



■ Features

- SMD package with industry standard pinout
- Operating temperature range -40 ~ +90°C
- Comply to EN55032 radiated Class B without additional components
- High efficiency up to 84%
- Protection: Short circuit
- 1.5KVDC I/O isolation
- Low cost
- Optional reel packing
- 3 years warranty

■ Applications

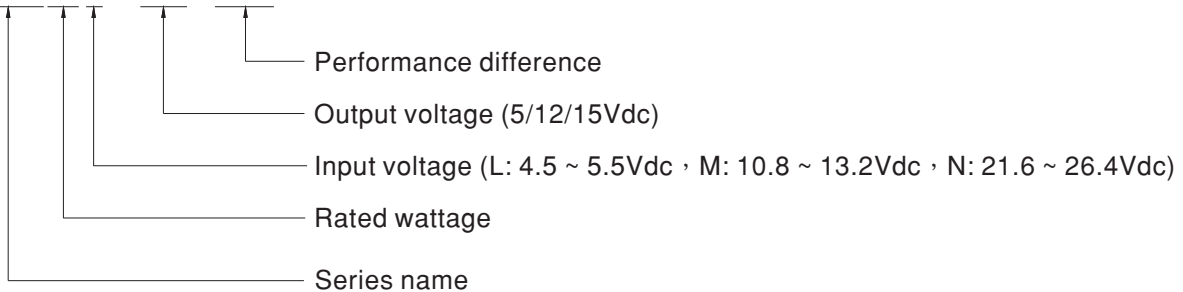
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

■ Description

SBTN01 series is 1W isolated and unregulated module type DC-DC converter with SMD package. It features international standard pins, a high efficiency up to 84%, wide working temperature range -40~+90°C, 1.5KVDC I/P-O/P isolation voltage, compliance to EN55032 radiated Class B without additional components, short circuit protection, etc. The models account for different input voltage 5V/12V/24V±10%, and various output voltage, 5V/12V/15V for single output which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

■ Model Encoding

SBTN01**L** - **12** - **SC**



Type	Description	Note
Blank	-40~+90°C working temperature with max. 1 second short protection	In Stock
SC	-40~+105°C working temperature with continuous short protection	Optional

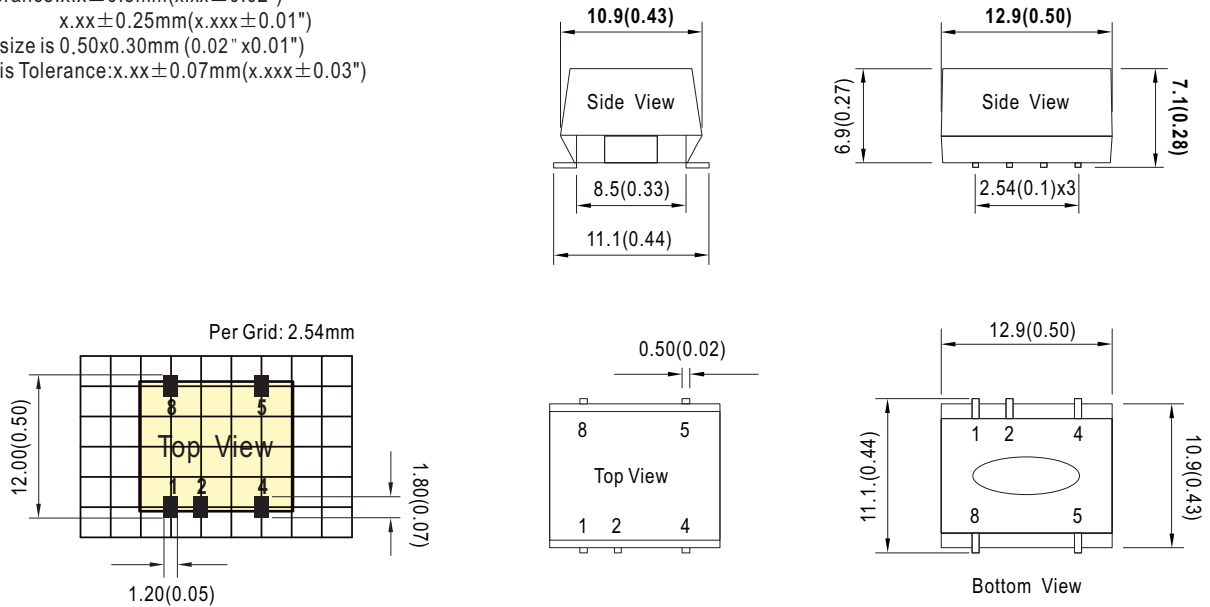
MODEL SELECTION TABLE

ORDER NO.	INPUT			OUTPUT		EFFICIENCY (TYP.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
SBTN01L-05	5V (4.5 ~ 5.5V)	30mA	270mA	5V	20 ~ 200mA	78%	220 μ F
SBTN01L-12		30mA	257mA	12V	8.4 ~ 84mA	80%	220 μ F
SBTN01L-15		30mA	253mA	15V	6.7 ~ 67mA	79%	220 μ F
SBTN01M-05	12V (10.8 ~ 13.2V)	12mA	112mA	5V	20 ~ 200mA	79%	220 μ F
SBTN01M-12		12mA	102mA	12V	8.4 ~ 84mA	84%	220 μ F
SBTN01M-15		12mA	102mA	15V	6.7 ~ 67mA	83%	220 μ F
SBTN01N-05	24V (21.6 ~ 26.4V)	11mA	54mA	5V	20 ~ 200mA	77%	220 μ F
SBTN01N-12		11mA	54mA	12V	8.4 ~ 84mA	79%	220 μ F
SBTN01N-15		11mA	54mA	15V	6.7 ~ 67mA	78%	220 μ F

SPECIFICATION				
INPUT	VOLTAGE RANGE	L: 4.5 ~ 5.5Vdc , M: 10.8 ~ 13.2Vdc , N: 21.6 ~ 26.4Vdc		
	SURGE VOLTAGE (100ms max.)	5Vin models : 9Vdc ; 12Vin models : 16Vdc ; 24Vin models : 30Vdc		
	FILTER	Internal capacitor		
	PROTECTION	Fuse recommended. 5Vin models: 750mA Slow-Blow Type, 12Vin models: 300mA Slow-Blow Type, 24Vin models: 150mA Slow-Blow Type		
	INTERNAL POWER DISSIPATION	500mW		
OUTPUT	VOLTAGE ACCURACY	±2.0%		
	RATED POWER	1W		
	RIPPLE & NOISE Note.2	75mVp-p		
	LINE REGULATION Note.3	1.2% for 1% input variation		
	LOAD REGULATION Note.4	±8%		
	SWITCHING FREQUENCY (Typ.)	100KHz		
PROTECTION	SHORT CIRCUIT	Standard model: 0.5 second max. Optional models (SC-suffix): Continuous		
ENVIRONMENT	COOLING	Free-air convection		
	WORKING TEMP.	Standard model: -40 ~ +90°C (Refer to "Derating Curve") ; Optional models (SC-suffix): -40 ~ +105°C		
	CASE TEMPERATURE	+100°C max.		
	WORKING HUMIDITY	20% ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-55 ~ +125°C, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	0.03% / °C (0 ~ 85°C)		
	SOLDERING TEMPERATURE	1.5mm from case of 1 ~ 10sec./240°C max.		
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes		
SAFETY & EMC (Note.5)	SAFETY STANDARDS	EAC TP TC 004 approved		
	WITHSTAND VOLTAGE	I/P-O/P:1.5KVDC		
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH		
	ISOLATION CAPACITANCE (Typ.)	80pF		
	EMC EMISSION	Parameter	Standard	Test Level / Note(Note.6)
		Conducted	EN55032(CISPR32)	N/A
		Radiated	EN55032(CISPR32)	Class B
	EMC IMMUNITY	Parameter	Standard	Test Level / Note
		ESD	EN61000-4-2	Level 3, ±8KV air ; Level 2, ±4KV contact
		Radiated Susceptibility	EN61000-4-3	Level 2, 3V/m
		EFT/Burest	EN61000-4-4	Level 1, 0.5KV at power
		Surge	EN61000-4-5	Level 2, 0.5KV Line-Line
		Conducted	EN61000-4-6	Level 2, 3V(e.m.f.)
Magnetic Field		EN61000-4-8	Level 1, 1A/m	
OTHERS	MTBF	880Khrs min. MIL-HDBK-217F(25°C)		
	DIMENSION (L*W*H)	12.9*10.9*7.1mm (0.50*0.43*0.28 inch)		
	CASE MATERIAL	Non-Conductive black plastic (UL 94V-0 rated)		
	PACKING	1.1g		
NOTE	<p>1.All parameters are specified at normal input(L:5Vdc, M:12Vdc, N:24Vdc), rated load, 25°C 70% RH ambient. 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 47µf capacitor. 3.Line regulation is measured from low line to high line at rated load. 4.Load regulation is measured from 10% to 100% rated load. 5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." 6.An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter capacitor Power Mate suggest: 220uF/100V.</p>			

Mechanical Specification

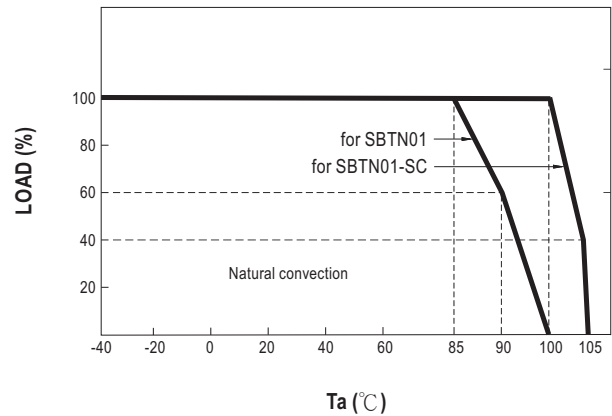
- All dimensions in mm(inch)
- Tolerance: $x.x \pm 0.5\text{mm}$ ($x.xx \pm 0.02"$)
 $x.xx \pm 0.25\text{mm}$ ($x.xxx \pm 0.01"$)
- Pin size is $0.50 \times 0.30\text{mm}$ ($0.02" \times 0.01"$)
- Pin is Tolerance: $x.xx \pm 0.07\text{mm}$ ($x.xxx \pm 0.03"$)



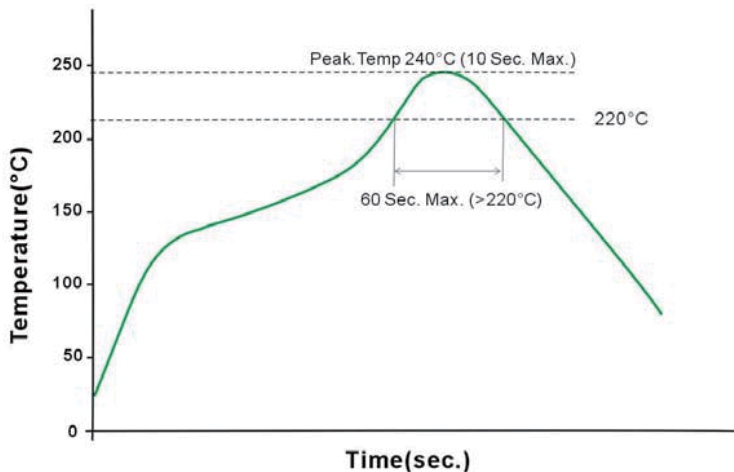
Plug Assignment

Pin No.	Pin-Out
1	-Vin
2	+Vin
4	-Vout
5	+Vout
8	N.C.

Derating Curve

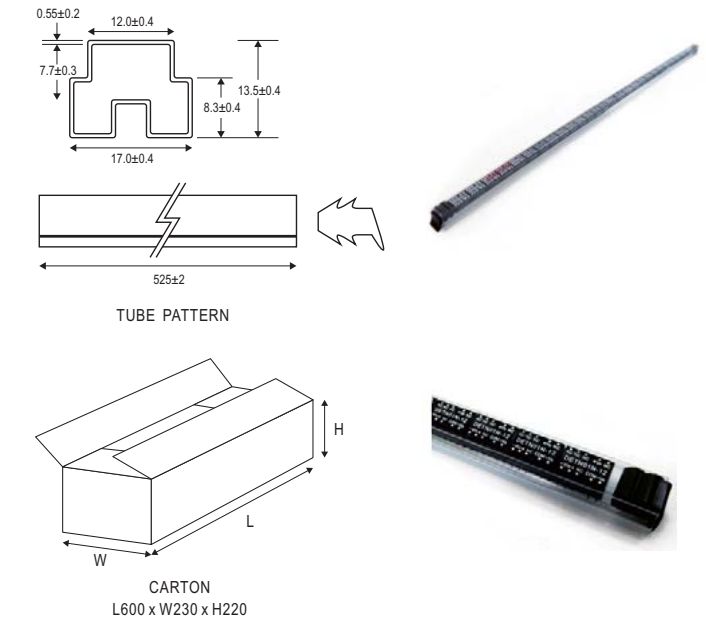
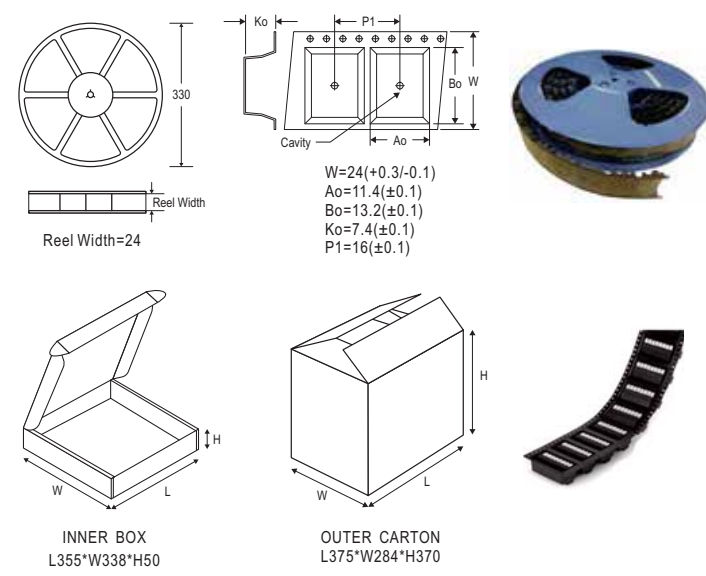


Reflow Soldering Curve



Remark: The curve applies only to the hot air reflow soldering.

■ Packing

Standard Tube Packing	MPQ Per Tube (PCS)	One Box G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
<p>Unit : mm</p>  <p>TUBE PATTERN</p> <p>CARTON L600 x W230 x H220</p>	38	0.06Kg	4560	8Kg
Optional Reel Packing	MPQ Per Tube (PCS)	One Box G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
<p>Unit : mm</p>  <p>Reel Width=24</p> <p>W=24(+0.3/-0.1) Ao=11.4(±0.1) Bo=13.2(±0.1) Ko=7.4(±0.1) P1=16(±0.1)</p> <p>INNER BOX L355*W338*H50</p> <p>OUTER CARTON L375*W284*H370</p>	500	1.2Kg	2500	6.8Kg