

# SVB-SC/SD

**DC/DC Converter**  
**Single output**

# 50W



The ideal miniaturization should be followed with the raisement on efficiency. The SV-series have been developed standing on this basic designing idea. These series are realized with super-small size, high efficiency, high performance and high reliabilities. For example the introduction of "double side printed PCB with through" and the latest design eliminating capacitors from input circuit enable to improve reliability and longevity of them.



## Features

Wide input voltage range (9.2-140Vdc)  
High efficiency & reliability  
Output voltage +/-10%  
Switching frequency: Data sheet page 2 to 5  
MTBF: Data sheet page 2 to 5  
Warranty: 2 years

## Possibly applications

Process control  
Office equipment  
Computer peripherals  
Telecommunications  
Industrial electronics&machines

## Mechanical features

Dimension (WxLxH): 83x112x33mm  
Weight: 410g  
Connector: Screw terminal  
Closed type

## Control features

Over voltage protection: Output shutdown  
Over current protection: Current limiting, aut. recovery  
Input polarity protection





Specifications<DC/DC>	Model				
	SVB-05SC12	SVB-12SC12	SVB-15SC12	SVB-24SC12	SVB-48SC12
<b>SVB-**SC12 50WATTS/ 1 OUTPUT</b>					
<b>Input Characteristic</b>					
Input Voltage	DC12V				
Input Range	DC9.2-16V				
Inrush Current	not specified				
Efficiency [%] (typical) *1	79	80	82	85	85
<b>Output Characteristic</b>					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	8.0	3.3	2.7	1.7	0.8
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	150	220	250	340	580
<b>Regulation</b>					
a. Statistic Line Regulation [mV](maximum)	40	96	120	192	384
b. Statistic Load Regulation [mV](maximum)	45	108	135	216	432
c. Temperature Coefficient *3	0.03%/°C				
d. Drift[mV](maximum) *4	40	75	90	135	255
e. Dynamic Load Regulation [mV](typical) *5	150	360	450	720	1440
f. Recovery Time *5	0.3mS(typical)				
Rise up time	50mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
<b>Functions</b>					
Over current Protection	Current limiting with automatic recovery				
≥110% of Rated Output [A]	8.80	3.63	2.97	1.87	0.88
Over voltage Protection	Output shutdown(to reset, leave 1minute after shutdown)				
≥110% of Rated Output [V]	5.50	13.2	16.5	26.4	52.8
Remote Sense	not available				
Remote On/Off	not available				
Reverse voltage protection	by internal fuse				
<b>Environmental</b>					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	85%RH(non-condensing)				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute				
	Primary-Frame Ground AC2,000V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50MΩ(minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s <sup>2</sup> ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s <sup>2</sup>				
Cooling	Convection				
Line conduction noise	not specified				
<b>Safety</b>					
Weight (typical)	410g				
MTBF [H]	660,000				
Switching Frequency[kHz](typical)	90 Fix.	90 Fix.	90 Fix.	90 Fix.	90 Fix.

Conditions:

\*1 At DC12V input and rated output

\*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

\*3 At -5 to +50°C

\*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

\*5 When output current changed between 25% and 75% of rated output current rapidly at DC12V input





Specifications<DC/DC>	Model				
SVB-**SC24 50WATTS/ 1 OUTPUT	SVB-05SC24	SVB-12SC24	SVB-15SC24	SVB-24SC24	SVB-48SC24
<b>Input Characteristic</b>					
Input Voltage	DC24V				
Input Range	DC19-32V				
Inrush Current	not specified				
Efficiency [%] (typical) *1	81	83	85	87	88
<b>Output Characteristic</b>					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	10.0	4.3	3.4	2.5	1.1
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	150	220	250	340	580
<b>Regulation</b>					
a. Statistic Line Regulation [mV](maximum)	40	96	120	192	384
b. Statistic Load Regulation [mV](maximum)	45	108	135	216	432
c. Temperature Coefficient *3	0.03%/°C				
d. Drift[mV](maximum) *4	40	75	90	135	255
e. Dynamic Load Regulation [mV](typical) *5	150	360	450	720	1440
f. Recovery Time *5	0.3mS(typical)				
Rise up time	50mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
<b>Functions</b>					
Over current Protection	Current limiting with automatic recovery				
≥110% of Rated Output [A]	11.0	4.73	3.74	2.75	1.21
Over voltage Protection	Output shutdown(to reset, leave 1minute after shutdown)				
≥110% of Rated Output [V]	5.50	13.2	16.5	26.4	52.8
Remote Sense	not available				
Remote On/Off	not available				
Reverse voltage protection	by internal fuse				
<b>Environmental</b>					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	85%RH(non-condensing)				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute				
	Primary-Frame Ground AC2,000V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50MΩ(minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s <sup>2</sup> ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s <sup>2</sup>				
Cooling	Convection				
Line conduction noise	not specified				
<b>Safety</b>					
Weight (typical)	410g				
MTBF [H]	750,000				
Switching Frequency[kHz](typical)	90 Fix.	90 Fix.	90 Fix.	90 Fix.	90 Fix.

Conditions:

\*1 At DC24V input and rated output

\*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

\*3 At -5 to +50°C

\*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

\*5 When output current changed between 25% and 75% of rated output current rapidly at DC24V input





Specifications<DC/DC>	Model				
SVB-**SC48 50WATTS/ 1 OUTPUT	SVB-05SC48	SVB-12SC48	SVB-15SC48	SVB-24SC48	SVB-48SC48
<b>Input Characteristic</b>					
Input Voltage	DC48V				
Input Range	DC38-64V				
Inrush Current	not specified				
Efficiency [%] (typical) *1	82	84	86	88	89
<b>Output Characteristic</b>					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	10.0	4.3	3.4	2.5	1.1
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	150	220	250	340	580
<b>Regulation</b>					
a. Statistic Line Regulation [mV](maximum)	40	96	120	192	384
b. Statistic Load Regulation [mV](maximum)	45	108	135	216	432
c. Temperature Coefficient *3	0.03%/°C				
d. Drift[mV](maximum) *4	40	75	90	135	255
e. Dynamic Load Regulation [mV](typical) *5	150	360	450	720	1440
f. Recovery Time *5	0.3mS(typical)				
Rise up time	50mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
<b>Functions</b>					
Over current Protection	Current limiting with automatic recovery				
≥110% of Rated Output [A]	11.0	4.73	3.74	2.75	1.21
Over voltage Protection	Output shutdown(to reset, leave 1minute after shutdown)				
≥110% of Rated Output [V]	5.50	13.2	16.5	26.4	52.8
Remote Sense	not available				
Remote On/Off	not available				
Reverse voltage protection	by internal fuse				
<b>Environmental</b>					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	85%RH(non-condensing)				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute				
	Primary-Frame Ground AC2,000V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50MΩ(minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s <sup>2</sup> ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s <sup>2</sup>				
Cooling	Convection				
Line conduction noise	not specified				
<b>Safety</b>					
Weight (typical)	410g				
MTBF [H]	750,000				
Switching Frequency[kHz](typical)	90 Fix.	90 Fix.	90 Fix.	90 Fix.	90 Fix.

Conditions:

\*1 At DC48V input and rated output

\*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

\*3 At -5 to +50°C

\*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

\*5 When output current changed between 25% and 75% of rated output current rapidly at DC48V input





Specifications<DC/DC>	Model				
	SVB-05SD	SVB-12SD	SVB-15SD	SVB-24SD	SVB-48SD
<b>SVB-**SD 50WATTS/ 1 OUTPUT</b>					
<b>Input Characteristic</b>					
Input Voltage	DC110V				
Input Range	DC85-140V				
Inrush Current *1	20A(maximum) at DC110V				
Efficiency [%] (typical) *2	81	83	84	86	87
<b>Output Characteristic</b>					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	10.0	4.3	3.4	2.5	1.1
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *3	150	220	250	340	580
<b>Regulation</b>					
a. Static Line Regulation [mV](maximum)	40	96	120	192	384
b. Static Load Regulation [mV](maximum)	45	108	135	216	432
c. Temperature Coefficient *4	0.03%/°C				
d. Drift[mV](maximum) *5	40	75	90	135	255
e. Dynamic Load Regulation [mV](typical) *6	150	360	450	720	1440
f. Recovery Time *6	0.3mS(typical)				
Rise up time	500mS(maximum) at 25°C and rated input/output				
Hold up time	10mS(minimum) at 25°C and rated input/output				
<b>Functions</b>					
Over current Protection	Current limiting with automatic recovery				
≥110% of Rated Output [A]	11.0	4.73	3.74	2.75	1.21
Over voltage Protection	Output shutdown(to reset, leave 1minute after shutdown)				
≥110% of Rated Output [V]	5.50	13.2	16.5	26.4	52.8
Remote Sense	not available				
Remote On/Off	not available				
Reverse voltage protection	by internal fuse				
<b>Environmental</b>					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	85%RH(non-condensing)				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute				
	Primary-Frame Ground AC2,000V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50MΩ(minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s <sup>2</sup> ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s <sup>2</sup>				
Cooling	Convection				
Line conduction noise	not specified				
<b>Safety</b>					
Weight (typical)	410g				
MTBF [H]	610,000				
Switching Frequency[kHz](typical)	140 Fix.	140 Fix.	140 Fix.	140 Fix.	140 Fix.

Conditions:

\*1 At cold start

\*2 At DC110V and rated output

\*3 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

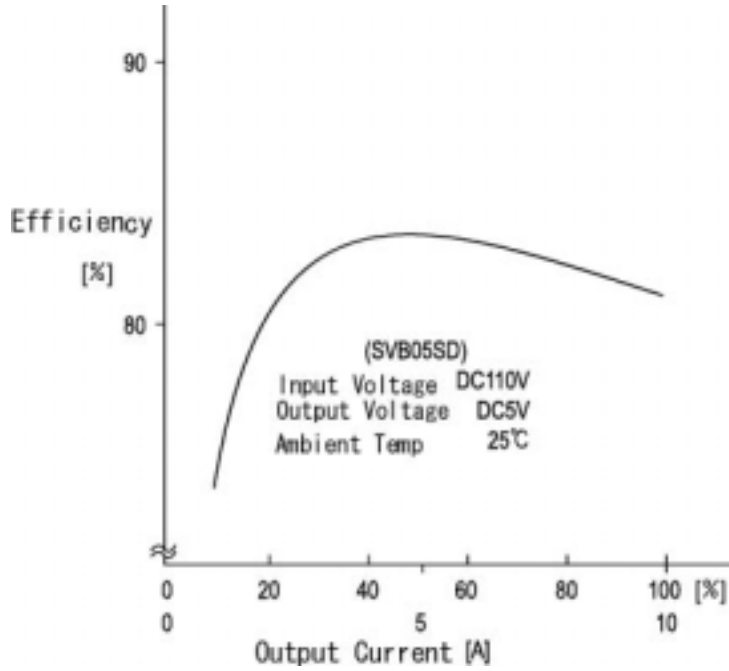
\*4 At -5 to +50°C

\*5 For 7hour period after 1hour warm-up at 25°C and rated input/output

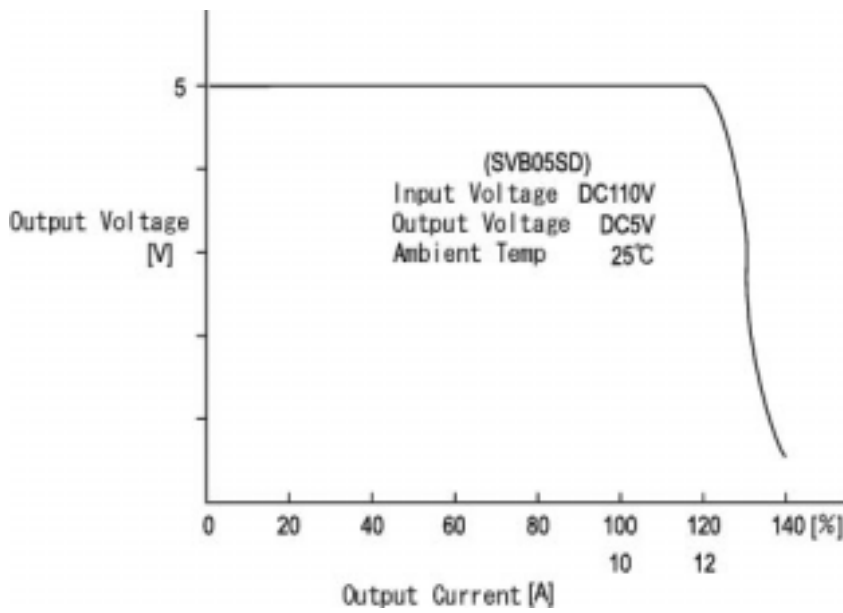
\*6 When output current changed between 25% and 75% of rated output current rapidly at DC110V input



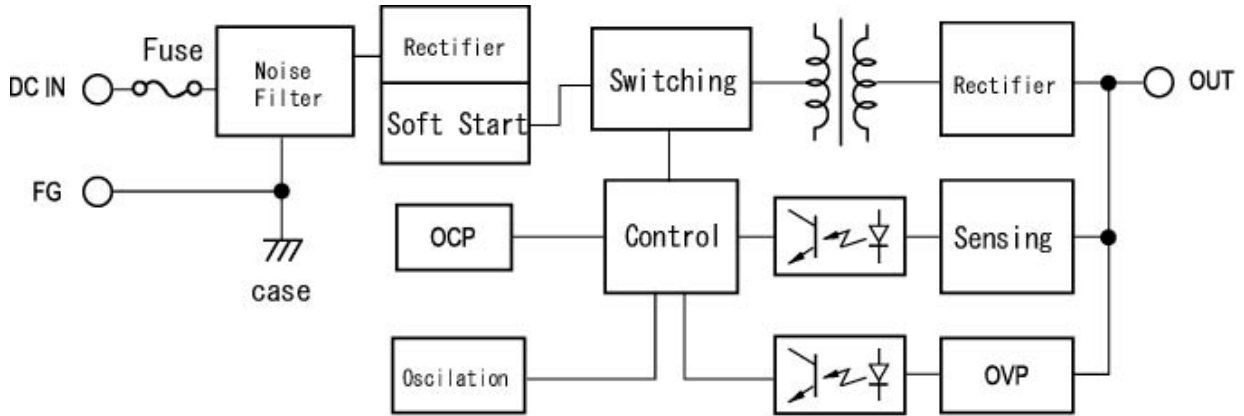
Efficiency:



OCP:



Block diagram:



Dimension

