



# B\_LT-2W Series

## FIXED INPUT ISOLATED & UNREGULATED 2W SINGLE OUTPUT ULTRAMINIATURE SMD PACKAGE

multi -country patent protection **RoHS**

### FEATURES

- High Efficiency up to 85%
- SMD Package Style
- Single Output Voltage
- High Power Density
- Industry Standard Pin out
- No Heatsink Required
- 1KVDC Isolation
- Temperature Range: -40°C~+85°C
- No External Component Required
- Custom Service Available
- RoHS Compliance

### APPLICATIONS

The B\_LT-2W Series are specially designed for applications where a single power supply is isolated from the input power supply in a distributed power supply system on a circuit board.

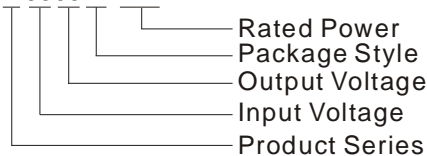
These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ );
- 2) Where isolation is necessary between input and output (isolation voltage = 1000VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

### MODEL SELECTION

B0505LT-2W



PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max	Min		
B0505LT-2W	5	4.5~5.5	5	400	40	81	SMD
B0509LT-2W			9	222	23	82	SMD
B0512LT-2W			12	167	17	84	SMD
B0515LT-2W			15	133	14	84	SMD
B1205LT-2W	12	10.8~13.2	5	400	40	82	SMD
B1209LT-2W			9	222	23	83	SMD
B1212LT-2W			12	167	17	85	SMD
B1215LT-2W			15	133	14	85	SMD

COMMON SPECIFICATIONS	
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	260°C
Storage humidity range	$\leq 95\%$
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hours

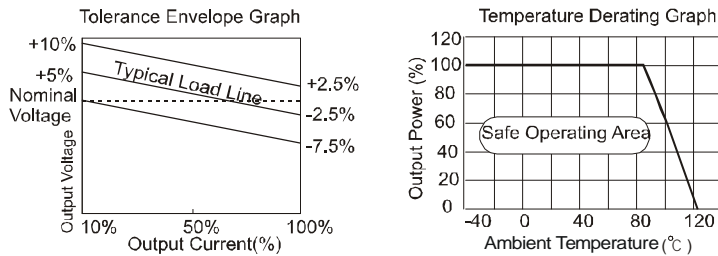
ISOLATION SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

OUTPUT SPECIFICATIONS						
Item	Test conditions	MIN	TYP	MAX	Units	
Output power		0.2		2	W	
Line regulation	For Vin change of 1%			1.2	%	
Load regulation	10% to 100% load (3.3V,5V output)		12.8	15	%	
	10% to 100% load (9V output)		8.3	15		
	10% to 100% load (12V output)		6.8	15		
	10% to 100% load (15V output)		6.3	15		
Output voltage accuracy	See tolerance envelope graph					
Temperature drift	100% full load			0.03	%/°C	
Output ripple	20MHz Bandwidth		75	150	mVp-p	
Noise	20MHz Bandwidth		150	250		
Switching frequency	Full load, nominal input		70		KHz	

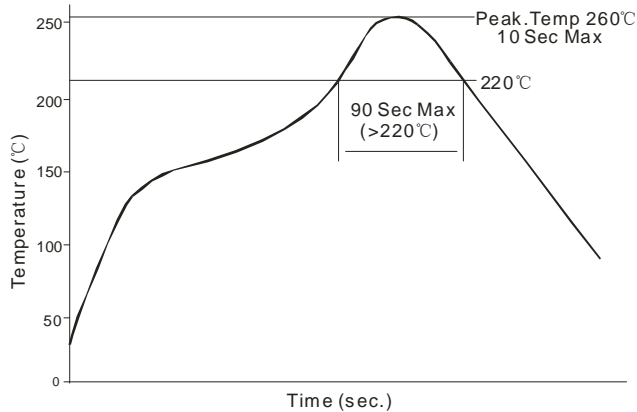
Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

## TYPICAL CHARACTERISTICS



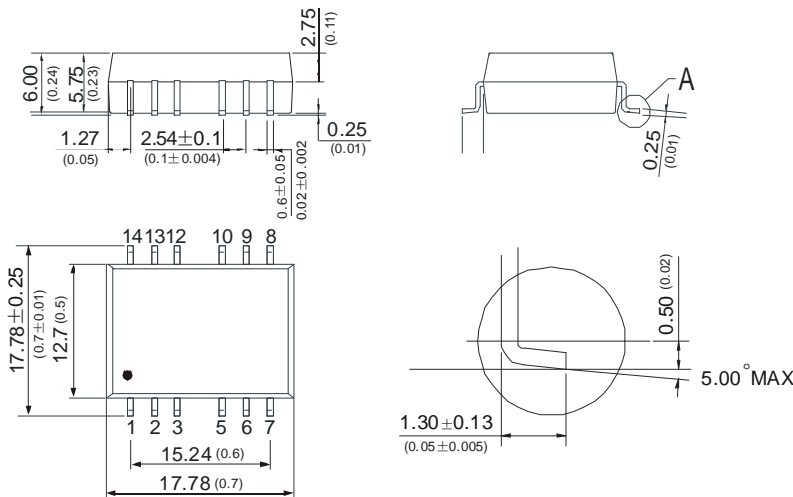
## RECOMMENDED REFLOW SOLDERING PROFILE



## PIN CONNECTIONS

Pin	1	2	3	5	6	7	8	9	10	12	13	14
Function	GND	Vin	NC	NC	0V	+Vo	NC	NC	NC	NC	NC	NC

## OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS



Note: All Pins on a 2.54mm(0.1) pitch; All Pin Widths are 0.60 mm(0.02); Tolerances: ±0.15mm(0.006); Unit: mm(inch).

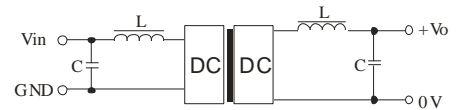
## APPLICATION NOTE

### Requirement on output load

To ensure this module can operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum output load is **not less than 10%** of the full load, and that this product should never be operated under no load! If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power (B\_T-1W series).

## Filtering

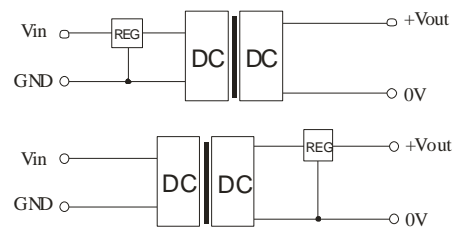
In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees the external capacitor table. To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference (Figure 1).



(Figure 1)

## Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator that is connected to the input or output end in series (Figure 2).



(Figure 2)

## Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

## EXTERNAL CAPACITOR TABLE

Vin	External capacitor	Vout	External capacitor
5VDC	4.7uF	5VDC	4.7uF
12VDC	2.2uF	9VDC	2.2uF
--	--	12VDC	1uF
--	--	15VDC	0.47uF

It's not recommend to connect any external capacitor in the application field with less than 0.5 watt output.