

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



Continuous Short Circuit Protection

Patent Protection RoHS

FEATURES

- Short circuit protection (self-recovery)
- Operating temperature range: -50°C to +125°C
- Isolation voltage: 3.5K VDC
- Compact SMD package
- Internal surface mounted design
- International standard pin-out
- Components meet AEC-Q100 standards
- The production process meet TS16949 system requirements

The CF0505XT-1WR2 is designed for application where isolated output is required from a distributed power system. It can be used in automobile motor control and drive system. Such as motor vehicle communication system controller, engine control system, the ignition system, the motor voltage monitoring, the electronic accelerator pedal, automobile tire pressure detection system, doors and tail lights controller, air conditioning control and battery management system (BMS), etc.

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.)		
CF0505XT-1WR2	5 (4.5-5.5)	5	200/20	71/75	220

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	5V input	--	267/20	--	mA
Surge Voltage (1sec. max.)	5V input	-0.7	--	9	VDC
Reflected Ripple Current		--	15	--	mA
Input Filter		Capacitor filter			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		See tolerance envelope graph (Fig. 1)			
Line Regulation	Input voltage change: ±1% 5VDC output	--	--	±1.2	--
Load Regulation	10%-100% load 5VDC output	--	12	--	%
Ripple & Noise*	20MHz bandwidth	--	60	--	mVp-p
Temperature Drift Coefficient	100% load	--	--	±0.03	%/°C
Output 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	3500	--	--	VDC
Isolation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	20	--	pF
Operating Temperature	Derating if the temperature ≥ 105°C, (see Fig. 2)	-50	--	125	°C
Storage Temperature		-55	--	135	
Casing Temperature Rise	Ta=25°C	--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	

Reflow Soldering Temperature		Peak temp. ≤240°C, maximum duration time ≤60s at 217°C. 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°C	3500	--	--	K hours

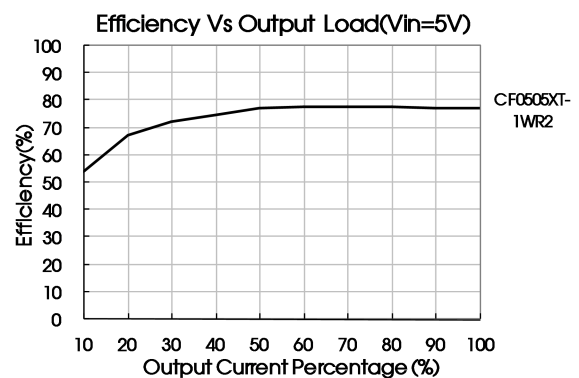
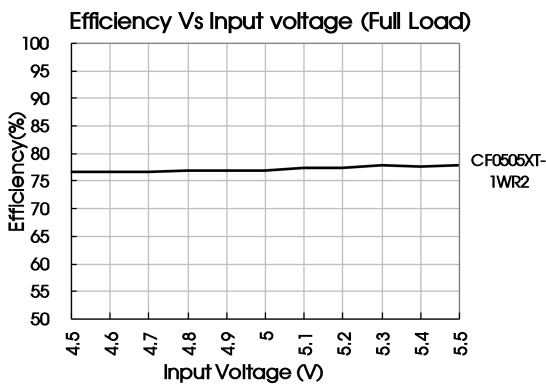
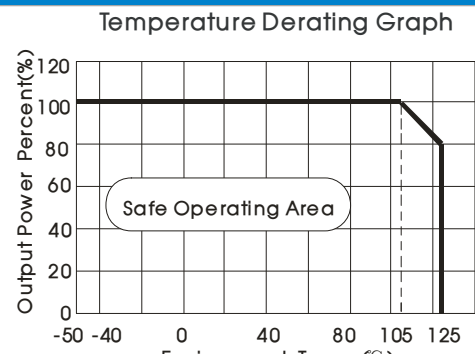
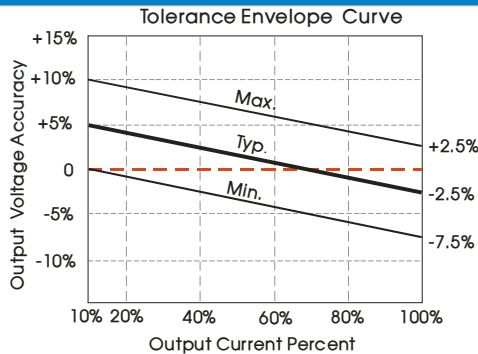
**Physical Specifications**

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94-V0)
Package Dimensions	12.70*11.20*7.25mm
Weight	1.5g (Typ.)
Cooling Method	Free air convection

**EMC Specifications**

EMI	Conducted disturbance	CISPR25/EN55025 CLASS 1 (see Fig. 5 for recommended circuit)
EMS	Electrostatic discharge	ISO10605 Contact ±6KV perf. Criteria B

**Product Characteristic Curve**

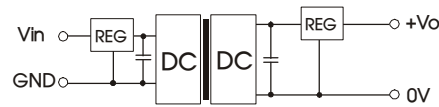


**Design Reference**

**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.3. Moreover, choosing suitable filter capacitor is very important, start-up problems may be caused by too large capacitance. To ensure the modules running well, the recommended capacitive load values as shown in Table 1.

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear regulator with overheat protection which is connected to the input or output in series (Fig. 4)



Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(μF)	Vo (VDC)	Cout(μF)
5	4.7	5	10

2. EMC typical recommended circuit

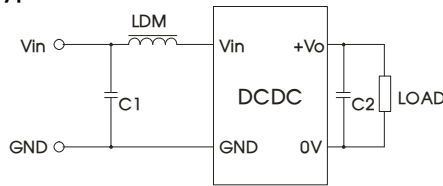


Fig. 5

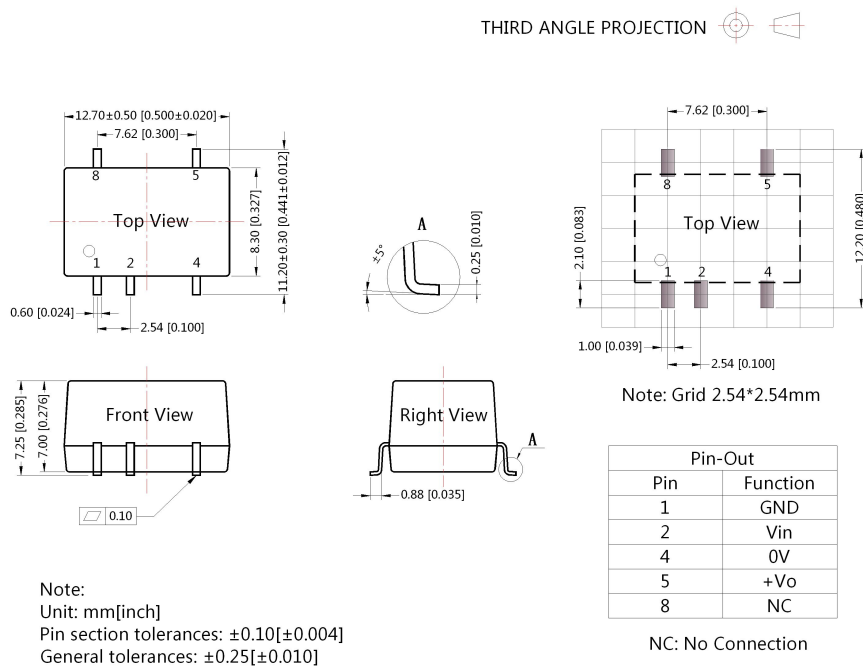
Input voltage (VDC)	5	
EMI	C1	10μF
	C2	Refer to the Cout in Fig.3
	LDM	12μH

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 the application notes on [www.mornsun-power.com](http://www.mornsun-power.com)

Dimensions and Recommended Layout



Notes:

1. Packing Information please refer to 'Product Packing Information'. Packing bag number: 58210024;
2. If the product is operated under the min. required load, the product performance cannot be guaranteed to comply with all performance indexes in this datasheet;
3. The max. capacitive load should be tested within the input voltage range and under full load conditions;
4. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta=25°C, humidity<75% when inputting nominal voltage and outputting rated 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, and please directly contact our technicians for specific information;
7. We can provide product customization service;
8. Specifications of this product are subject to changes without prior notice.

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