AC/DC Converter
CK6-380SXXE2 Series

Typical Features

- ◆Ultra Wide Input Voltage Range: 165-520V
- ◆Transfer Efficiency 70%
- ◆Switching Frequency 60KHz
- ◆Over-current, Short-circuit Protection, Self-recovery
- ◆Input and Output Isolated 3750V
- ◆PCB Mounting
- ◆Plastic Case E2

Application Field

CK6-380SXXE2 Series-----a small size, high reliability power converter offered by Aipu.

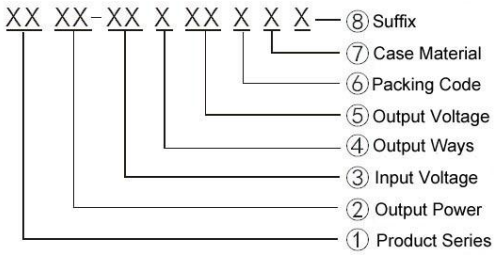
It features high input voltage, DC and AC input dual use, low ripple, low temperature rise, low power consumption, high reliability, safer isolation, with good EMC performance.

The series particularly suitable for industrial control, power application.

Fuse needed to add before input Live(AC).

Please refer to this datasheet when module being used in a bad EMC environment.

Product Named Method



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(mA)	u F	mVp-p	%
CK6-380S12E2	165~520Vac	+12.00	500	470	120	70
CK6-380S17V5E2		+17.50	340	470	120	70

Note: If interest to see more items, please contact with our sales team.

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℃.

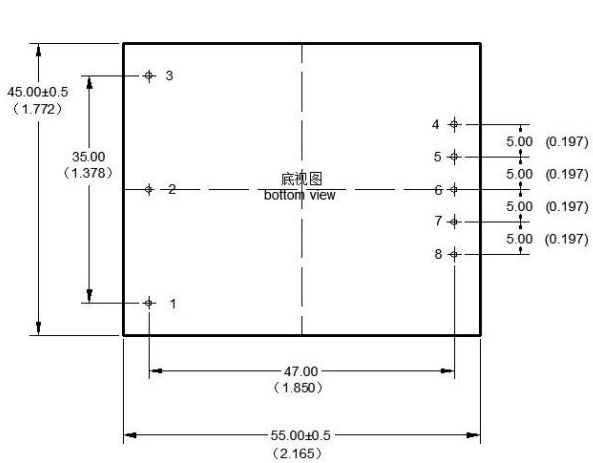
Input Specifications	Min.(Vac)	Typ.(Vac)	Max.(Vac)	Note
Input Voltage(Vac)	165	380	520	CK
Input Frequency Range(Hz)	47	50/60	63	
Stand-by Power Consumption			0.5W	
Input Current	120mA (Max) @Vin=220Vac	60mA (Max) @Vin=380Vac		
Inrush Current	16A (Max) @Vin=220Vac	30A (Max) @Vin=380Vac		

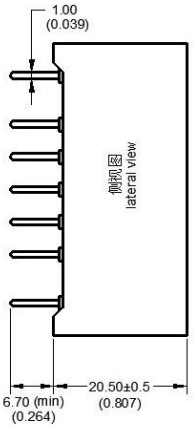
Output Specifications			
Output Voltage Accuracy		Vo1	±2.0%
Line Regulation	Nominal load, full voltage range	Vo1	±0.2%
Load Regulation	20% ~ 100% nominal load	Vo1	±0.5%
Minimum Load	Single Output		0%Load
Ripple & Noise	20MHz BM full load		
	Vo≤5.0V, ≤80mVp-p	Vo≥48V, ≤180mVp-p	Other≤120 mVp-p
Turn-on Delay Time	Nominal input voltage, full load	≤2000 ms (typical)	
Power-off Holding Time	Nominal input voltage, full load	60ms(typical)	
Turn on Output Overshooting		≤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	Output Switched off	Hiccup

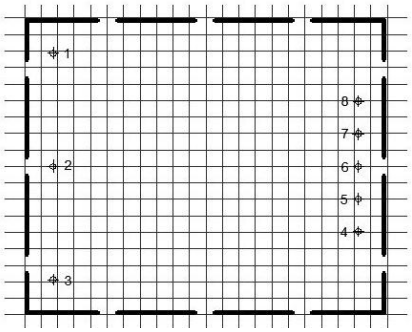
General Specifications			
Conversion Efficiency	Nominal input voltage, full load		70% typ.
Switching Frequency			65KHz typ.
Operating Temperature			-25℃ ~ +65℃
Temperature Drift			0.02%/℃
Storage Temperature			-40℃ ~ +105℃
Max Case Temperature			+95℃
Relative Humidity			10%~90%
Case Material			Plastic Case
Isolation Voltage	Input to Output:3750KVac,≤ 3.0mA/1min(E2 plastic case); Input to Case/FG: 1.50KVac, ≤ 3.0mA/1min		
MTBF	>300,000H @25℃		

Class of Case Material	UL94V-0

Dimension







Unit: mm(inch); Grid:2.54mm(0.1inch);

Printed vertical view

General tolerances: ±0.25mm(±0.01inch)

Pin tolerances: ±0.10mm(0.004inch)

Packing Code	L x W x H	
E2	55 x 45.0 x 20.5 mm	2.165 × 1.772 × 0.807inch

Pin Definition

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

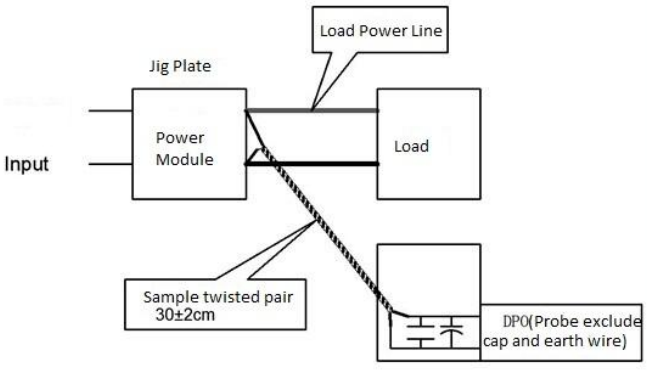
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

Test Method:

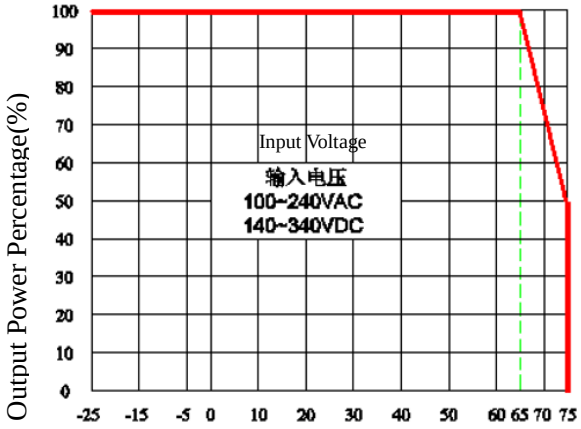
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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



Typical Application Circuit

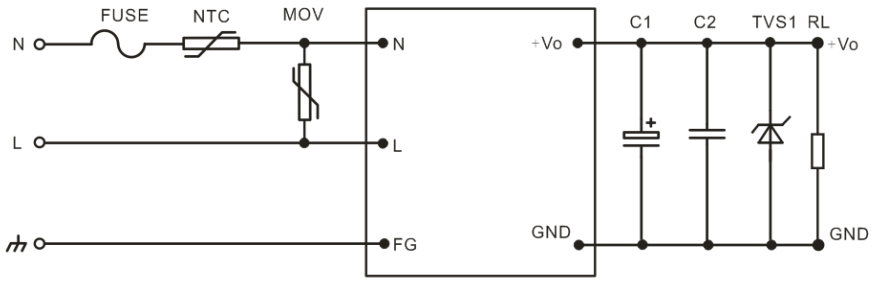


Photo 1

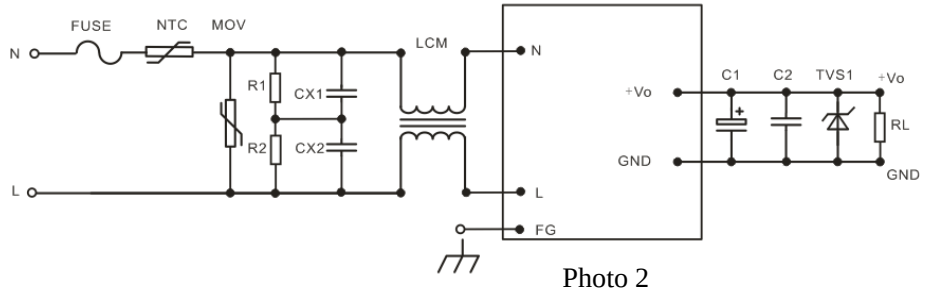


Photo 2

Note:

1.Output filtering capacitor C1 is electrolytic capacitor, recommend for high frequency and low resistance electrolytic capacitor, capacitance as 100uF/1A output current. Capacitance withstand voltage derating is more than 80%.

2.Output filtering capacitor C2 filters high frequency noise, recommend 1μF ceramic capacitor, Capacitance withstand voltage derating is more than 80%.

3.TVS is a recommended component to protect post-circuits (if converter fails), recommend 600W model SMBJ20A.

4.NTC is thermistors, recommend model:5D-11, to protect converter from lightning surge damage.

5.MOV is voltage dependent resistor, recommend model: 14D821K, to protect converter from damage when lightning surge.

6. Photo 1 circuit recommended for customer with normal application request, if has higher request for EMC, Photo 2 circuit is recommended.

Below are the recommended specification for Photo 2:

1)MOV is voltage dependent resistor, recommend model: 14D-821K, to protect converter from damage when lightning surge.

2)R1,R2：1MΩ/0.5W；

3)CY1, CY2, CY3, CY4：1000pF/400VAC；

4)CX1, CX2： 0.1μF/275VAC；

5)LCM：10mH-30mH；

6)FUSE： necessary, suggest 1.0A/250V,slow fusing.

Note:

1.The product should be used within the specification range, or it will cause permanent damage to it.

2.Product's 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, data in this datasheet are tested under conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated 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, please directly contact our technician for specific information;

7.We can provide customized product service;

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

