leq 10\%V_o$		
Output Dynamic Characteristics	25%~50%~25% 50%~75%~50%	Overshoot range (%) : $\leq \pm 10\%$; Recovery time(ms) $\leq 5.0\text{ms}$		
Output Short circuit Protection	Continuous, Self-furbish	Output turn-off	Hiccup	

Output over load/current protection	$\geq 150\%P_o/I_o$	Output turn-off	Hiccup
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General Specification

Switching Frequency	-	65KHz Typical	-
Operating Temperature	-	Free air convection	-40°C ~ +75°C
Storage Temperature	-	-	-40°C ~ +105°C
Relative Humidity	-	-	10%~90%
Isolation Voltage	Input and Output 3750Vac \leq 5mA/1min		
Safe Standard	-	IEC60950, EN60950, UL60950	
Safe Certificate	-	EN60950, UL60950	

Material Characteristics

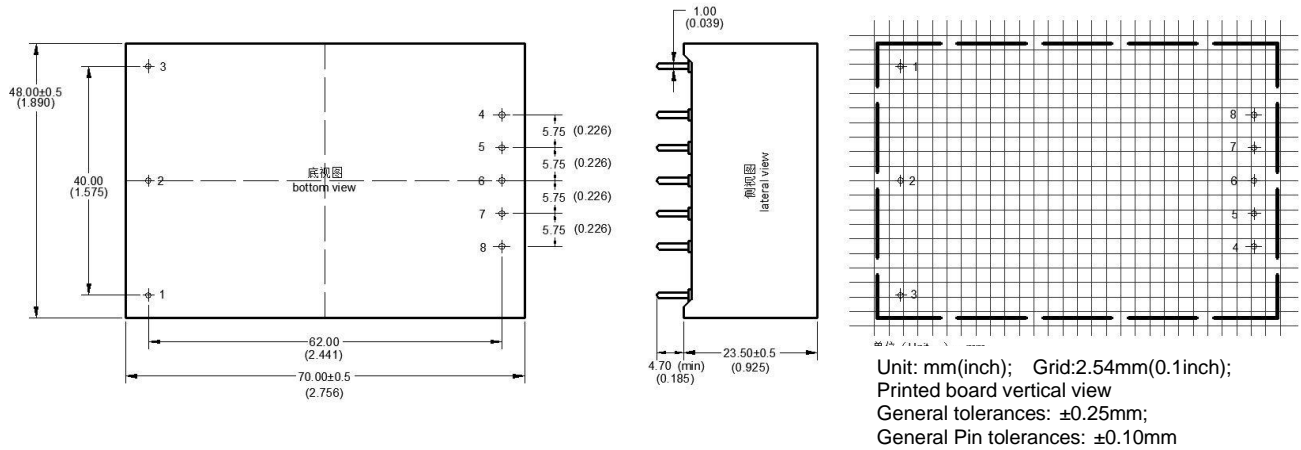
Case Material		Black flame-retardant heat-resistant plastic case (UL94 V-0)	
Packing Dimension	Horizontal package	70.0X48.0X23.5 mm	
Product Weight		140g(TYP)	
Cooling Method		Free air convection	

EMC Characteristics

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

Vibration	10-55HZ,10G,30Min,alongX,Y,Z
MTBF	2X10 ⁵ Hrs
Class of Case Material	UL94V-0

Dimension



Packing Code	L x W x H	
H2	70.0X48.0X23.5 mm	2.756X1.890X0.925inch

Pin Definition

Pin	1	2	3	4	5	6	7	8
Dual output isolated(E)	FG	AC(N)	AC(L)	+Vo2	COM	-Vo2	+Vo1	-Vo1

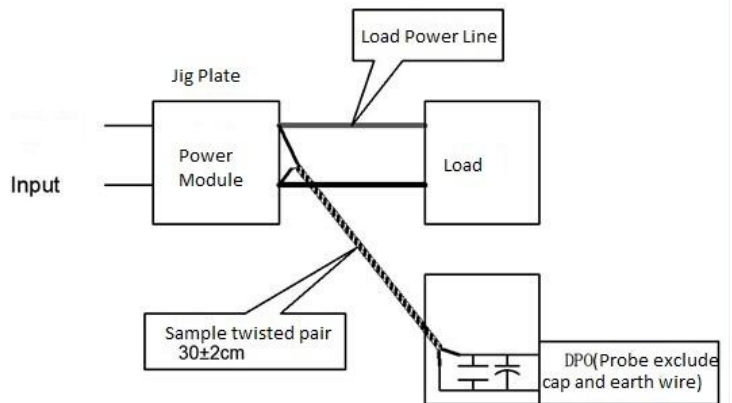
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

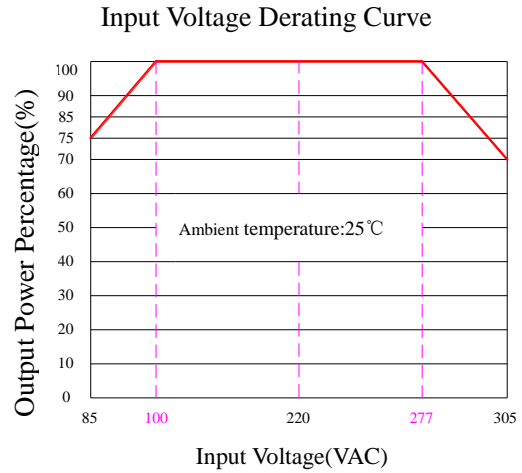
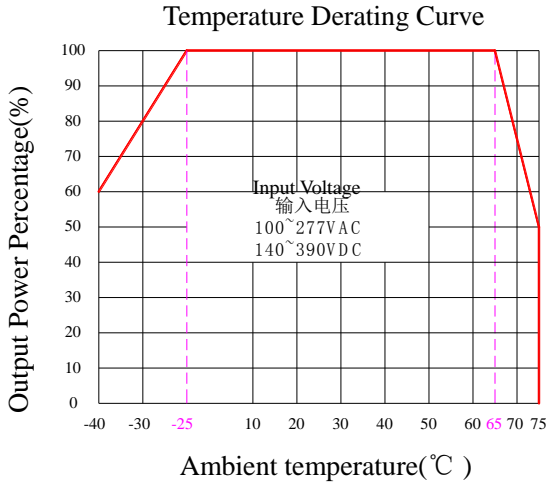
Test Method:

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

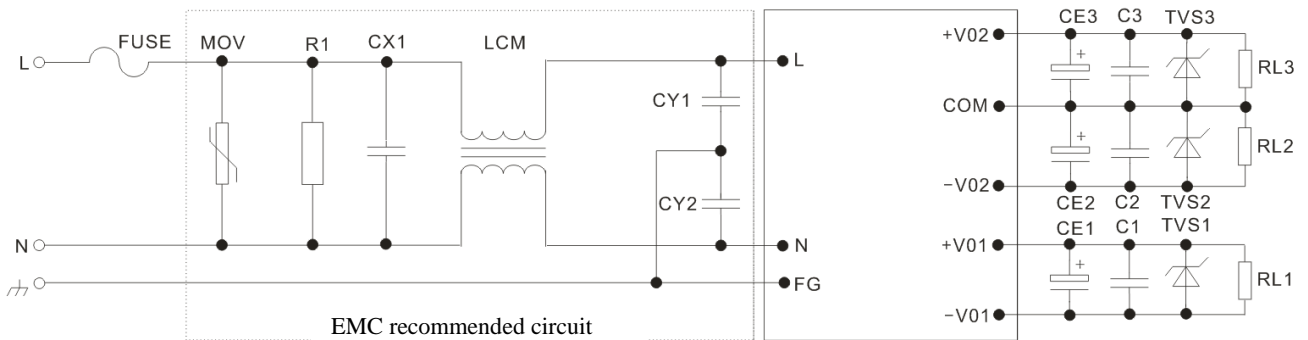
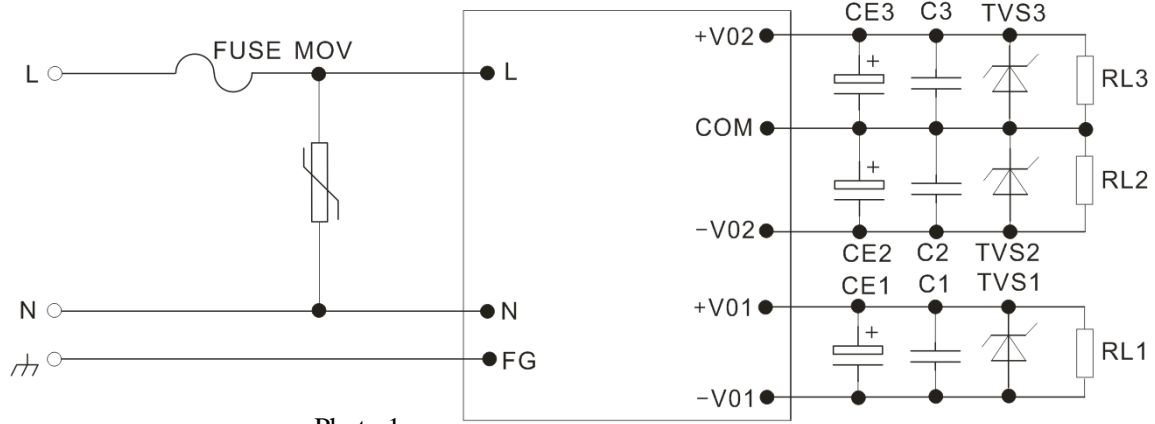
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product Characteristic Curve



Typical Application Circuit



NOTE:

- 1、 FUSE: necessary, recommend 3.15A/250V, slow fusing.
- 2、 MOV is voltage dependent resistor, recommend model: 14D561K, to protect converter from damage when lightning surge.
- 3、 Output filtering capacitors CE1, CE2, CE3 are electrolytic capacitors, recommend high frequency low resistance electrolytic capacitors, capacitance as 100uF/1A output current, withstand voltage derating should be 80% or above.
- 4、 Output filtering capacitors C1, C2, C3 filter high frequency noise, recommend to use 1μF ceramic capacitor, Capacitance withstand voltage derating should be 80% or above.
- 5、 TVS is a recommended component to protect post-circuits if converter fails, recommend to use 600W model.
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
- 6、 For customer's normal application use Photo 1 recommend circuit, If has higher EMC request, please use Photo 2 recommended circuit. The specific recommended value for Photo 2 as below:
 - 1) MOV: voltage dependent resistor, recommend model: 14D-561K, to protect converter from damage when lightning surge;
 - 2) R: Metal film resistor,680KΩ/1W;
 - 3) CY1, CY2: Safety capacitors, 1000pF/400VAC;
 - 4) CX: Safety capacitor, 0.22μF/275VAC;
 - 5) LCM: common mode inductor,10mH-20mH;