

## DC/DC Converters – SB-S/D1(HM) series

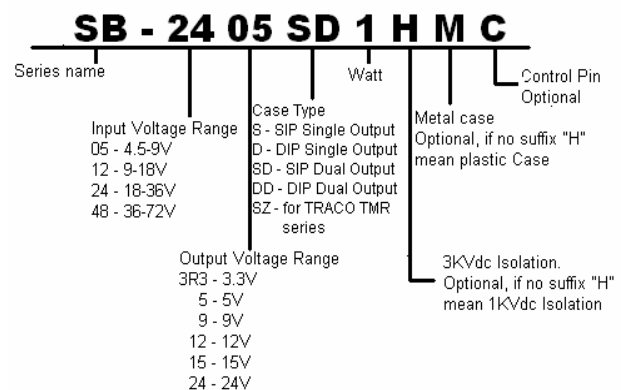
1 WATT (available also 2 and 3 WATT series)  
Single / Dual Output

### FEATURES

- 8 Pin SIL / 16 Pin DIL Package (3WATT series – 8 Pin SIL only)
- Wide 2:1 Input Range
- Full SMD Technology
- 1000 Vdc Isolation, Up to 3000 Vdc Isolation (3WATT series only 1500 Vdc Isolation)
- Continuous Short Circuit Protection
- Operating Temperature Range - 40°C ~ 85°C (3WATT series only - 40°C ~ 71°C)
- Plastic Case Standard, Optional Metal Case
- Efficiency up to 77 %
- Remote on/off control Optional

Model Number	Input Voltage Range (V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
SB-053R3S1	4.5-9	3.3	303	67
SB-0505S1		5.0	200	67
SB-0509S1		9.0	111	70
SB-0512S1		12.0	83	70
SB-0515S1		15.0	67	70
SB-0524S1	9-18	24.0	42	68
SB-123R3S1		3.3	303	70
SB-1205S1		5.0	200	72
SB-1209S1		9.0	111	77
SB-1212S1		12.0	83	77
SB-1215S1	15.0	67	77	
SB-1224S1	18-36	24.0	42	73
SB-243R3S1		3.3	303	70
SB-2405S1		5.0	200	72
SB-2409S1		9.0	111	75
SB-2412S1		12.0	83	75
SB-2415S1	15.0	67	75	
SB-2424S1	36-72	24.0	42	75
SB-483R3S1		3.3	303	66
SB-4805S1		5.0	200	68
SB-4809S1		9.0	111	70
SB-4812S1		12.0	83	70
SB-4815S1	15.0	67	70	
SB-4824S1	4.5-9	24.0	42	68
SB-053R3D1		3.3	303	67
SB-0505D1		5.0	200	67
SB-0509D1		9.0	111	70
SB-0512D1		12.0	83	70
SB-0515D1	9-18	15.0	67	70
SB-0524D1		24.0	42	68
SB-123R3D1		3.3	303	70
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SB-2424D1	36-72	24.0	42	75
SB-483R3D1		3.3	303	66
SB-4805D1		5.0	200	68
SB-4809D1		9.0	111	70
SB-4812D1		12.0	83	70

<b>Input specifications:</b>	
Input Reflected Ripple Current	35mA pk-pk
Filter:	Capacitors
<b>Output specifications:</b>	
Voltage accuracy	±2%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Line regulation	±0.5%
Load regulation	25%-100% load ±1%
Temperature coefficient	±0.02%/°C
<b>General Specifications:</b>	
Switching Frequency	100-650 kHz, var
I/O isolation voltage (3 sec)	1000~3000Vdc
Metal Case	1000Vdc
Safety standard	IEC 60950-1:2001
<b>Environmental specifications:</b>	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H



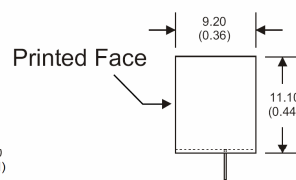
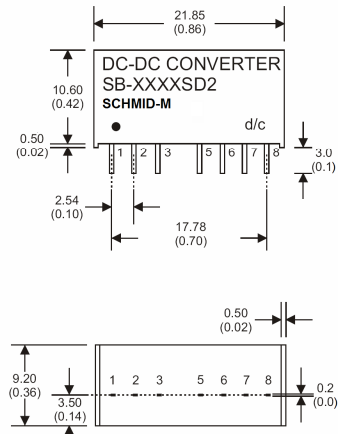
Notes:  
Suffix „H“ means 3KVdc isolation, „C“ means with control pin,  
„M“ means Metal Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
SB-4815D1	36-72	15.0	67	70
SB-4824D1		24.0	42	68
SB-053R3SD1	4.5-9	±3.3	±152	70
SB-0505SD1		±5.0	±100	74
SB-0509SD1		±9.0	±56	74
SB-0512SD1		±12.0	±42	75
SB-0515SD1		±15.0	±33	70
SB-0524SD1		±24.0	±21	67
SB-123R3SD1	9-18	±3.3	±152	70
SB-1205SD1		±5.0	±100	72
SB-1209SD1		±9.0	±56	76
SB-1212SD1		±12.0	±42	76
SB-1215SD1		±15.0	±33	74
SB-1224SD1		±24.0	±21	67
SB-243R3SD1	18-36	±3.3	±152	70
SB-2405SD1		±5.0	±100	70
SB-2409SD1		±9.0	±56	76
SB-2412SD1		±12.0	±42	77
SB-2415SD1		±15.0	±33	75
SB-2424SD1		±24.0	±21	70
SB-483R3SD1	36-72	±3.3	±152	70
SB-4805SD1		±5.0	±100	70
SB-4809SD1		±9.0	±56	74
SB-4812SD1		±12.0	±42	76
SB-4815SD1		±15.0	±33	72
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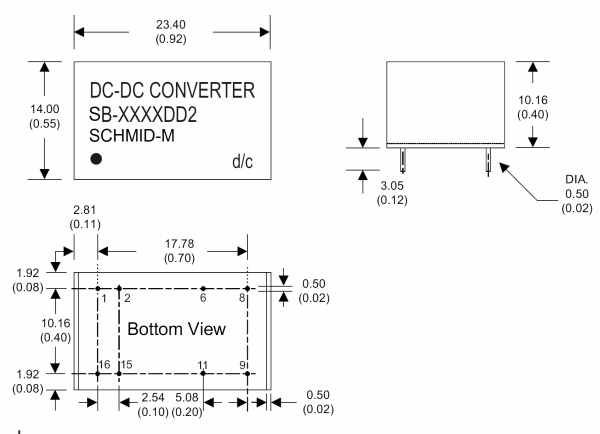
Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
SB-4824SD1	36-72	±24.0	±21	70
SB-053R3DD1	4.5-9	±3.3	±152	70
SB-0505DD1		±5.0	±100	74
SB-0509DD1		±9.0	±56	74
SB-0512DD1		±12.0	±42	75
SB-0515DD1		±15.0	±33	70
SB-0524DD1		±24.0	±21	67
SB-123R3DD1	9-18	±3.3	±152	70
SB-1205DD1		±5.0	±100	72
SB-1209DD1		±9.0	±56	76
SB-1212DD1		±12.0	±42	76
SB-1215DD1		±15.0	±33	74
SB-1224DD1		±24.0	±21	67
SB-243R3DD1	18-36	±3.3	±152	70
SB-2405DD1		±5.0	±100	70
SB-2409DD1		±9.0	±56	76
SB-2412DD1		±12.0	±42	77
SB-2415DD2		±15.0	±33	75
SB-2424DD2		±24.0	±21	70
SB-483R3DD1	36-72	±3.3	±152	70
SB-4805DD1		±5.0	±100	70
SB-4809DD1		±9.0	±56	74
SB-4812DD1		±12.0	±42	76
SB-4815DD1		±15.0	±33	72
SB-4824DD1		±24.0	±21	70

### MECHANICAL DIMENSIONS & PIN CONNECTIONS

8 Pin SIL Package



16 Pin DIL Package



- Notes : All dimensions are typical in millimeters ( inches ).
1. Pin diameter:  $0.5 \pm 0.05$  (  $0.02 \pm 0.002$  )
  2. Pin pitch tolerance:  $\pm 0.35$  (  $\pm 0.014$  )
  3. Case Tolerance:  $\pm 0.5$  (  $\pm 0.02$  )

PIN #	Single	Dual(SD)	Dual(SZ)	Single+C	Dual/(SD+C)	Dual/(SZ+C)
1	-Vin	-Vin	-Vin	-Vin	-Vin	-Vin
2	+Vin	+Vin	+Vin	+Vin	+Vin	+Vin
3	N.P.	N.C.	N.C.	On/off	On/off	On/off
5	N.P.	N.C.	N.C.	N.C.	N.C.	N.C.
6	+Vout	+Vout	+Vout	+Vout	+Vout	+Vout
7	-Vout	-Vout	Common	-Vout	-Vout	Common
8	N.C.	Common	-Vout	N.C.	Common	-Vout

PIN #	Single	Dual(SD)
1	-Vin	-Vin
2	-Vin	-Vin
6	N.C.	Common
8	N.C.	-Vout
9	+Vout	+Vout
11	-Vout	Common
15	+Vin	+Vin
16	+Vin	+Vin