

SB Series

3W 2:1 Regulated Single & Dual output



SCHMID-M
DC/DC - Converter

Features

- 8 Pin SIL
- Wide 2:1 Input Range
- Full SMD Technology
- 1600 VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 84%
- -40 ~ 71°C Operation Temperature Range
- Plastic Case Standard, Optional Metal Case
- Remote on/off Control (Optional)



The SB 3W series is an improved version from SB 2W family. With the same package size and pin configuration, SB 3W series provide higher efficiency and higher power rating. encapsulated in 8 pin SIL package, providing input/output isolation of 1600Vdc and higher efficiency up to 84%. Available in Single in Line to save the space on board, metal case is also optional for better RFI/EMI shielding. 2:1 Wide input range and long term short circuit protection - single/dual output models are both available! VB 3W series is a good substitution of traditional DC/DC converter 3W in DIL-24 package. Single output models contain: 3.3V, 5V, 12V, 15V and dual output models contain: $\pm 5V$, $\pm 12V$ and $\pm 15V$ dc.

All specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS	
Voltage Accuracy	$\pm 1\%$
Maximum Output Current	See table
Line Regulation	$\pm 0.5\%$, max
Load Regulation (1)	(From 25% to 100% Loading) $\pm 1\%$, max
Cross Regulation (Dual Output) (2)	$\pm 5\%$
Ripple & Noise (20 Mhz bandwidth)(3)	75mVpp, max
Short Circuit Protection	Indefinite (Automatic Recovery)
Temperature Coefficient	$\pm 0.02\%/^\circ\text{C}$
Capacitive Load(4)	See table
Transient Recovery Time(5)	300us, typ
Transient Response Deviation(5)	$\pm 3\%$, max

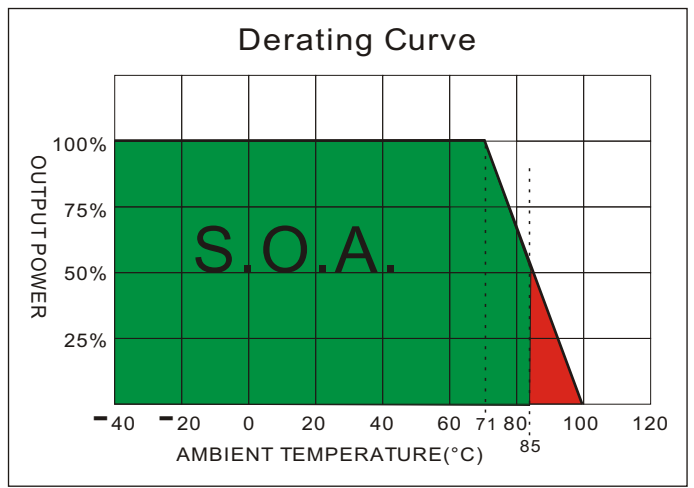
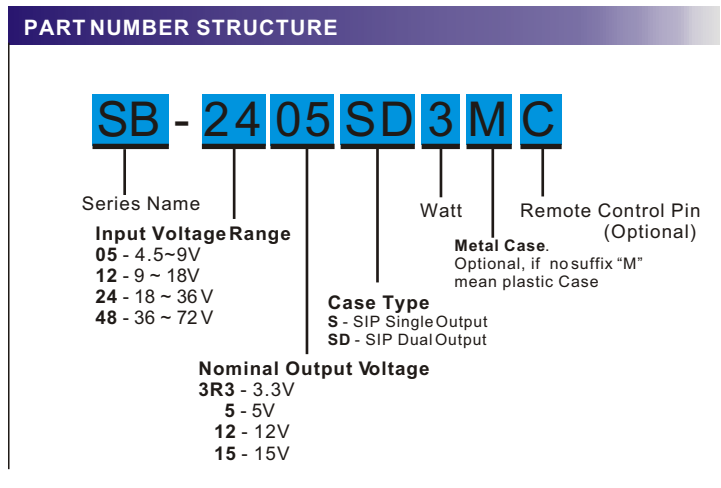
INPUT SPECIFICATIONS	
Voltage Range	See table
Start up Time(Nominal V_{in} and constant resistive load)	20mS, typ
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitor
Input Reflected Ripple Current(6)	35mA pk-pk

GENERAL SPECIFICATIONS	
Efficiency	See table, typ
I/O Isolation Voltage (tested for 3 sec)	1600Vdc
I/O Isolation Capacity	680 pF, max
I/O Isolation Resistance	1000M Ohm, min
Switching Frequency	100Khz, min
Humidity	95%relH
Reliability Calculated MTBF	>2.465 Mhrs@ 25°C
Safety Standard(designed to meet)	IEC60950
Remote on/off control(7)	
ON:	open or high impedance
OFF:	3-6mA input current (via 1K)
Off stand by input current (Nominal V_{in})	3mA max

PHYSICAL SPECIFICATIONS	
Case Material	Non conductive black plastic
Potting Material	Epoxy (UL94V-0 rated)
Pin Material	C5191R-H Solder-coated
Weight	4.8g, typ
Dimensions	0.86"x0.36"x0.44"

ENVIRONMENT SPECIFICATIONS	
Operating Temperature	$-40^\circ\text{C} \sim 71^\circ\text{C}$
Maximum Case Temperature	100°C
Storage Temperature	$-40^\circ\text{C} \sim 125^\circ\text{C}$
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(8)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Surge Voltage(100ms max)	
05 Modes	$-0.7 \sim 15$ Vdc
12 Modes	$-0.7 \sim 36$ Vdc
24 Modes	$-0.7 \sim 50$ Vdc
48 Modes	$-0.7 \sim 100$ Vdc
Lead Soldering Temperature (1.5mm from case 10 seconds).	260°C



MODEL SELECTION GUIDE

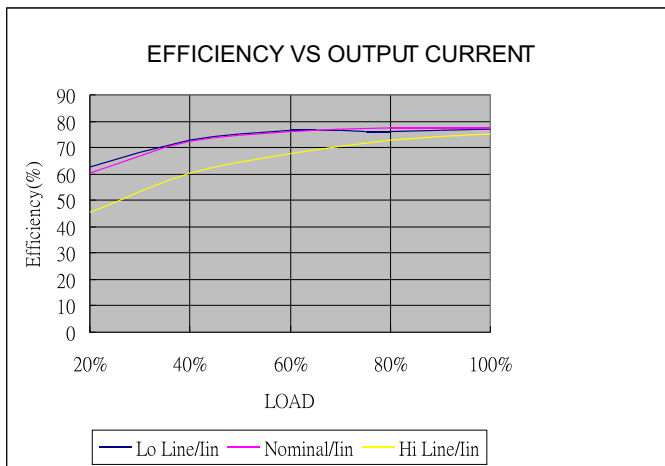
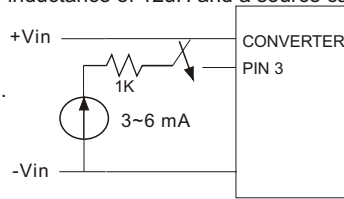
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(µF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
SB-053R3S3C	4.5-9	65	640	3.3	175	700	74	2200
SB-0505S3C	4.5-9	70	800	5	150	600	76	1000
SB-0512S3C	4.5-9	75	750	12	62.5	250	82	470
SB-0515S3C	4.5-9	75	750	15	50	200	82	220
SB-123R3S3C	9-18	25	260	3.3	175	700	76	2200
SB-1205S3C	9-18	15	320	5	150	600	81	1000
SB-1212S3C	9-18	35	305	12	62.5	250	84	470
SB-1215S3C	9-18	35	305	15	50	200	84	220
SB-243R3S3C	18-36	15	133	3.3	175	700	74	2200
SB-2405S3C	18-36	15	160	5	150	600	79	1000
SB-2412S3C	18-36	20	156	12	62.5	250	82	470
SB-2415S3C	18-36	20	152	15	50	200	84	220
SB-483R3S3C	36-72	10	66	3.3	175	700	75	2200
SB-4805S3C	36-72	10	82	5	150	600	78	1000
SB-4812S3C	36-72	15	78	12	62.5	250	81	470
SB-4815S3C	36-72	15	78	15	50	200	81	220
SB-0505SD3C	4.5-9	90	800	±5	±75	±300	77	±470
SB-0512SD3C	4.5-9	90	760	±12	±31.25	±125	81	±220
SB-0515SD3C	4.5-9	90	750	±15	±25	±100	82	±100
SB-1205SD3C	9-18	45	320	±5	±75	±300	80	±470
SB-1212SD3C	9-18	45	308	±12	±31.25	±125	83	±220
SB-1215SD3C	9-18	45	312	±15	±25	±100	82	±100
SB-2405SD3C	18-36	20	160	±5	±75	±300	80	±470
SB-2412SD3C	18-36	20	154	±12	±31.25	±125	83	±220
SB-2415SD3C	18-36	20	154	±15	±25	±100	83	±100
SB-4805SD3C	36-72	15	82	±5	±75	±300	78	±470
SB-4812SD3C	36-72	20	80	±12	±31.25	±125	80	±220
SB-4815SD3C	36-72	15	78	±15	±25	±100	81	±100

Suffix "C" means with control pin Suffix "M" means with Metal Case

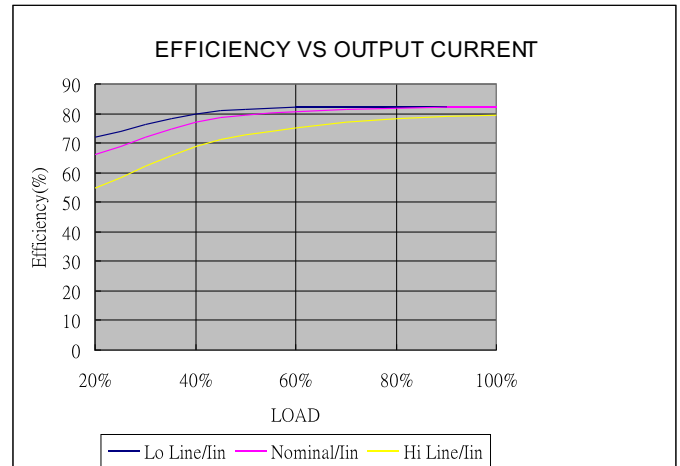
The models listed above is just for standard type. If you need the special specification product, please contact us by e-mail: info@schmid-multitech.de or our local country distributors listed at www.schmid-m.com

NOTE

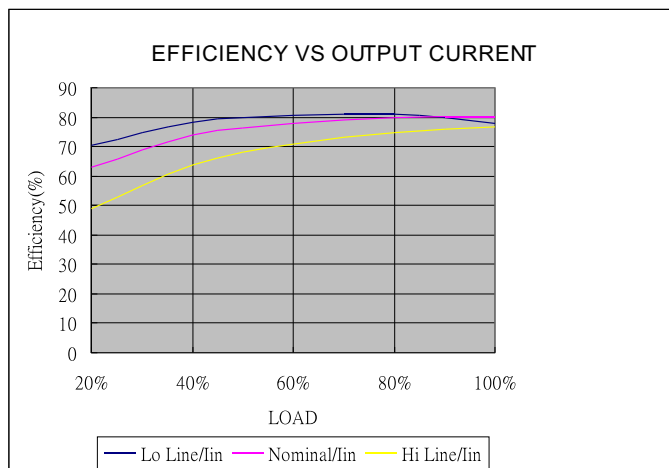
1. Operation at no load condition will not damage the produce ; however, it will not meet all specifications.
2. One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within $\pm 5\%$.
3. Measured with 20MHz bandwidth .
4. Test by minimal Vin and constant resistive load.
5. Test by normal Vin and 100%-25% load,25% load step change .
6. Measured Input reflected ripple current with a simulated source inductance of 12uH and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz).
7. The Remote on/off control:
ON: open or high impedance
OFF: 3.0~6.0mA input current (via 1K)
8. Exceeding the absolute ratings of the unit could cause damage.
It's not allowed for continuous operating ratings.



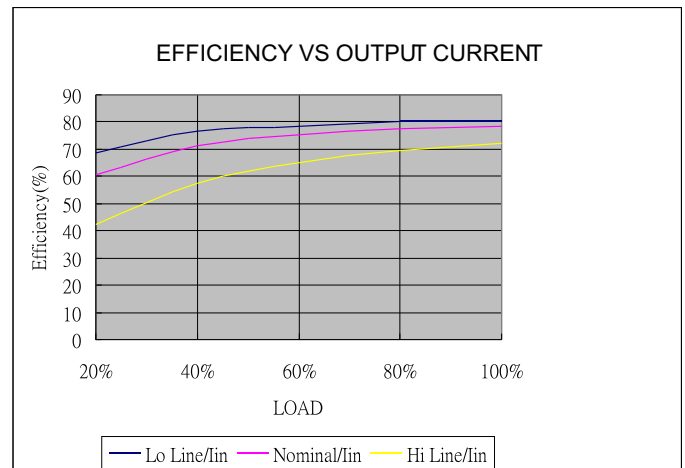
05 Models



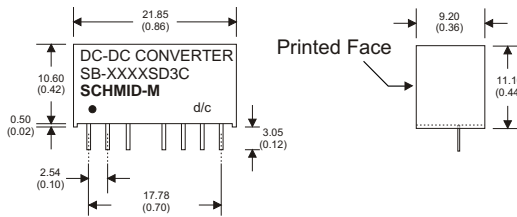
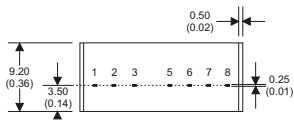
12 Models



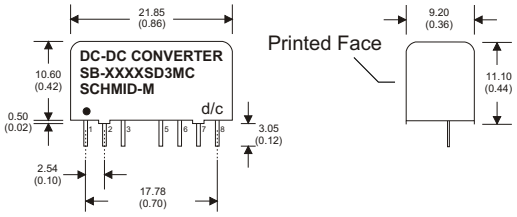
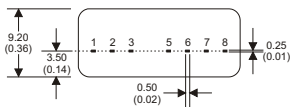
24 Models



MECHANICAL SPECIFICATIONS



8 Pin SIL Package
Non-Conductive Plastic



8 Pin SIL Package
Nickel-Coated Copper

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	-V Input	-V Input
2	+V Input	+V Input
3	Remote On/Off (optional)	Remote On/Off (optional)
5	N.C.	N.C.
6	+V Output	+V Output
7	-V Output	Common
8	N.C.	-V Output

Notes : All dimensions are typical in millimeters (inches).
 1. Pin diameter: 1.0 ±0.05 (0.04 ±0.002)
 2. Pin pitch tolerance: ±0.35 (±0.014)
 3. Case Tolerance: ±0.5 (±0.02)