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

Continuous Short Circuit Protection

Patent Protection RoHS

FEATURES

- High efficiency up to 74%
- Isolation voltage: 3K VDC
- Operating temperature range: -40℃ to +85℃
- Compact SMD package
- Internal surface mounted design
- No external component required
- International standard pin-out

IF_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 regulation 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.)		
IF0503XT-1WR2	5 (4.75-5.25)	3.3	243/25	54/58	220
IF0505XT-1WR2		5	200/20	68/72	
IF0512XT-1WR2		12	83/9	69/73	
IF0515XT-1WR2		15	67/7	70/74	
IF1205XT-1WR2	12 (11.4-12.6)	5	200/20	69/73	
IF1212XT-1WR2		12	83/9	69/73	
IF2405XT-1WR2	24 (22.8-25.2)	5	200/20	69/73	
IF2412XT-1WR2		12	83/9	68/72	

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	5V input	--	270/15	--/40	mA
	12V input	--	115/10	--/30	
	24V input	--	56/7	--/20	
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			
Hot Plug		Unavailable			
Note: * Reflected ripple current testing method please see DC-DC Converter Application Notes for specific operation.					

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	30	mVp-p
Noise*			--	50	100	

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
Insulation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	3000	--	--	VDC
Insulation 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 seconds	--	--	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	%RH
Switching Frequency	100% load, nominal input voltage	--	100	--	KHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	K hours

Physical Specifications

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94 V-0)
Package Dimensions	15.24*11.20*7.25mm
Weight	2.0g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMI	CE	CISPR22/EN55022 CLASS B (see Fig. 3 for recommended circuit)
	RE	CISPR22/EN55022 CLASS B (see Fig. 3 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B

Product Characteristic Curve

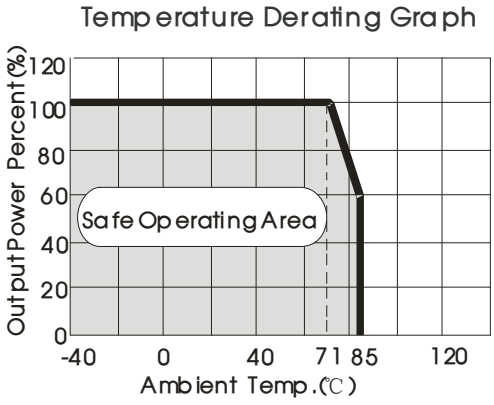
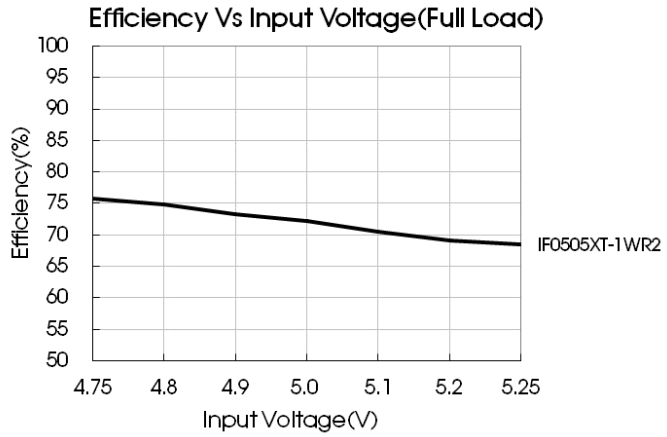
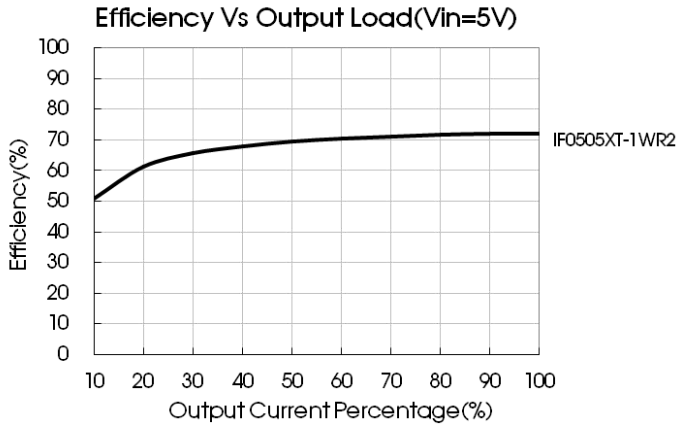
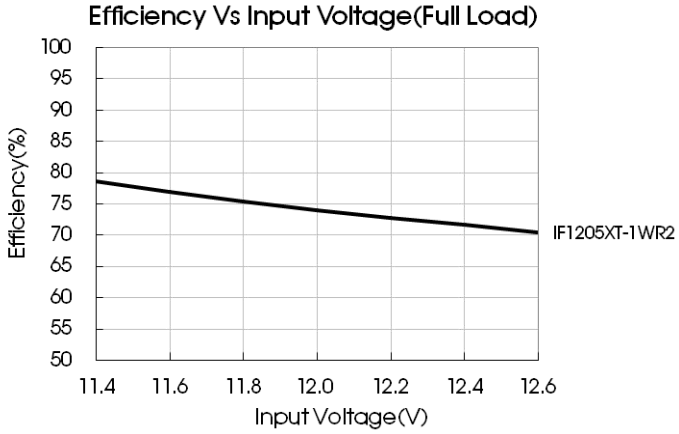
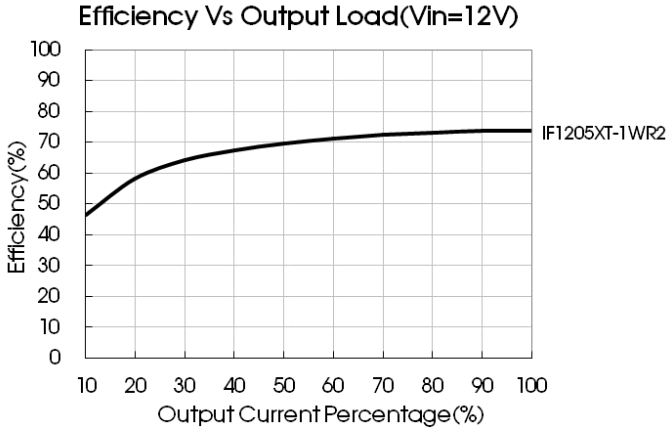


Fig. 1









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.

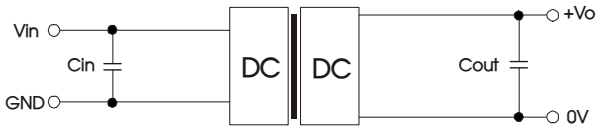


Fig.2

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

2. EMC typical recommended circuit

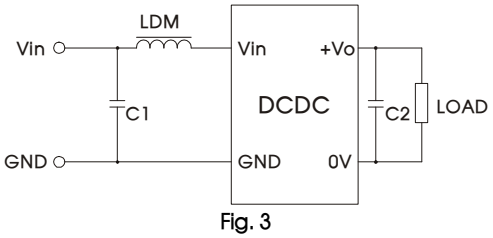


Fig. 3

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

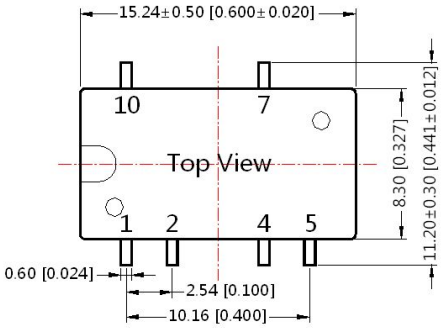
3. Output load requirements

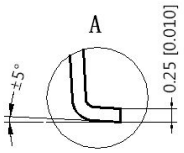
In order to ensure the converter can work reliably with high efficiency, the minimum load should not less than 10% rated load when it is used. If the needed power is indeed small, please parallel a resistor on the output side (The sum of the efficient power and resistor consumption power is not less than 10%).

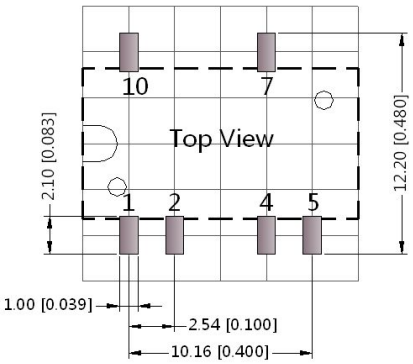
4. For more information please find DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout

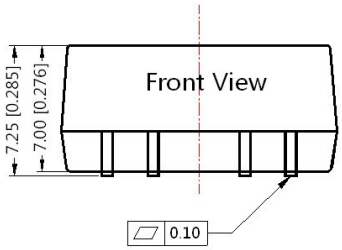
THIRD ANGLE PROJECTION

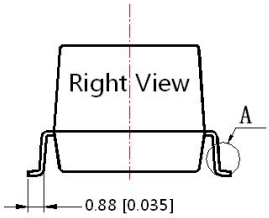






Note: Grid 2.54*2.54mm





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: Pin to be isolated from circuitry

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58210023;
2. 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;
3. The maximum capacitive load offered were tested at input voltage range and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Specifications are subject to change without prior notice.

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