



### FEATURES

- ◆ Fixed input voltage range
- ◆ Twin output
- ◆ Operating temperature: -40°C to + 85°C
- ◆ UL94-V0 package
- ◆ No external component required
- ◆ Industry standard pin out
- ◆ Short circuit protection(automatic recovery)
- ◆ Five-sided metal shielding
- ◆ MTBF>1,000,000 hours
- ◆ No heat sink required
- ◆ RoHS Compliance

### MODEL SELECTION

6MD<sup>①</sup>12<sup>②</sup>05<sup>③</sup>05<sup>④</sup>X<sup>⑤</sup>D<sup>⑥</sup>

- |   |   |
|---|---|
| ① | ② |
| ③ | ④ |
| ⑤ | ⑥ |

### APPLICATIONS

The 6MD-XD series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1)Where the voltage of the input power supply is fixed voltage range;
- 2)Where isolation is necessary between input and output (Isolation Voltage 1500VDC);
- 3)Where isolation is necessary between Vout1 and Vout2 (Isolation Voltage 1000VDC);
- 4)Where the regulation of the output voltage and the output ripple noise are demanded.

### PRODUCT ID DESCRIPTION

TOP

BOTTOM



### PRODUCT PROGRAM

Part Number	Input			No-load Current (mA,Typ)	Output			Efficiency (%Typ)
	Voltage(VDC)				Voltage (VDC)	Current(MA)		
	Nomina	Range	Max*			Max	Min.	
6MD120505XD	12	10.8-13.2	15	25	5/5	600/600	60/60	76
6MD120707XD	12	10.8-13.2	15	25	7.2/7.2	417/417	42/42	79
6MD120909XD	12	10.8-13.2	15	25	9/9	333/333	33/33	78
6MD121212XD	12	10.8-13.2	15	25	12/12	250/250	25/25	80
6MD121515XD	12	10.8-13.2	15	25	15/15	200/200	20/20	81
6MD122424XD	12	10.8-13.2	15	25	24/24	125/125	13/13	82
6MD240505XD	24	21.6-26.4	30	15	5/5	600/600	60/60	76
6MD240512XD	24	21.6-26.4	30	15	5/12	600/250	60/25	77
6MD241212XD	24	21.6-26.4	30	15	12/12	250/250	25/25	80
6MD241515XD	24	21.6-26.4	30	15	15/15	200/200	20/20	79
6MD242405XD	24	21.6-26.4	30	15	24/05	125/600	13/60	81
6MD242424XD	24	21.6-26.4	30	15	24/24	125/125	13/13	81
6MD480505XD	48	43.2-52.5	60	10	5/5	600/600	60/60	76
6MD480512XD	48	43.2-52.5	60	10	5/12	600/250	60/25	78
6MD480909XD	48	43.2-52.5	60	10	9/9	333/333	33/33	78
6MD481212XD	48	43.2-52.5	60	10	12/12	250/250	25/25	80
6MD481515XD	48	43.2-52.5	60	10	15/15	200/200	20/20	81
6MD482424XD	48	43.2-52.5	60	10	24/24	125/125	13/13	82

\*Input voltage can't exceed this value, or will cause the permanent damage.

### COMMON SPECIFICATIONS

Storage humidity			95	%
Operating temperature		-40	85	°C
Storage Temperature		-55	125	
Temp. rise at full load			15	
Lead temperature	1.5mm from case for 10 seconds		300	
Cooling	Free Air Convection			
Case Material	Plastic (UL94-V0)			
Short circuit protection	Continuous, Automatic Recovery			
MTBF		1000		K hours
Weight			15	g

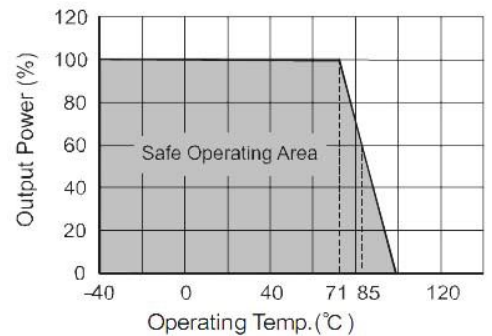


CE REACH

**ISOLATION SPECIFICATIONS**

Isolation voltage	Tested for 1 minute and 1mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			M
Isolation capacitance	Input/Output, 100KHz/1V		100		pF

**TYPICAL CHARACTERISTICS**



**APPLICATION NOTE**

In order to ensure the product operate efficiently and reliably, in addition to a max load (namely full load), a minimum load is specified for this kind of DC/DC converter. Make sure the specified range of input voltage is not exceeded, the minimum output load no less than 10% load. If the actual load is less than the specified minimum load, the output ripple may increase sharply while its efficiency and reliability will reduce greatly. If the actual output power is very small, please add an appropriate resistor as extra loading, or contact our company for other lower output power products.

All the MD-XD Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load (see Figure 1).

If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high, or may cause start-up problem. If you want to use the products in high EMI, please choose our metal packaged products. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees

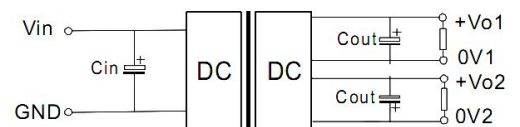
(Table 1). General:

- Cin: 5V,12V 100μF
- 24V&48V 22μF/10μF
- Cout: 10μF/100mA

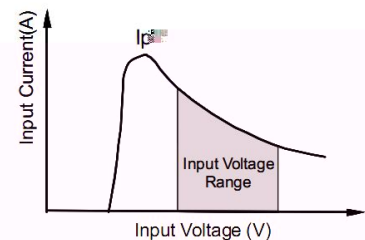
While using unstable power source, please ensure the output voltage and ripple voltage do not exceed indexes of the converter. The preceding power source must be able to provide for converter sufficient starting current Ip (Figure 2).

General:  $I_p \leq 1.4 \cdot I_{in-max}$

**RECOMMENDED CIRCUIT**



(Figure 1)



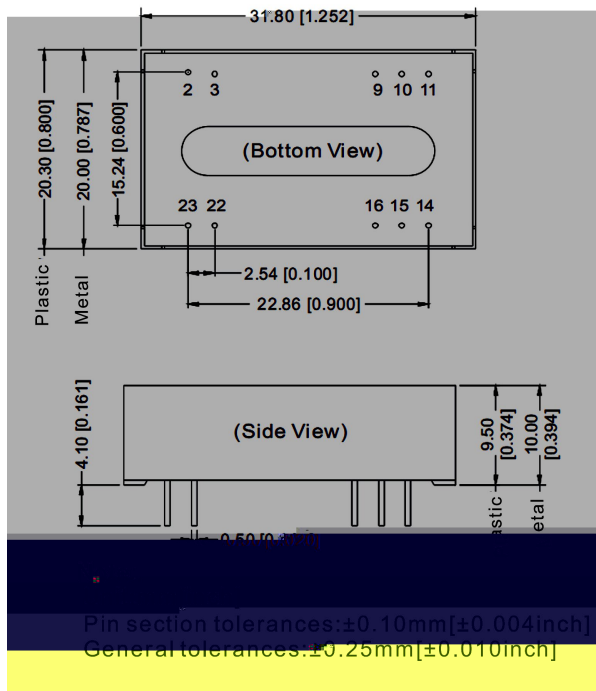
(Figure 2)

**EXTERNAL CAPACITOR TABLE (TABLE 1)**



**OUTLINE DIMENSIONS & FOOTPRINT DETAILS**

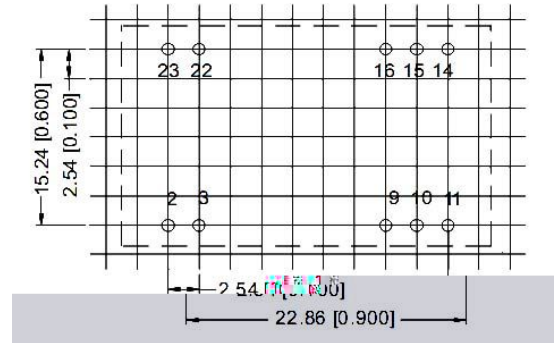
**MECHANICAL DIMENSIONS**



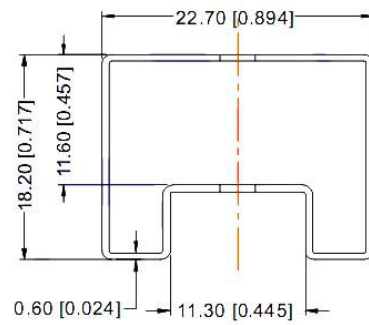
**FOOTPRINT DETAILS**

Pin	Function
2, 3	GND
9	+Vo2
10, 15	NC
11	0V2
14	+Vo1
16	0V1
22, 23	NC: No connection

**RECOMMENDED FOOTPRINT(TOP VIEW)**



**TUBE OUTLINE DIMENSIONS**



Note:

Unit :mm[inch]

General tolerances:  $\pm 0.50\text{mm} [\pm 0.020\text{inch}]$

L=530mm[20.866inch] Tube Quantity: 7 pcs

L=220mm[8.661inch] Tube Quantity: 6 pcs