

Typical Features

- ◆ Ultra Wide Input Voltage Range: 165-520VAC/233-735VDC
- ◆ No load power consumption: ≤0.8W(nominal input voltage)
- ◆ Transfer Efficiency 70%
- ◆ Switching Frequency 65KHz
- ◆ Protection: Over-current, Short-circuit
- ◆ Input and Output Isolated 3750VAC
- ◆ Safety Class: Class II



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 ect. The series particularly suitable for important application like industry, office and civil ect.

Typical Product List

| Model | Output Voltage/Current | | | Max. Capacitive Load | Ripple& Noise 20MHz | Efficiency@ Full Load, Nominal Input Voltage (Typical) |
|----------------|------------------------|--------|---------|----------------------|------------------------|--|
| | Power(W) | Vo1(V) | Io1(mA) | | | |
| CK6-380S05E2 | 6W | 5 | 1200 | 820 | 80 | 64 |
| CK6-380S12E2 | | 12 | 500 | 470 | 120 | 68 |
| CK6-380S17V5E2 | | 17.5 | 340 | 470 | 120 | 70 |

- Note 1: Due to the instrument error of the test equipment, the minimum efficiency is defined as -2% of the typical value.
 Note 2: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.
 Note 3: The typical value of output efficiency is based on product is full loaded and burned-in after half an hour.
 Note 4: Ripple& Noise is tested by Twisted Pair Method, details please see Ripple& Noise Test at back.

Input Specifications

| Items | Working Conditions | Min | Typ | Max | Note |
|-----------------------|--------------------|-----|-----|------|------|
| Input Voltage Range | AC Input | 165 | 380 | 520 | VAC |
| | DC Input | 233 | 537 | 735 | VDC |
| Input Frequency Range | - | 47 | 50 | 63 | Hz |
| Input Current | 165VAC | - | - | 0.10 | A |
| | 380VAC | - | - | 0.08 | |
| Surge Current | 165VAC | - | - | 16 | |
| | 380VAC | - | - | 30 | |
| No Load Power | Input 165VAC | - | - | ≤0.8 | W |

| | | | | | |
|----------------------|--------------|-----------------------------|--|--|--|
| Consumption | Input 380VAC | - | | | |
| Leakage Current | - | 0.5mA TYP/230VAC/50Hz | | | |
| Recommend Fuse Specs | - | 3.15A-5A/250VAC Slow fusing | | | |
| Hot Plug | - | Not available | | | |
| Remote Control | - | Not available | | | |

Output Specifications

| Items | Working Conditions | Min | Typ | Max | Note |
|--------------------------|--|---------------------------|--------|------|------|
| Voltage Accuracy | Full input voltage range, any load | - | ±2.0 | ±3.0 | % |
| Line Regulation | Nominal load | - | - | ±0.2 | % |
| Load Regulation | Nominal input voltage, 20% ~ 100% load | - | - | ±1.0 | % |
| Minimum Load | Single Output | 0 | - | - | % |
| Turn-on Delay Time | Input 165VAC(full load) | - | 2000 | - | mS |
| | Input 380VAC(full load) | - | | - | |
| Power-off Holding Time | Input 165VAC(full load) | - | 100 | - | mS |
| | Input 380VAC(full load) | - | 50 | - | |
| Dynamic Response | 25%-50%-25%, 50%-75%-50% | Overshoot range(%):≤±5.0 | | | % |
| | | Recovery time(mS) ≤5.0 | | | mS |
| Output Overshoot | Input full voltage range | ≤10%Vo | | | % |
| Short Circuit Protection | | Continuous, self recovery | | | Burp |
| Drift Coefficient | - | - | ±0.03% | - | %/°C |
| Over Current Protection | Input 380VAC | ≥130% Iout | | | Burp |

General Specifications

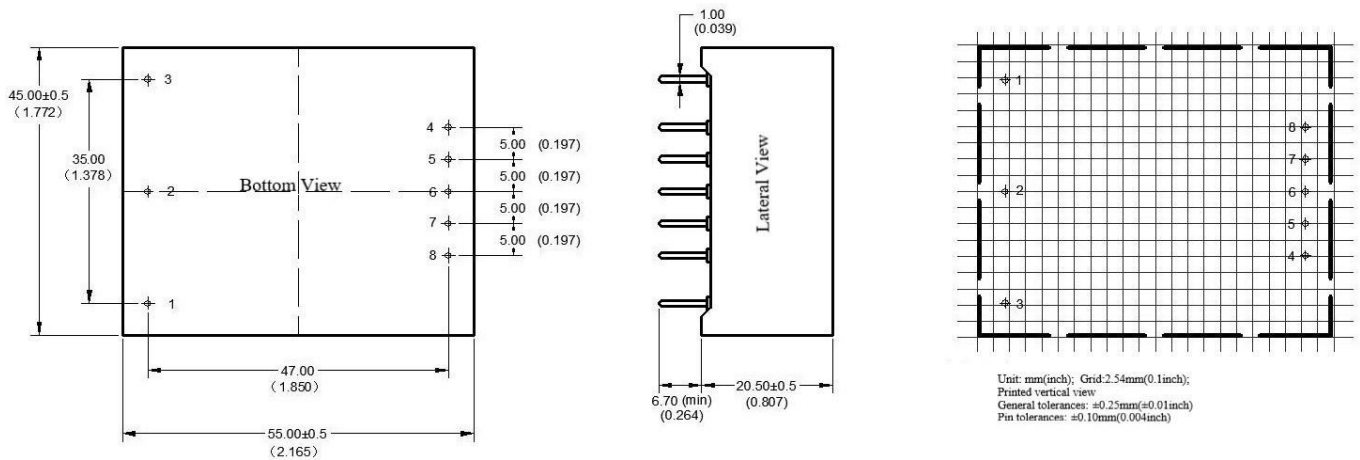
| Items | Working Conditions | Min | Typ. | Max | Note |
|-----------------------|---|---------------------|------|-----|------|
| Switching Frequency | - | 61 | 65 | 73 | KHz |
| Operating Temperature | - | -40 | - | +75 | °C |
| | Need to use base on temperature derating curve. Please refer to "product characteristic curve" at back. | | | | |
| Storage Temperature | - | -40 | - | +85 | |
| Soldering Temperature | Wave soldering | 260±4°C, time 5-10S | | | |
| | Manual soldering | 360±8°C, time 4-7S | | | |
| Relative Humidity | - | 10 | - | 90 | %RH |

| | | | | | |
|---------------------|--|------------------------------|---|---|-----|
| Isolation Voltage | I/P-O/P test 1m, leakage current ≤5mA | 3750 | - | - | VAC |
| Insulation Resistor | I/P-O/P DC500V | 100 | - | - | MΩ |
| Vibration | - | 10-55Hz,10G,30Min,alongX,Y,Z | | | |
| MTBF | - | MIL-HDBK-217F 25°C>300,000H | | | |

EMC Characteristics

| Items | Sub Items | Standard | Class |
|-------|-----------|-----------------|---|
| EMI | CE | CISPR22/EN55032 | CLASS B (see recommended circuit Photo 1) |
| | RE | CISPR22/EN55032 | CLASS B (see recommended circuit Photo 1) |
| EMS | RS | IEC/EN61000-4-3 | 10V/m Perf.Criteria A |
| | CS | IEC/EN61000-4-6 | 10Vr.m.s Perf.Criteria A |
| | ESD | IEC/EN61000-4-2 | ±6KV /8KV(bare board) Perf.Criteria B |
| | Surge | IEC/EN61000-4-5 | ±1KV(bare board) Perf.Criteria B |
| | EFT | IEC/EN61000-4-4 | ±1KV (bare board) Perf.Criteria B |

Dimensions



| | | |
|--------------|---------------------|---------------------------|
| Packing Code | L x W x H | |
| E2 | 55 x 45.0 x 20.5 mm | 2.165 x 1.772 x 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 | -Vo |

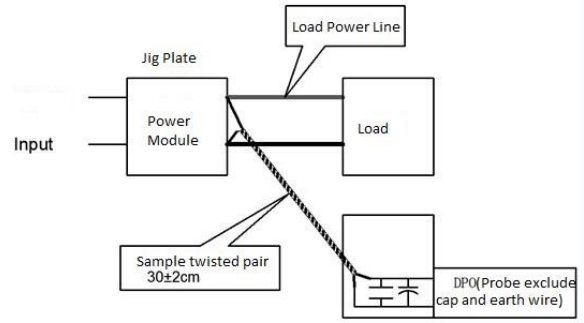
Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

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

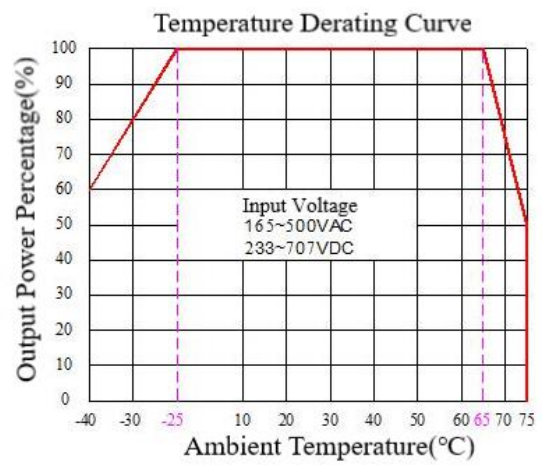
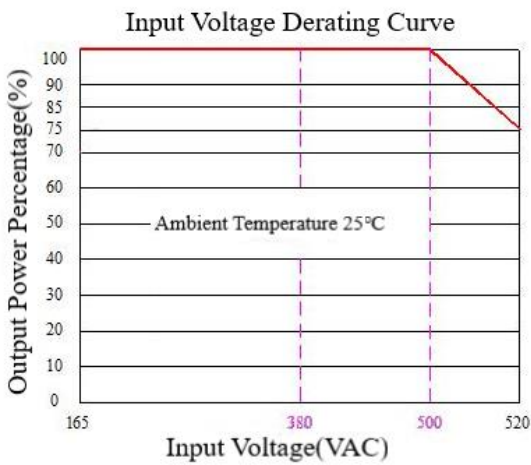
Test Method:

(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHZ, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 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



- Note
- 1: Input Voltage should be derated base on Input Voltage Derating Curve when it is 500~520VAC/ 707~735VDC.
 - 2: Our product is suitable to use under natural air cooling environment, if use it under closed condition, please contact with us.

Typical Application Circuit

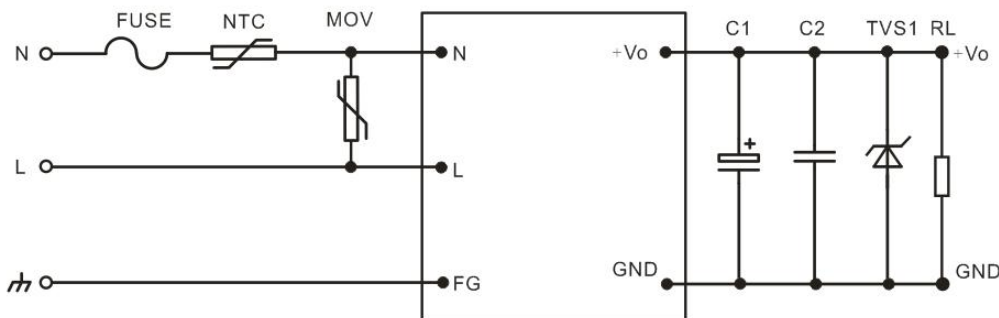


Photo 1

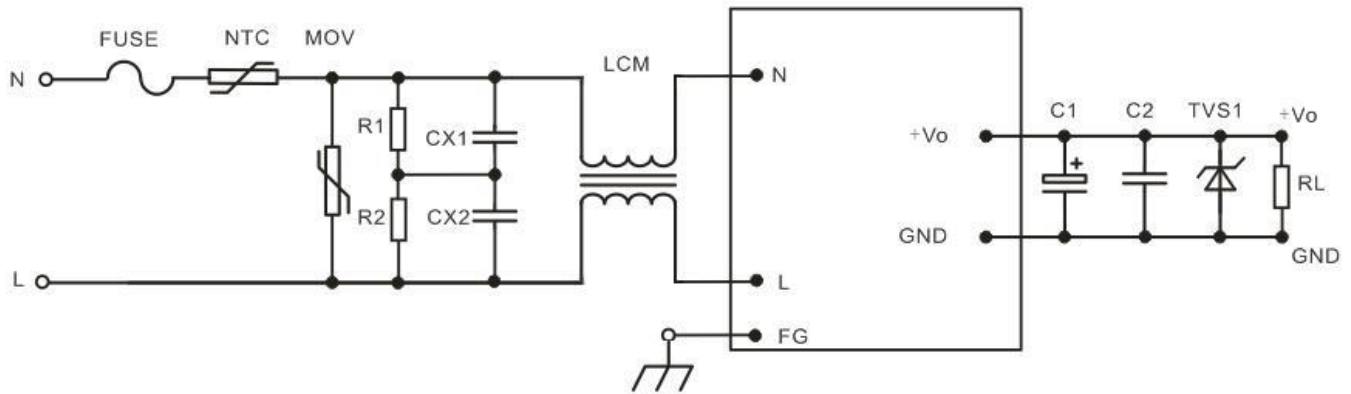


Photo 2

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) CX1, CX2: 0.1μF/275VAC;
 - 4) LCM: 10mH-30mH;
 - 5) 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°C, 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).