

Typical Features

- ◆ Wide Input Voltage Range
- ◆ Transfer Efficiency 83%(Typical)
- ◆ Switching Frequency:65KHz typ.
- ◆ Protections of over current, short circuit, over temperature, Self-recovery
- ◆ Input and Output Isolated
- ◆ PCB Mounting
- ◆ Plastic Case



Application Field

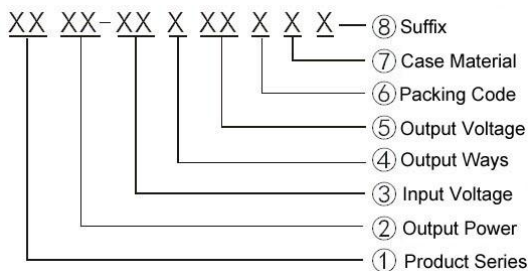
UA15/20-220HXXXXXXF2 Series-----a compact size, high efficient, triple output power converter offered by Aipu.

It features universal input voltage, taking both DC and AC input, 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 Named Method



Typical Product List

Model	Input Voltage Range	Output Voltage(V)/Current(m A)				Max. Capacitive Load u F	Ripple & Noise 20MHz mVp-p	Efficiency @full load, nominal input voltage (Typical) %
		Vo1	Io1	Vo2/V03	Io2/Io3			
UA15-220H051212F2	85-265Vac (120-380Vdc)	+5.0 V	1600m A	+/-12.0 V	300/300m A	1000/220/220	80/120/120	80%
UA15-220H052424F2		+5.0 V	1600m A	+/-24.0 V	150/150m A	1000/100/100	80/120/120	82%
UA20-220H051212F2		+5.0 V	2000m A	+/-12.0 V	416/416m A	1000/220/220	80/120/120	82%
UA20-220H052424F2		+5.0 V	2000m A	+/-24.0 V	208/208m A	1000/100/100	80/120/120	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: The lowest efficiency is -2% of typical value due to instrument tolerance of test equipment.

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

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 Specifications	Min (Vac)	Nom(Vac)	Max(Vac)	Notes
Input Voltage Vac	85(120Vdc)	220	265(380Vdc)	U
Input Frequency Range Hz	47		63	
Stand-by Consumption	0.5 W(Max)			
Short Circuit Power Consumption	2.0W(Max)			
Input Current	0.45A (Max) @Vin=110Vac		0.23A (Max) @Vin=220Vac	
Inrush Current	16A (Max) @Vin=110Vac		30A (Max) @Vin=220Vac	

Output Specifications

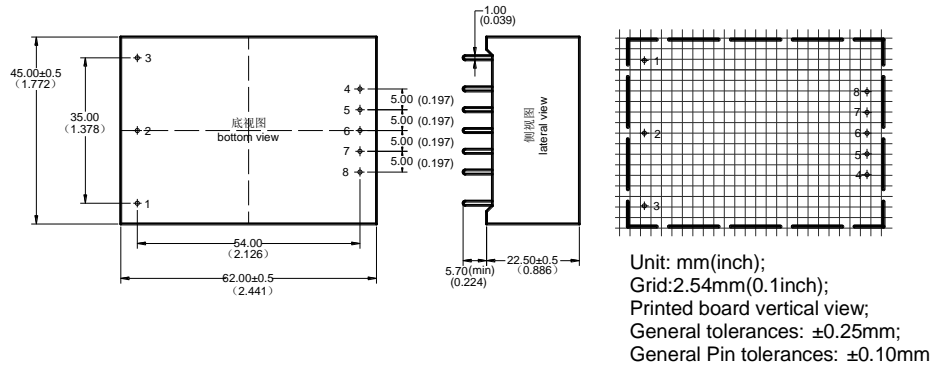
Output Voltage Accuracy	Vo1 \pm 1.0%TYP, \pm 2.0%Max; Vo2/Vo3 \pm 3.0%TYP, \pm 5.0%Max;			
Line Regulation	Nominal Load, full voltage range	Vo1; Vo2; Vo3	\pm 0.2%; \pm 1.5%; \pm 1.5%;	
Load Regulation	20% ~ 100% nominal load	Vo1; Vo2; Vo3	\pm 0.5%; \pm 3.0%; \pm 3.0%;	
Minimum Load	Vo1	Main circuit cannot be no load when auxiliary circuit with load	10%Load	
	Vo2		10%Load	
	Vo3		10%Load	
Ripple & Noise	20MHz BM full load			
	Vo \leq 5.0V, \leq 80mVp-p	Vo \geq 48V, \leq 180mVp-p	Other \leq 120 mVp-p	
Turn-on Delay Time	Nominal input voltage, full load	\leq 100Ms		
Power-off Holding Time	Nominal input voltage, full load	60ms(typ.)		
Startup Output Overshoot		\leq 10%Vo		
Output Dynamic Characteristics	25%-50%-25%, 50%-75%-50%	Overshoot range(%): \leq \pm 5%; Recovery time(mS) \leq 5.0mS:		
Output Short Circuit Protection	Continuous, Self-recovery	Output Switched off	Hiccup	
Output Over load/current Protection	110%-200% Po/Io	Output Switched off	Hiccup	

General Specifications

Transfer Efficiency	Nominal input voltage, full load	Vo \leq 5.0V, 82% typ.	Vo>9.0V, 86% typ.
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Switching Frequency			65KHz typ.
Operating Temperature			-25°C ~ +65°C
Temperature Drift			0.02%/°C (Main circuit)
Storage Temperature			-40°C ~ +105°C
Max Case Temperature			+95°C
Relative Humidity			10%~90%
Case Material			Plastic Case
Isolation Voltage	Input to Output 3.0KVac ≤ 3mA/1min; Input to FG 1.5KVac ≤ 3mA/1min		
MTBF	>300,000H @25°C		
Class of Case Material	UL94V-0		

Packing Dimension



Packing Code	L x W x H	
F2	62.0X 45.0X22.5 mm	2.441 x 1.772 x 0.885inch

Pin Definition

Pin	1	2	3	4	5	6	7	8
Triple Output Isolated (H)	FG	AC(N)	AC(L)	+Vo3	COM	-Vo2	+Vo1	-Vo1

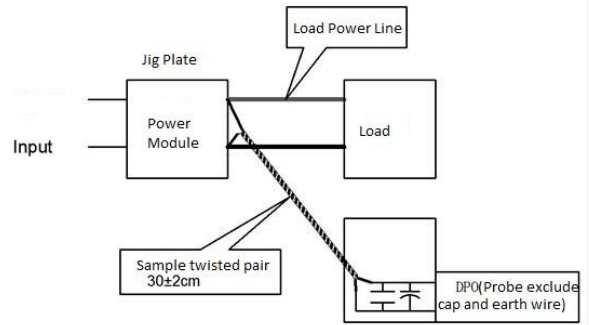
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

Test Method:

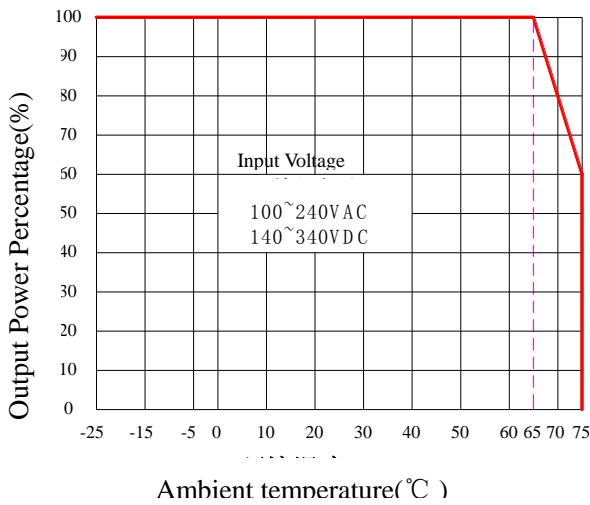
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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.

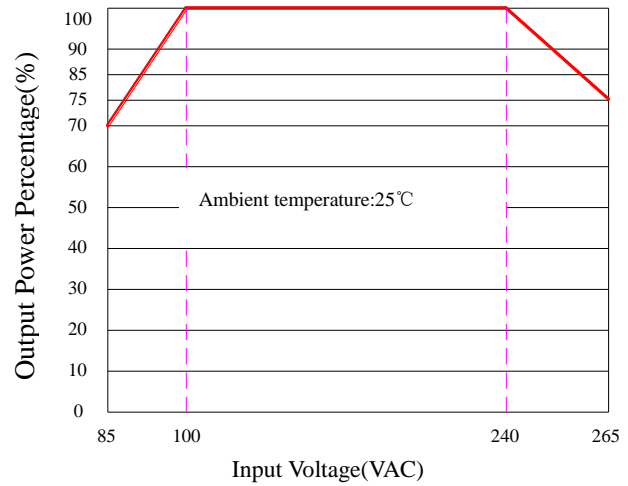


Product Characteristic Curve

Temperature Derating Curve



Input Voltage Derating Curve



Typical Application Circuit

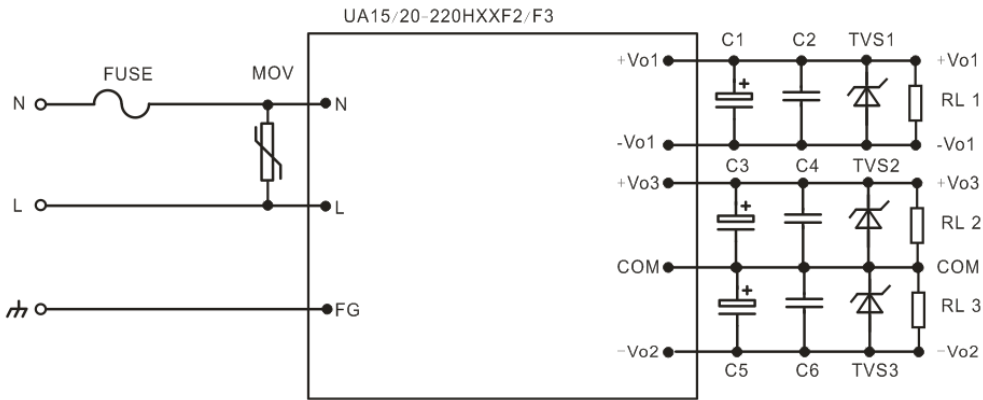


Photo 1

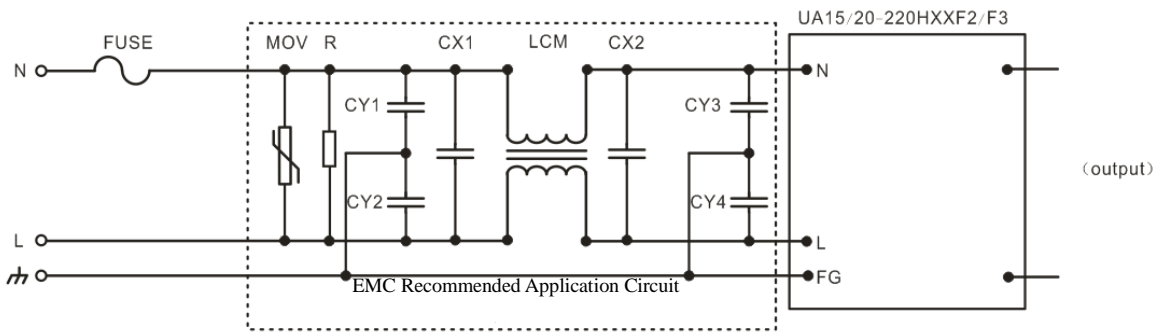


Photo 2

Note:

1. Output filtering capacitors C1, C3, C5 are electrolytic capacitors, recommend high frequency low resistance ones, capacitance as 100uF/1A output current, capacitance withstand voltage derating > 80%.
2. Output filtering capacitors C2, C4, C6 filter high frequency noise, recommend to use 1uF ceramic capacitor, Capacitance withstand voltage derating should be 80% or above.
3. 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.
4. MOV is voltage dependent resistor, recommend model: 14D-471K, to protect converter from lightning surge damage.
5. 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-471K, to protect converter from lightning surge damage.
 - 2) R: 510KΩ/3W, Metal film resistor;
 - 3) CY1, CY2, CY3, CY4: 1000pF/400VAC;
 - 4) CX: 0.22uF/275VAC;
 - 5) LCM: 10mH-30mH;
 - 6) FUSE: necessary, recommend specification 3.15A/250V, slow fusing.