AC-DC Converter
CD40-220XXXH1 Series

Typical Features

- ◆Wide Input Voltage Range :85-265Vac
- ◆Transfer Efficiency: 90% (typ.)
- ◆Switching Frequency: 132KHz typ.
- ◆Over-current, Short-circuit, Over-temperature Protections, Self-recovery
- ◆Input and Output Isolated
- ◆PCB Mounting
- ◆Metal Case H1

Application Field

CD40-220XXXH1 *Series-----a compact size, high efficient, conform to safety 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.

The series widely used for industry, office and civil application.

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

Product Named Method

XX XX-XX X XX X X X
- ⑧ Suffix
- ⑦ Case Material
- ⑥ Packing Code
- ⑤ Output Voltage
- ④ Output Ways
- ③ Input Voltage
- ② Output Power
- ① Product Series

Typical Product List

Model	Input Voltage Range	Output Voltage/Current				Max. Capacitive Load	Ripple& Noise 20MHz	Efficiency@ Full Load, Nominal Input Voltage (Typical)
		Vo1(V)	Io1(m A)	Vo2(V)	Io2(m A)	u F	mVp-p	%
*CD40-220S05H1	85-265Vac (120-380Vdc)	+5.0	8000	-	-	2000	80	83
*CD40-220S09H1		+9.0	4444	-	-	2000	120	84
CD40-220S12H1		+12.0	3333	-	-	1000	120	85
CD40-220S12V8H1		+12.8	3125	-	-	1000	120	85
CD40-220S15H1		+15.0	2666	-	-	470	120	88
CD40-220S18H1		+18.0	2222	-	-	220	120	88
CD40-220S24H1		+24.0	1666	-	-	220	120	89

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

CD40-220S24H1A		+24.0	1666	-	-	220	120	89
CD40-220S48H1		+48.0	833	-	-	100	180	90
CD40-220S53V5H1		+53.5	750	-	-	47	180	88
CD40-220S80H1		+80	500	-	-	22	180	90

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

"*"are models under developing.

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 Ta=25℃.

Input Specifications	Min(Vac)	Typ.(Vac)	Max(Vac)	Note
Input Voltage Vac	85(120Vdc)	220	265(380Vdc)	CD
Input Frequency Range Hz	47		440	
Stand-by Power Consumption	0.5 W(Max)			
Short Circuit Power Consumption	5.0W(Max)			
Input Current	1.00A (Max) @Vin=110Vac		0.45A (Max) @Vin=220Vac	
Inrush Current	16A (Max) @Vin=110Vac		30A (Max) @Vin=220Vac	

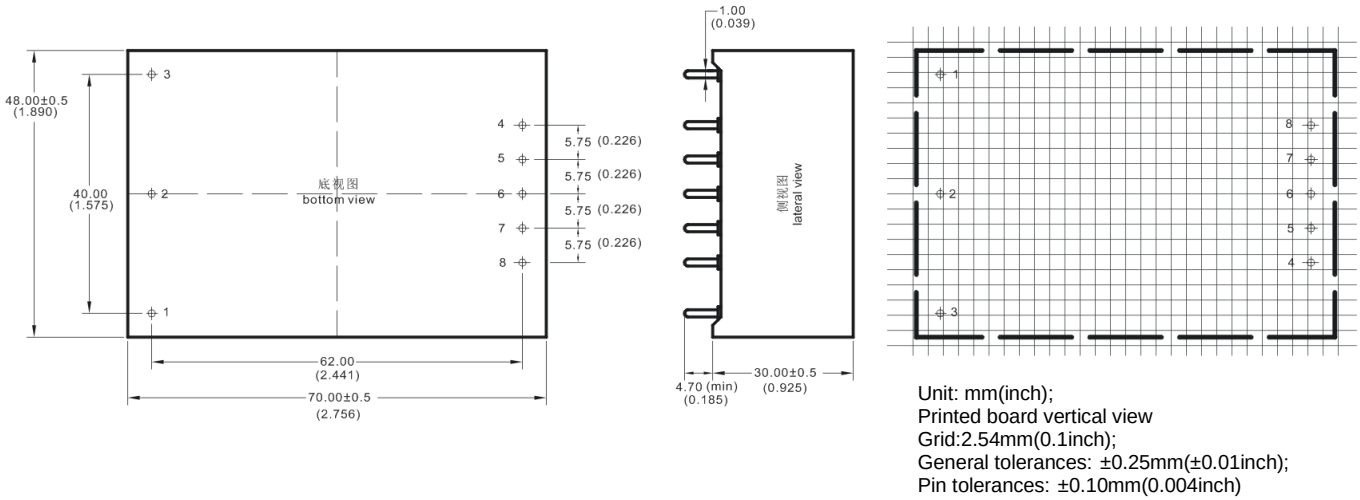
Output Specifications			
Output Voltage Accuracy	Vo1: ±2.0%		
Line Regulation	Nominal Load, full voltage range	Vo1	±0.2%
Load Regulation	20% ~ 100% nominal load	Vo1	±0.5%
Ripple & Noise	20MHz BM full load; Vo≤5.0V, ≤80mVp-p; Vo≥48V, ≤180mVp-p;Other≤120 mVp-p		
Turn-on Delay Time	Nominal input voltage, full load	≤100Ms	
Power-off Holding Time	Nominal input voltage, full load	60ms(typ.)	
Start-up Output Overshoot		≤10%Vo	
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	130% Po/Io Min	Output Switched-off	Hiccup

General Specifications			
Transfer Efficiency	Nominal input voltage, full load	90% typical, details see product list	
Switching Frequency			132KHz typ.
Operating Temperature			-25℃ ~ +65℃
Temperature Drift			0.02%/℃ (Main Circuit)
Storage Temperature			-40℃ ~ +105℃
Max Case Temperature			+95℃

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

Relative Humidity			10%~90%
Case Material			Metal Case
Isolation Voltage	Input-output2.5KVac ≤ 5mA/1min(H1 metal case) Input- case/Input-FG 1.5KVac ≤ 1.5mA/1min		
MTBF	>300,000H @25℃		

Dimension



Unit: mm(inch);
Printed board vertical view
Grid:2.54mm(0.1inch);
General tolerances: ±0.25mm(±0.01inch);
Pin tolerances: ±0.10mm(0.004inch)

Packing Code	L x W x H	
H1	70.0 x 48.0 x 30.0 mm	2.2756 × 1. 898 × 1.181inch

Pin Definition

Pin	1	2	3	4	5	6	7	8
Single(S)	FG	AC(N)	AC(L)	+Vo	NP	TRIM /NP	NP	GND

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

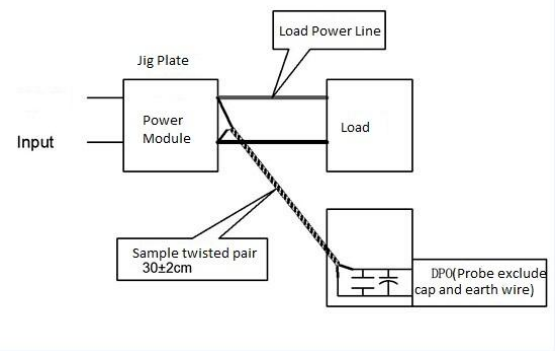
*the 6 pin for model CD40-220S15H1 is TRIM terminal, other models are empty pin.

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

Test Method:

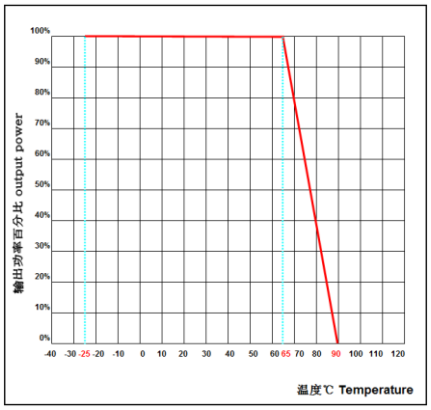
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

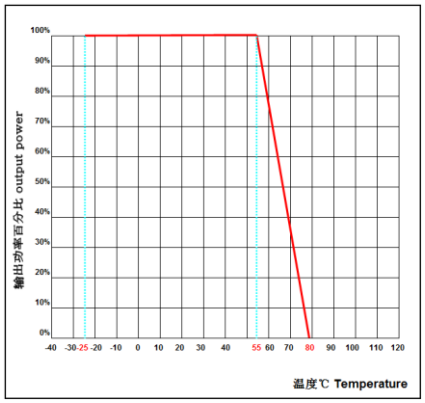
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Operating Temperature VS Load Curve

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





The output of product≤5V, operating temperature of derating start from +55℃

Typical Application Circuit

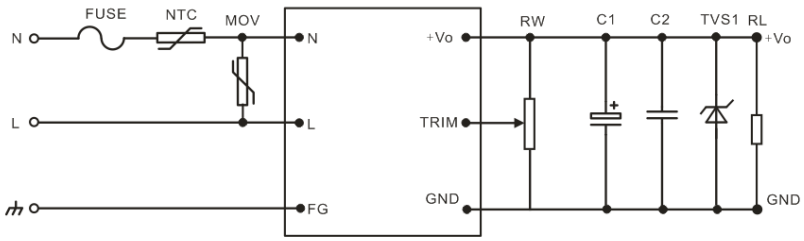


Photo 1

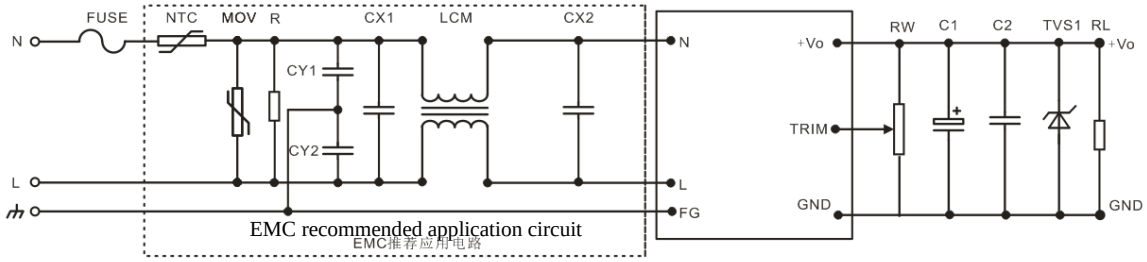


Photo 2

Note:

1. Output filtering capacitor C1 is electrolytic capacitor, recommended to use high frequency low resistance ones, capacitance as 100uF/1A output current. Capacitance withstand voltage derating should be 80% or above.

2.Output filtering capacitor C2 filter high frequency noise, recommend 1μF ceramic capacitor, capacitance withstand voltage derating ＞80%.

3. TVS is a recommended component to protect post-circuits (if converter fails), recommend 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. NTC is thermistors, recommended model:5D-14, to protect converter from lightning surge damage.

5. MOV is voltage dependent resistor, recommend model: 14D-471K, to protect converter from lightning surge damage.

6. RW is 10K adjustable resistor, adjust the voltage of output terminal, the adjustable range is +/-10%Vo of output voltage.

7. Photo 1 circuit recommended for customer with normal application request, if have higher request for EMC, please use Photo 2 recommended circuit. Below are the recommended value for Photo 2:

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:0.22μF/275VAC;

5)LCM：10mH-30mH；

6). FUSE: necessary, recommended specification as 3.15A/250V, slow fusing.

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