



Typical Features

- ◆ Wide input voltage range (4:1), Output Power 6W
- ◆ Transfer Efficiency up to 90%
- ◆ Stand-by Power Consumption as low as 0.05W
- ◆ Output super-fast start up
- ◆ Continuous Short Circuit protection, Self-recovery
- ◆ Input under voltage, output over voltage, short circuit, over current protection
- ◆ Switching Frequency 300KHz
- ◆ Isolation Voltage: 5000VDC
- ◆ Operating Temperature:-40°C~+85°C
- ◆ Good EMI performance
- ◆ International standard pin-out



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°C

Application Field

FD6-XXSXXB2C5 The newly developed DIP standard 2X1 package for our company, 6W output power, ultra-wide voltage 4:1 input range, ultra-low standby power consumption, isolated regulated output, DC-DC module power supply, can be widely used in industrial control, instrumentation , Communications, power, Internet of Things and other fields. When the product is used in a harsh environment with electromagnetic compatibility, please refer to the application circuit given by our company.

Typical Product List

Certificate	Model no.	Input Voltage Range (VDC)		Output Voltage/Current (Vo/Io)		Input Current (mA) Nominal Voltage		Max. Capacitive Load uF	Ripple & Noise		Efficiency (%)@output full load,	
		Nominal	Range	Voltage (VDC)	Current (mA) MAX./Min	Full load typ	No load typ		mVp-p		Min	Typ
									Typ	Max		
-	*FD6-18S3V3B2C5	24	9-36	3.3	1200/0	189	30	8000	50	100	84	87
-	FD6-18S05B2C5	24	9-36	5	1200/0	285	25	5000	50	100	86	88
-	*FD6-18S09B2C5	24	9-36	9	667/0	278	30	2000	50	100	86	88
-	FD6-18S12B2C5	24	9-36	12	500/0	283	3	470	50	100	86	88
-	*FD6-18S15B2C5	24	9-36	15	400/0	278	2	470	50	100	86	88
-	FD6-18S24B2C5	24	9-36	24	250/0	278	2	470	50	100	85	87
-	*FD6-36S3V3B2C5	48	18-75	3.3	1200/0	95	30	8000	50	100	83	86
-	*FD6-36S05B2C5	48	18-75	5	1200/0	142	30	5000	50	100	85	88
-	*FD6-36S09B2C5	48	18-75	9	667/0	139	30	2000	50	100	87	90
-	*FD6-36S12B2C5	48	18-75	12	500/0	139	2	1000	50	100	87	90
-	*FD6-36S15B2C5	48	18-75	15	400/0	139	2	800	50	100	87	90
-	*FD6-36S24B2C5	48	18-75	24	250/0	139	2	500	50	100	87	90



- 1: "*" are models being developing;
- 2: Max capacitive load is, when the power supply is fully loaded, the max capacity could be connected to output, if exceed, the power supply cannot start-up;
- 3: In order to reduce the no-load power consumption and improve the light-load efficiency, the IC works in the state of frequency jitter at no-load and light-load, and the output cannot be no-load. At least an electrolytic capacitor with a 10% load or a high-frequency resistance above 330uF is required, otherwise it will cause Increased output voltage ripple;
- 4: Due to limited space, the above is only a partial list of products. If you need products other than those listed, please contact the sales department of our company.

Input characteristics

Stand-by Consumption	0.05 W(TYP)		
Input Filter	π filter		
Input Under-Voltage Protection	5~9VDC	FD6-18SXXB2C5 input	
	11~18VDC	FD6-36SXXB2C5 input	
CTRL*	Module Turn-on	CTRL suspended or connect to TTL high level (2.5-12VDC)	
	Module Turn-off	CTRL connect to GND or low level (0-1.2VDC)	
	Input current when switched off	5mA (TYP)	

Note: *CTRL control pin voltage is relative to the input pin GND.

Output Specification

Output Voltage Accuracy	Full voltage full load	Vo	±2.0%
Voltage Regulation	Nominal load, full voltage range	Vo	≤±0.5%
Load Regulation	10% ~ 100% nominal load	Vo	≤±1.0%
Ripple & Noise	Nominal load, nominal voltage Twisted Pair Method,20M Hz bandwidth;	When ≤15% load,	5%Vo mVp-p typ
		When ≥15%load,	50mVp-p typ, 100mVp-p max
Output Over-voltage	110%~200%Vo		
Output Over-load Protection	Min:120%Io , Typ 250%Io		
Output Short circuit	Continuous, Self-recovery		
Dynamic Response	25% nominal load step change ΔVo/Δt	3.3V, 5Voutput	±5% typ , ±8% max /500us
		Others output	±3% typ , ±5% max /500us
Output Voltage Adjustment	No adjustment		
Turn-on delay time	Typical	20ms	
Output Turn-on Overshoot Voltage	-	≤10%Vo	

Note: * The test method of ripple & noise adopts twisted pair test method



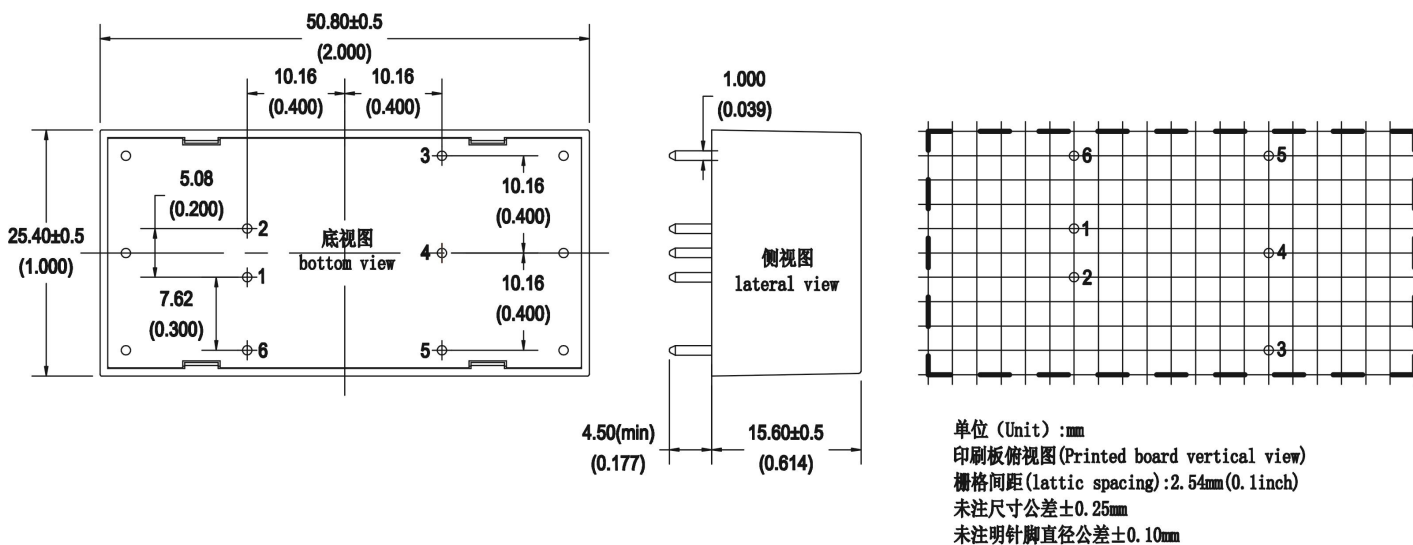
General Specification

Switching Frequency	Typical	350KHz
Operating Temperature	Refer to Temperature Derating Curve	-40°C ~ +85°C
Storage Temperature	-	-55°C ~ +125°C
Max housing Temperature	With Operating Curve	+105°C
Relative Humidity	No condensing	5%~95%
Housing material	-	Black flame-retardant and heat-resistant plastic shell
Cooling Method	-	Free air convection
Isolation Voltage	Input to output	5000Vdc ≤ 0.5mA / 1min
Meantime between Failure	MIL-HDBK-217F 25°C	2X10 ⁵ Hrs
Weight	average	35g

EMC Characteristics

Total Items		Sub items	Test standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
		RE	CISPR22/EN55032	CLASS B (see recommended circuit photo②)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (see recommended circuit photo2)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (see recommended circuit photo 2)
		ESD	IEC/EN61000-4-2	Contact ±4KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B (see recommended circuit photo1)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B (see recommended circuit photo 1)
		Voltage dips, short interruptions and voltage variations	IEC/EN61000-4-11	0%~70% Perf.Criteria B

B2C5 Packing Dimension



Part no.	L x W x H
B	50.8X 25.4X15.6 mm

Pin definition

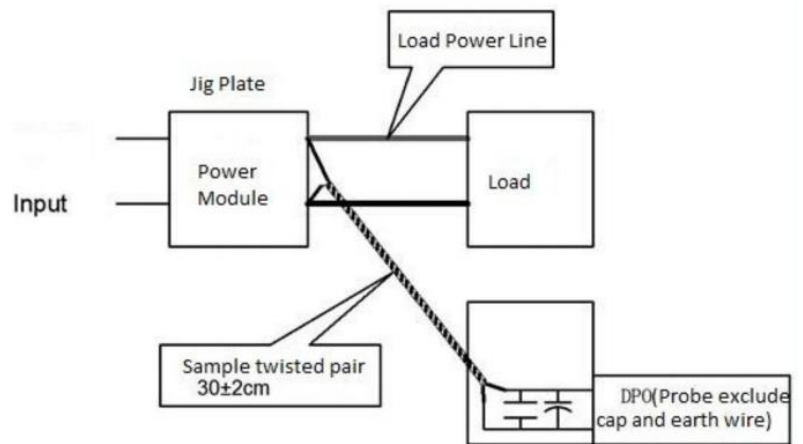
PIN	1	2	3	4	5	6
(S)	-Vin	+Vin	+Vout	NP	GND	CTRL



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 10uF 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.

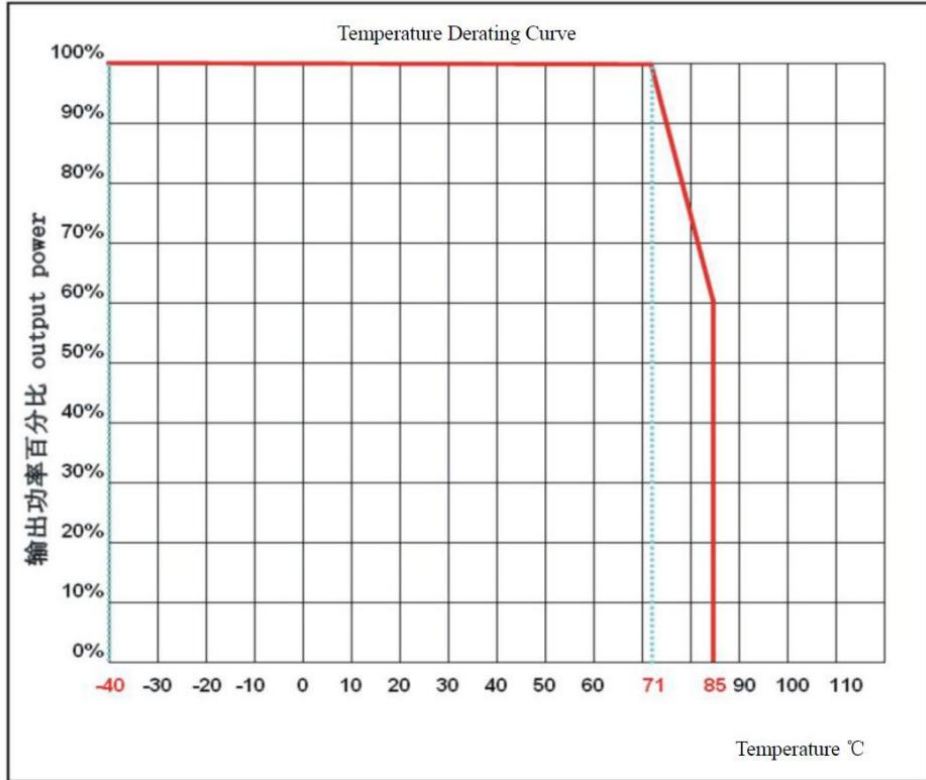


Application Reference:

1. The recommended minimum load is 15% or above 470uF high frequency low resistance electrolytic capacitor, or output ripple will rise;
2. Recommend the unbalance loads of dual output to be $\leq \pm 5\%$;
3. The maximum capacitive load is tested under pure resistance and full load condition;
4. Our company could provide whole power supply solution, or customized made items; Due to space limitation, please contact Our team for more information.



Product Characteristic Curve

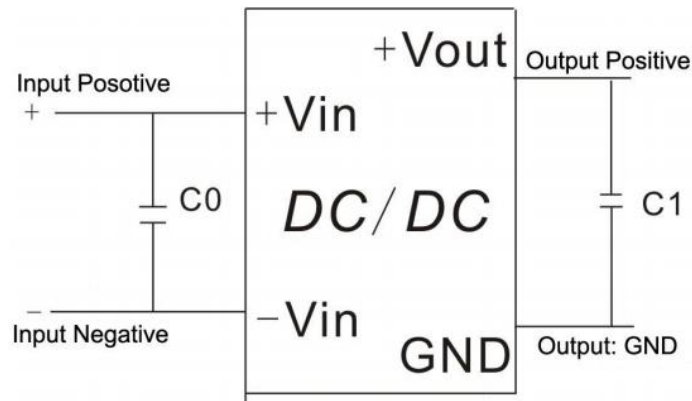


Reference circuit

Recommended circuit

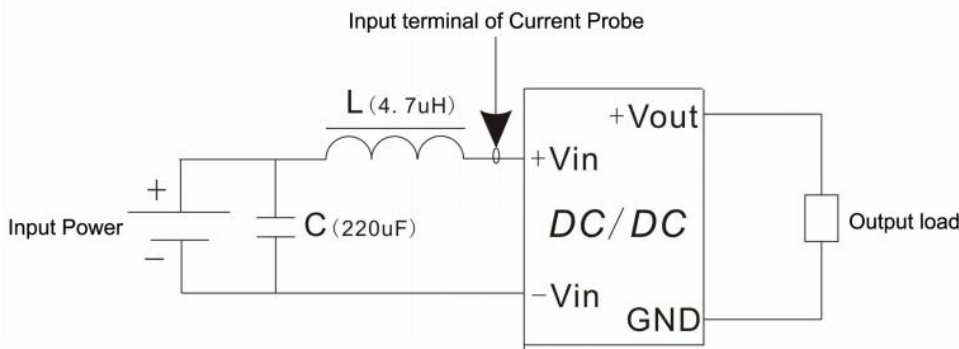
1、DC/DC test circuit:

Normal recommended capacitors: C0: 47-100uF; C1; 330uF.

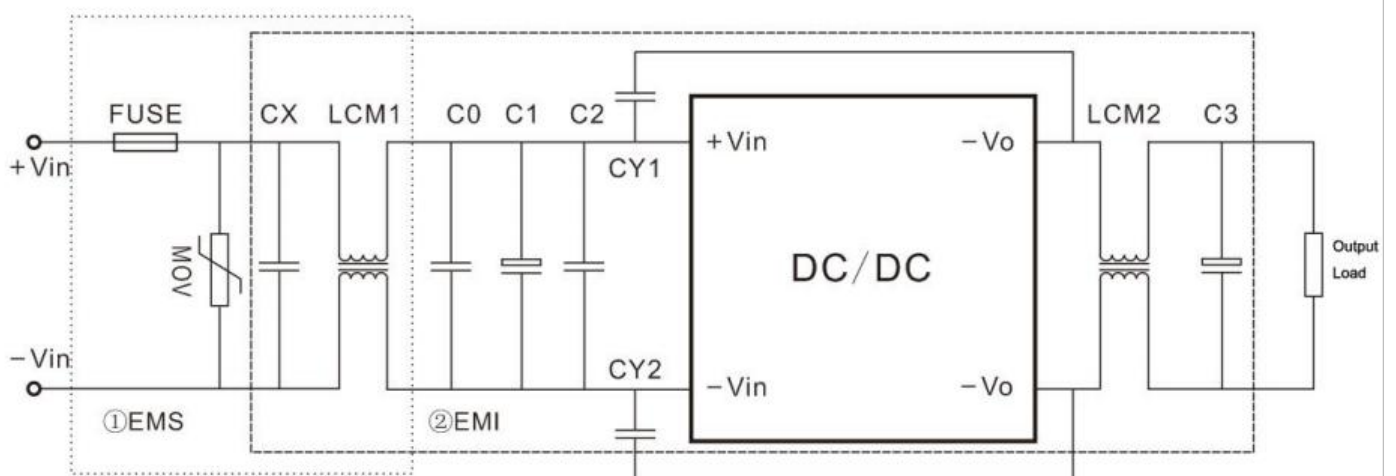


2、Input reflecting ripple current test circuit:

Capacitor C choose low ESR ones, withstand voltage value should be bigger than max input voltage;



3、EMC external recommended circuit:



参数推荐:



Device no.	FD6-18SXXB2C5 input product	FD6-36SXXB2C5 input product
FUSE	Connect the corresponding fuse according to customer needs	
MOV	14D560K	14D101K
CX	0.47uF	0.47uF
LCM1	10mH	10mH
C0	1uF/100V	1uF/100V
C1	220uF/100V	220uF/100V
C2	1uF/100V	1uF/100V
LCM2	30uH	30uH
C3	47uF/50V	47uF/50V
CY1,CY2	1nF/2000V	

Note:

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;
2. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
3. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
4. Unless otherwise specified, the above data is measured when $T_a=25^{\circ}\text{C}$, humidity <75%, input nominal voltage and output rated load (pure resistance load);
5. All the above index test methods are based on the company's standards;
6. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard products will exceed the above requirements. For specific information, please contact our technical staff directly;
7. Our company can provide product customization;
8. Product specifications are subject to change without notice. Please pay attention to the latest manual published on our official website.