

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



Patent Protection RoHS

## FEATURES

- Operating temperature range: -40°C to +85°C
- Isolation voltage: 1K VDC
- SMD package
- Internal surface mounted design
- International standard pin-out
- The production is controlled by IATF16949 system requirements

CB0505T-1W 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  $\leq \pm 10\%V_{in}$ );
2. Where isolation is necessary between input and output (isolation voltage  $\leq 1000VDC$ );
3. Where do not has high requirement of line regulation, load regulation and the ripple & noise of the output voltage;  
Such as: pure digital circuits, low frequency analog circuits and IGBT power device driving circuits.

## Selection Guide

Part No.	Input Voltage (VDC)	Output		Efficiency (%Min./Typ.) @ Full Load	Max. Capacitive Load ( $\mu F$ )
	Nominal (Range)	Output Voltage (VDC)	Output Current (mA)(Max./Min.)		
CB0505T-1W	5 (4.5-5.5)	5	200/20	73/77	220

## Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)		--	260/20	-/48	mA
Surge Voltage (1sec. max.)		-0.7	--	9	VDC
Input Filter		Capacitor filter			
Hot Plug		Unavailable			

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		See tolerance envelope curve (Fig. 1)			
Line Regulation	Input voltage change: $\pm 1\%$	--	--	$\pm 1.2$	--
Load Regulation	10%-100% load	--	--	15	%
Ripple & Noise*	20MHz bandwidth	--	75	150	mVp-p
Temperature Drift Coefficient	100% load	--	--	$\pm 0.03$	%/°C
Output Short Circuit Protection**		--	--	1	s

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

\*\* Supply voltage must be discontinued at the end of short circuit duration.

## 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	1000	--	--	VDC
Isolation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	M $\Omega$
Isolation Capacitance	Input-output, 100KHz/0.1V	--	30	--	pF
Operating Temperature	Derating if the temperature $\geq 85^\circ C$ , (see Fig. 2)	-40	--	85	°C
Storage Temperature		-55	--	125	
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. $\leq 245^\circ C$ , maximum duration time $\leq 60s$ at $217^\circ C$ . 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
Vibration		10-1000Hz, 1mm.10G, along X, Y and Z (4 cycles)			
MTBF	MIL-HDBK-217F@25°C	3500	--	--	K hours

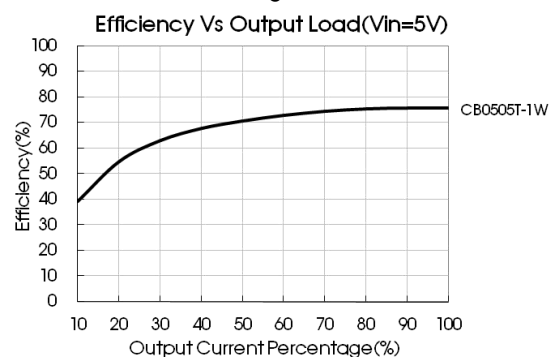
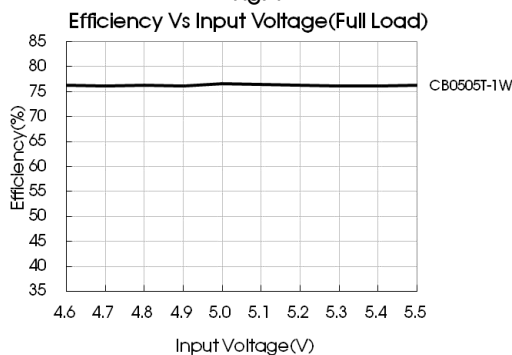
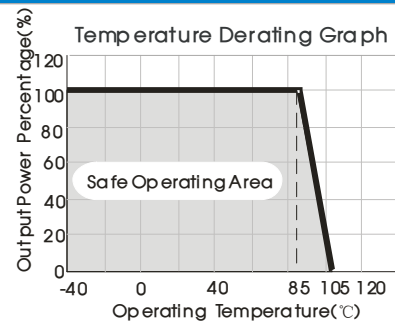
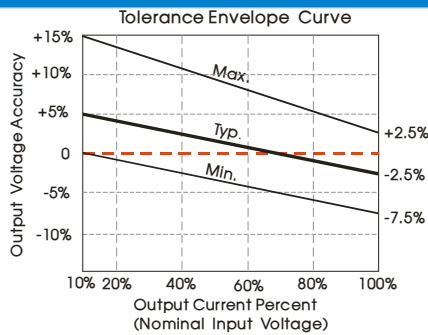
### Physical Specifications

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94 V-0)
Package Dimensions	12.70*11.20*6.25mm
Weight	1.4g(Typ.)
Cooling Method	Free air convection

### EMC Specifications

EMI	CE	CISPR32/EN55032	CLASS A (see Fig. 5 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2	Contact ±6KV perf. Criteria B

### Product Characteristic Curve

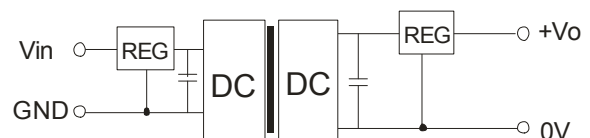


### Design Reference

#### 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 and an capacitor filtering network with overheat protection that is connected to the input or output end in series (see Fig.4)



Recommended capacitive load value table (Table 1)

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

2. EMC solution-recommended circuit

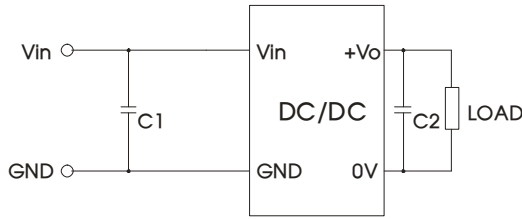


Fig. 5

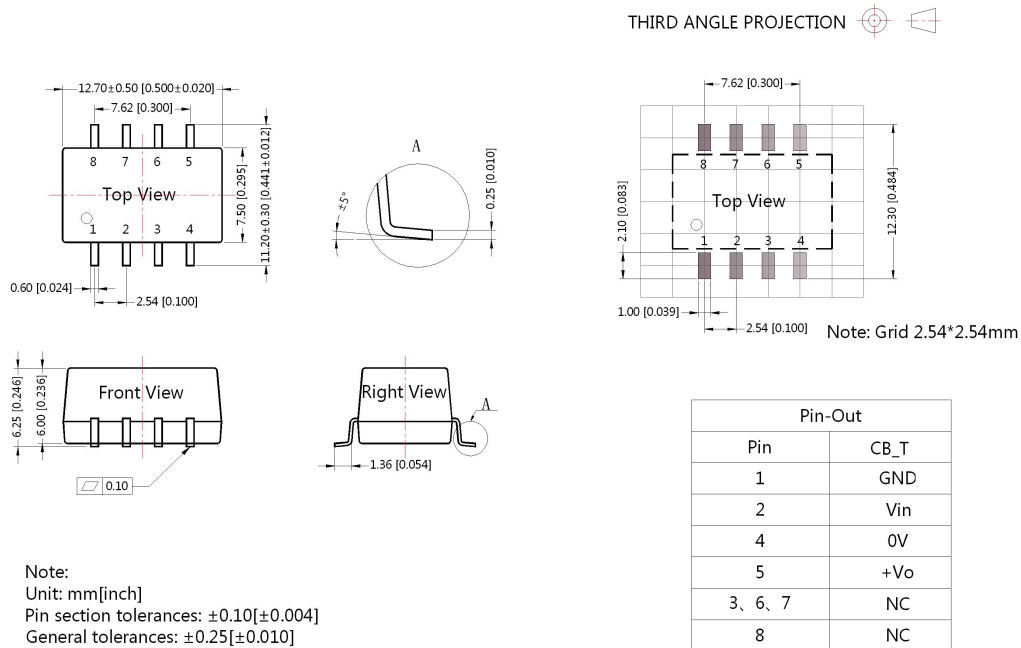
Input voltage (V)		5
EMI	C1	2.2μF /50V
	C2	Refer to the Cout in Fig.3

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



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

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](http://www.mornsun-power.com). Packing bag number: 58200021;
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°C, 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. Products are related to laws and regulations: see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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