DC/DC Converter

SIF_XT-1WR2 series

1W, Fixed input voltage , isolated & regulated single output

Continuous Short Circuit Protection

1 Year Warranty

RoHS

FEATURES

- Efficiency up to 75%
- Isolation voltage: 3K VDC
- Operating temperature range: -40℃ to +85℃
- Miniature SMD package
- Surface mounted design
- No external components
- International standard pin-out

SIF_XT-1WR2 series is specially designed for applications where an isolated voltage is required in a distributed power supply system. It is suitable for:

1.Where the voltage of the input power supply is stable (voltage variation: 5%Vin);

2.Where isolation is necessary between input and output (isolation voltage ! 3000VDC);

3.Where has high requirement of line regulation, load regulat ion and the ripple & noise of the output voltage.

Selection Guide

Part No.	Input Voltage (VDC)	Output		Efficiency (%,Min./Typ.) @ Full Load	Max. Capacitive Load (μF)
	Nominal (Range)	Output Voltage (VDC)	Output Current (mA) (Max./Min.)		
SIF0503XT-1WR2	5 (4.75-5.25)	3.3	243/25	54/58	220
SIF0505XT-1WR2		5	200/20	68/72	
SIF0512XT-1WR2		12	83/9	69/73	
SIF0515XT-1WR2		15	67/7	70/74	
SIF1205XT-1WR2	12 (11.4-12.6)	5	200/20	69/73	
SIF1212XT-1WR2		12	83/9	69/73	
SIF2405XT-1WR2	24 (22.8-25.2)	5	200/20	69/73	
SIF2412XT-1WR2		12	83/9	69/73	

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	5V input	--	270/15	--	mA
	12V input	--	115/10	--	
	24V input	--	56/7	--	
Surge Voltage (1sec. max.)	5V input	-0.7	--	9	VDC
	12V input	-0.7	--	18	
	24V input	-0.7	--	30	
Reflected Ripple Current		--	15	--	mA
Input Filter		Capacitance Filter			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	100% load		--	--	±3	%
Line Regulation	Input voltage change: ±1%		--	--	±0.25	
Load Regulation	10%-100% load	3.3VDC output	--	--	3	
		Other output	--	--	2	
Ripple*	20MHz bandwidth		--	10	--	mVp-p
Noise*			--	50	--	
Temperature Coefficient	100% load		--	--	±0.03	%/℃
Short Circuit Protection			Continuous, self-recovery			

Note: * Ripple and noise tested with "parallel cable" method, please see *DC-DC Converter Application Notes* for specific operation methods.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	3000	--	--	VDC
Isolation Resistance	Input-output, isolation Voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	20	--	pF
Operating Temperature	Derating when operating temperature up to 71℃, (see Fig. 1)	-40	--	85	℃
Storage Temperature		-55	--	125	
Casing Temperature Rise	Ta =25℃	--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10	--	--	300	
Reflow Soldering Temperature		Peak temp.≤245℃, maximum duration time≤60s at 217℃. For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
Storage Humidity	Non-condensing	--	--	95	%
Switching Frequency	100% load, nominal input voltage	--	100	300	KHz
MTBF	MIL-HDFK-217F@25℃	3500	--	--	K hours

Physical Specifications

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94-V0)
Package Dimensions	15.24*11.20*7.25mm
Weight	2.0g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMI	Conducted disturbance	CISPR22/EN55022 CLASS B (see Fig. 3 for recommended circuit)
	Radiated emission	CISPR22/EN55022 CLASS B (see Fig. 3 for recommended circuit)
EMS	Electrostatic discharge	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B

Product Characteristic Curve

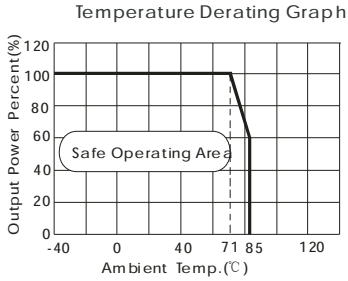
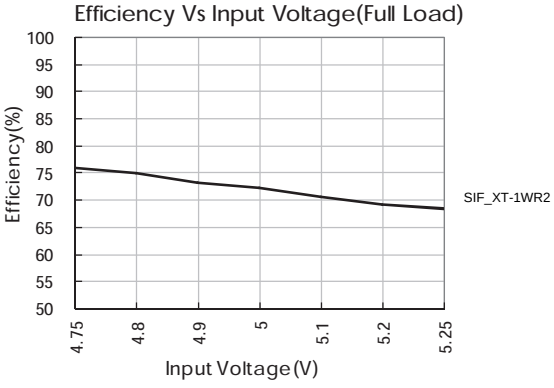
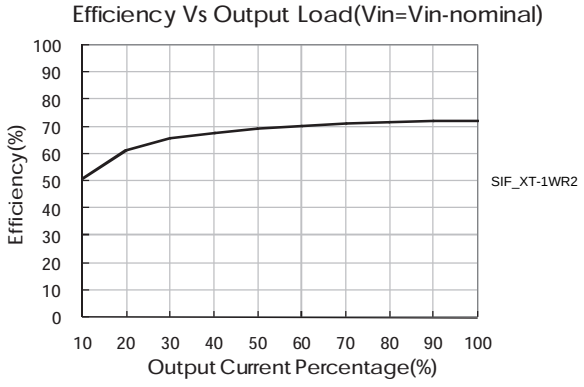
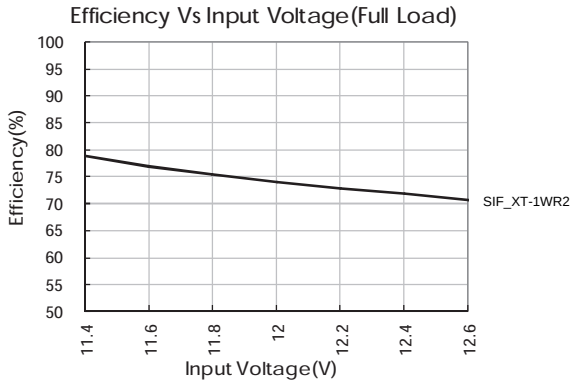
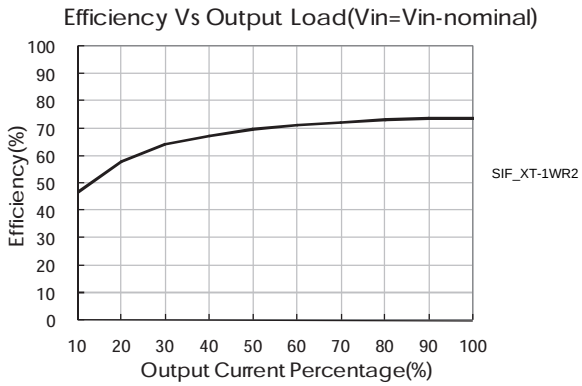


Fig. 1









Design Reference

1. Typical application

If it is required to further reduce input and output ripple, a filter capacitor can be connected to the input and output terminals, see Fig.2. Moreover, choosing suitable filter capacitor is very important , start-up problems may be caused by too large capacitance.To ensured the modules running well, the recommended capacitive load values as shown in Table 1.

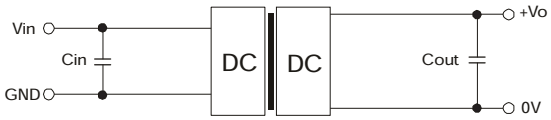


Fig.2

Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(μF)	Vo (VDC)	Cout(μF)
5	4.7	3.3/5	10
12	2.2	12	2.2
24	1	15	1

It is not recommended to connect any external capacitor when output power is less than 0.5W.

2. EMC typical recommended circuit

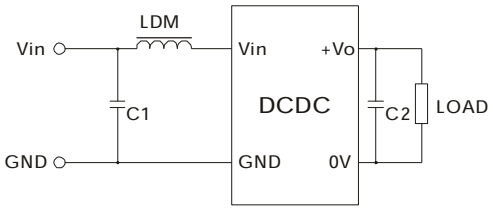


Fig. 3

Input voltage (V)		5/12/24
EMI	C1	4.7μF /50V
	C2	Refer to the Cout in Fig.2
	LDM	6.8μH

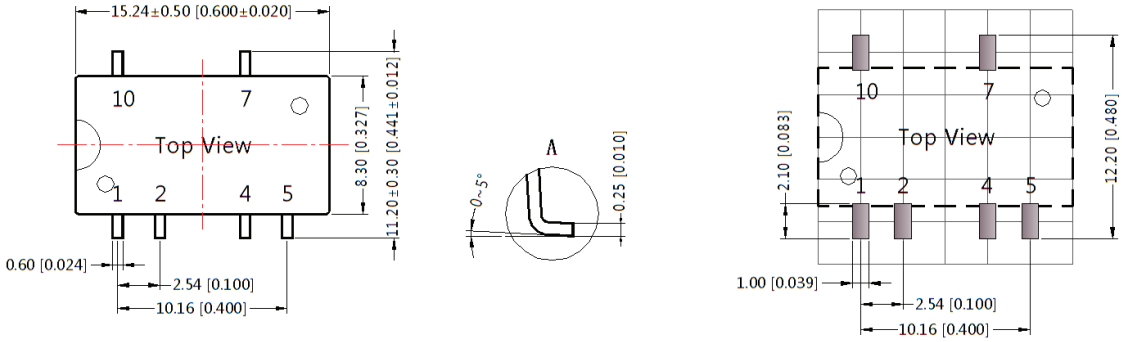
Note: It is not needed to add the component in the peripheral circuit when parameter with the symbol of "--"

3. Output load requirements

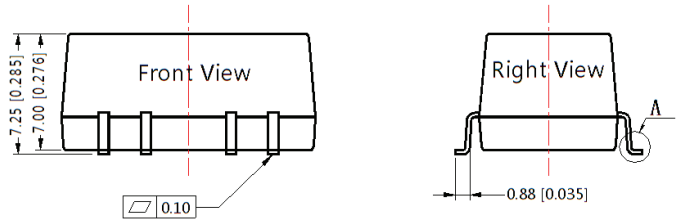
To ensure the module work efficiently and reliably, during the operation, the min. output load should be no less than 10% of the full load. If the actual output power is low, please connect a resister to the output terminal in parallel, with a recommenced resistance which is 10% of the rated power, and derating is required during operation.

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm



Note:
Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

Pin-Out	
Pin	Function
1	GND
2	Vin
4	0V
5	0V
7	+Vo
10	NC

NC: No Connection

Notes:

1. Packing information please refer to "Product Packing Information".Packing bag number: 58210023;
2. If the product is operated out of the min. load requirement, the product performance may not meet all parameter indexes in this datasheet;
3. The max. capacitive load offered is tested at nominal input voltage and full load;
4. Unless otherwise specified,parameter indexes in this datasheet is measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
5. All testing methods in this datasheet are based on our Company’s corporate standards;
6. The parameter indexes above are for the modules listed in this datasheet, for non-standard module's parameter indexes, please contact our technicians for specific information;
7. We can provide custom design;
8. Specifications are subject to change without prior notice.