

SB_(X)T-W2 Series
0.25W, FIXED INPUT,
ISOLATED & UNREGULATED single OUTPUT,
SMD DC-DC CONVERTER

SCHMID-M[®]
 DC/DC - Converter



FEATURES

Single Voltage Output
 SMD Package Style
 Industry Standard Pinout
 No Heatsink Required
 1KVDC Isolation
 High Power Density
 Temperature Range: -40°C~+85°C
 No External Component Required
 RoHS Compliance

APPLICATIONS

The SB_(X)T-W2 Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

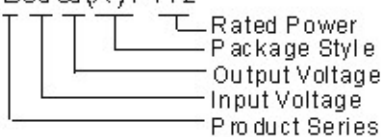
These products apply to:

- 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 $\leq 1000\text{VDC}$);
- 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

SB0505(X)T-W2



Part Number	Input		Voltage (VDC)	Output		Efficiency (% Typ.)
	Voltage (VDC)			Current (mA)		
	Nominal	Range	Max		Min	
SB0503(X)T-W2	5	4.5-5.5	3.3	76	8	62
SB0505(X)T-W2			5	50	5	64
SB0509(X)T-W2			9	28	3	65
SB0512(X)T-W2			12	21	2	67
SB0515(X)T-W2			15	17	2	66
SB1205(X)T-W2	12	10.8-13.2	5	50	5	65
SB1209(X)T-W2			9	28	3	64
SB1212(X)T-W2			12	21	2	63
SB1215(X)T-W2			15	17	2	64
SB2405(X)T-W2	24	21.6-26.4	5	50	5	60
SB2409(X)T-W2			9	28	3	61
SB2412(X)T-W2			12	21	2	63
SB2415(X)T-W2			15	17	2	65

Note :the SB_XT-W2 series have no 3,6,7 pin. For example SB0505XT-W2.

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ.	Max	Units
Output power				0.25	W
Line regulation	For Vin change of 1%(3.3V output)			± 1.5	%
	For Vin change of 1%(Others)			± 1.2	
Load regulation	10% to 100% load (3.3V output)		15	20	%
	10% to 100% load (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 & Noise*	20MHz Bandwidth		50	100	mVp-p
Switching frequency	Full load, nominal input(24V)		700		KHz
	Full load, nominal input (others)		110		

*test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

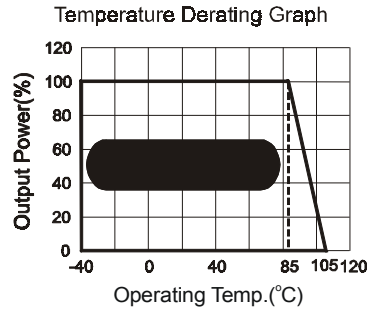
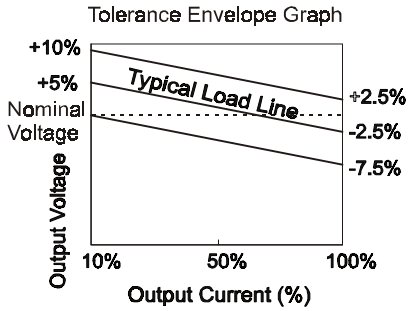
COMMON SPECIFICATION

Item	Test Conditions	Min	Typ.	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			15	25	
Lead temperature	1.5mm from case for 10 seconds			260	
Cooling	Free air convection				
Isolation voltage	Tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Short circuit protection	1 second(Max)				
Case material	Plastic(UL94-V0)				
MTBF		3500			K Hours
Weigh			1.35		g

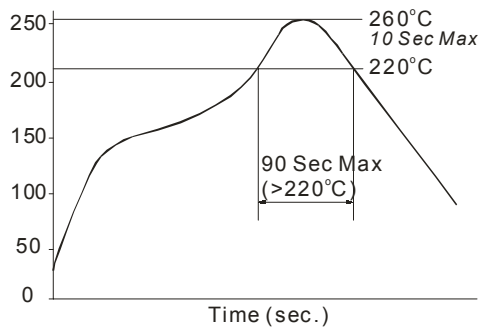
Note:

- 1.All specifications measured at $T_A=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- 2.See below recommended circuits for more details

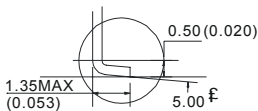
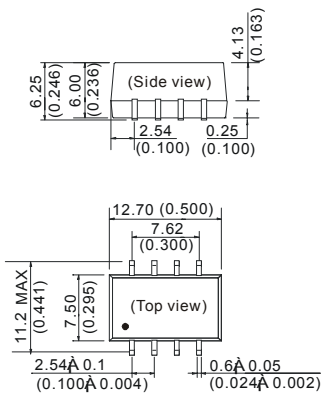
TYPICAL CHARACTERISTICS



RECOMMENDED REFLOW SOLDERING PROFILE

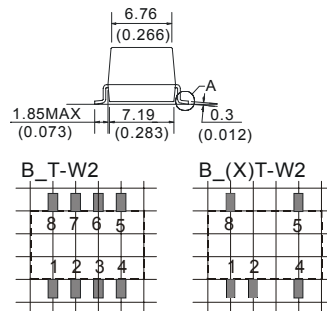


OUTLINE DIMENSIONS & FOOTPRINT DETAILS



Note:
Unit:mm(inch)
Pin section:0.60*0.25mm(0.024*0.010inch)
Pin tolerances:±0.10mm(±0.004inch)
General tolerances:±0.15mm(±0.006inch)

First Angle Projection
RECOMMENDED FOOTPRINT
Top view,grid:2.54mm(0.1inch)



FOOTPRINT DETAILS

Pin	Function(T)	Function(XT)
1	GND	GND
2	Vin	Vin
4	0V	0V
5	+Vo	+Vo
3,6,7	NC	NO Pin
8	NC	NC

NC:No Connection

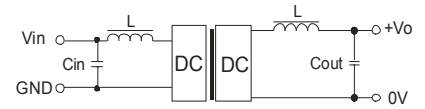
APPLICATION NOTE

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, 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.

Recommended testing circuit

If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).

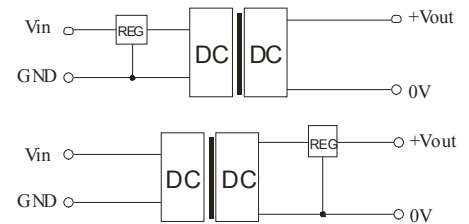


(Figure 1)

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. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise.It's not recommended to connect any external capacitor in the application field .

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 with overheat protection that is connected to the input or output end in series (Figure2).



(Figure2)

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.

No parallel connection or plug and play.