



15W

The ideal miniarization 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 longgevity 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

Mechanical features

Dimension (WxLxH): 60x83x20mm

Weight: 120g

Connector: Screw terminal

Closed type

Possibly applications

Process control
Office equipment
Computer peripherals
Telecommunications
Industrial electronics&machines

Control features

Over voltage protection: Output shutdown

Over current protection: Current limiting, aut. recovery

Input polarity protection





Specifications <dc dc=""></dc>	Model						
SVM-**SC12							
15WATTS/ 1 OUTPUT	SVM-05SC12	SVM-12SC12	SVM-15SC12	SVM-24SC12	SVM-48SC12		
Input Characteristic					•		
Input Voltage			DC12V				
Input Range	DC9.2-16V						
Inrush Current	not specified						
Efficiency [%] (typical) *1	79	80	82	83	83		
Output Characteristic			1 0-	1 00	, ,,,		
Output Voltage [V]	5	12	15	24	48		
Output Current [A]	3.0	1.3	1	0.7	0.35		
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)						
Ripple and Noise [mVp-p](maximum) *2	100	170	200	290	530		
Regulation		•					
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	0.5mS(typical)						
Rise up time	100mS(maximum) at 25°C and rated input/output						
Hold up time	not specified						
Functions							
Over current Protection		Current	limiting with automatic rec	overv			
≥110% of Rated Output [A]	3.30	1.43	1.10	0.77	0.39		
Over voltage Protection	3.55	Output shutdown	(to reset, leave 1minute a		*****		
≥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						
Environmental			by internal race				
Operating Temperature			0 to +50°C				
Operating Humidity	85%RH(non-condensing)						
Storage Temperature	-20 to +85°C						
Storage Humidity	85%RH(non-condensing)						
,	Primary-Secondary AC2,000V for 1minute						
Withstanding Voltage	Primary-Frame Ground AC2,000V for 1minute						
	Secondary-Frame Ground AC500V for 1minute						
Indiation Designation Delivery Consendant							
Isolation Resistance Primary-Secondary- Frame Ground	50MΩ(minimum) by DC500V insulation tester						
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)						
VIDIALIOII							
Shock	cacif along X, 1,2 axcs	non operating)	294m/s ²				
Coolina	Z94ffi/S Convection						
3							
Line conduction noise	not specified						
Safety							
Weight (typical)	120g						
MTBF [H]	660,000						
Switching Frequency[kHz](typical)	90 Fix.	90 Fix.	90 Fix.	90 Fix.	90 Fix.		



^{*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=""> SVM-**SC24 15WATTS/ 1 OUTPUT Input Characteristic Input Voltage Input Range Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]</dc>	SVM-05SC24	SVM-12SC24	Model SVM-15SC24	SVM-24SC24	SVM-48SC24		
Input Characteristic Input Voltage Input Range Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]	SVM-05SC24	SVM-12SC24	SVM-15SC24	SVM-24SC24	SVM-48SC24		
Input Voltage Input Range Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]							
Input Range Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]							
Input Range Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]			DC24V				
Inrush Current Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]		DC19-32V					
Efficiency [%] (typical) *1 Output Characteristic Output Voltage [V]	not specified						
Output Characteristic Output Voltage [V]	79 81 82 84 85						
Output Voltage [V]		<u>, </u>	<u>, </u>		, ,,		
3 1 1	5	12	15	24	48		
Output Current [A]	3.0	1.3	1.0	0.7	0.35		
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		
Regulation							
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	0.5mS(typical)						
Rise up time		100mS(maxim	um) at 25°C and rated inp	ut/output			
Hold up time		,	not specified				
Functions							
Over current Protection		Current li	miting with automatic recov	verv			
≥110% of Rated Output [A]	3.30	1.43	1.10	0.77	0.39		
Over voltage Protection		Output shutdown(t	o reset, leave 1minute after	er 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						
Environmental							
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						
vinistanting voltage	Primary-Frame Ground AC2,000V for 1minute						
<u> </u>	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/s²,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)						
Shock	294m/s ²						
Cooling	Convection						
Line conduction noise	not specified						
Safety	not appended						
Weight (typical)	120q						
MTBF [H]	750,000						
Switching Frequency[kHz](typical)	750,000 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=""></dc>	Model					
SVM-**SC48	SVM-05SC48 SVM-12SC48 SVM-15SC48 SVM-24SC48 SVM-48SC48					
15WATTS/ 1 OUTPUT	3 7 171-033040	3 V IVI- 123040	3 V IVI- 133040	3 111-243040	3 7 171-403040	
Input Characteristic						
nput Voltage			DC48V			
nput Range	DC38-64V					
nrush Current	not specified					
Efficiency [%] (typical) *1	81	83	84	86	86	
Output Characteristic		•	*	*		
Output Voltage [V]	5	12	15	24	48	
Output Current [A]	3.0	1.3	1.0	0.7	0.35	
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	
Regulation						
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	500mS(maximum) at 25°C and rated input/output					
Hold up time	not specified					
Functions			,			
Over current Protection		Current I	imiting with automatic rec	coverv		
≥110% of Rated Output [A]	3.30	1.43	1.10	0.77	0.39	
Over voltage Protection		Output shutdown	(to reset, leave 1minute a	fter 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			
Environmental						
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			condary AC2,000V for	1minute		
withstanding voltage	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					
	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes					
	each along X,Y,Z axes(non-operating)				
Shock			294m/s ²			
Cooling	Convection					
Line conduction noise	not specified					
Safety			-			
Weight (typical)	120g					
MTBF [H]	750,000					
Switching Frequency[kHz](typical)	90 Fix.	90 Fix.	90 Fix.	90 Fix.	90 Fix.	
o moming i roquorio jini izjitypiour	OUT IX.	00 i ix.	OUT IX.	OUT IX.	OUT IX.	



^{*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=""> SVM.**SD 15WATTS/ 1 OUTPUT Input Characteristic Input Voltage Input Range Inrush Current *1 Efficiency [%] (typical) *2 Dutput Characteristic Dutput Voltage [V] Dutput Current [A] Voltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation Instatistic Line Regulation [mV](maximum) Instatistic Load Regulation [mV](typical) *6 Instatic Load Regulation [mV](typical) *6 Instati</dc>	81 5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	SVM-15SD	SVM-24SD 86 24	SVM-48SD 86		
nput Characteristic nput Voltage nput Range nrush Current *1 Efficiency [%] (typical) *2 Dutput Characteristic Dutput Voltage [V] Dutput Current [A] /oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a.Statistic Line Regulation [mV](maximum) b.Statistic Load Regulation [mV](maximum) *5 E.Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	81 5 3.0 150 40 45	20 83 12 1.3 +/- 10% of Rated Outp	DC110V DC85-140V 0A(maximum) at DC110V 84 15 1.0	86			
nput Voltage nput Range nrush Current *1 Efficiency [%] (typical) *2 Dutput Characteristic Dutput Voltage [V] Dutput Current [A] /oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) c. Temperature Coefficient *4 d. Drift[mV](maximum) *5 e. Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	DC85-140V 0A(maximum) at DC110V 84 15 1.0				
nput Range nrush Current *1 Efficiency [%] (typical) *2 Dutput Characteristic Dutput Current [A] /oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) c. Temperature Coefficient *4 d. Drift[mV](maximum) *5 e. Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	DC85-140V 0A(maximum) at DC110V 84 15 1.0				
nrush Current *1 Efficiency [%] (typical) *2 Dutput Characteristic Dutput Current [A] Output Current [A] Oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) D. Statistic Load Regulation [mV](maximum) E. Temperature Coefficient *4 B. Driff[mV](maximum) *5 E. Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	0A(maximum) at DC110V 84 15 1.0		86		
Efficiency [%] (typical) *2 Dutput Characteristic Dutput Voltage [V] Dutput Current [A] /oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) b. Temperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	15 1.0		86		
Output Characteristic Output Voltage [V] Output Voltage [V] Output Current [A] Voltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a Statistic Line Regulation [mV](maximum) o Statistic Load Regulation [mV](maximum) c Emperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 d.Recovery Time *6 Rise up time Hold up time	5 3.0 150 40 45	12 1.3 +/- 10% of Rated Outp 220	15 1.0		86		
Output Characteristic Output Voltage [V] Output Voltage [V] Output Current [A] Voltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a Statistic Line Regulation [mV](maximum) o Statistic Load Regulation [mV](maximum) c Emperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 d.Recovery Time *6 Rise up time Hold up time	3.0 150 40 45	1.3 +/- 10% of Rated Outp 220	1.0	24			
Output Current [A] /oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) b. Temperature Coefficient *4 d. Drift[mV](maximum) *5 e. Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	3.0 150 40 45	1.3 +/- 10% of Rated Outp 220	1.0	24			
/oltage Adjust Range Ripple and Noise [mVp-p](maximum) *3 Regulation a. Statistic Line Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) b. Statistic Load Regulation [mV](maximum) b. Temperature Coefficient *4 d.Drift[mV](maximum) *5 b. Dynamic Load Regulation [mV](typical) *6 c. Recovery Time *6 Rise up time Hold up time	150 40 45	+/- 10% of Rated Outp 220			48		
Ripple and Noise [mVp-p](maximum) *3 Regulation a Statistic Line Regulation [mV](maximum) b Statistic Load Regulation [mV](maximum) c Temperature Coefficient *4 d Drift[mV](maximum) *5 e Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	40 45	220	out Voltage (at no load withir	0.7	0.35		
Regulation a.Statistic Line Regulation [mV](maximum) b.Statistic Load Regulation [mV](maximum) c.Temperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time	40 45	220		the input range)	, - _		
a.Statistic Line Regulation [mV](maximum) b.Statistic Load Regulation [mV](maximum) b.Temperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 d.Recovery Time *6 Rise up time Hold up time	45		250	340	580		
p. Statistic Load Regulation [mV](maximum) c. Temperature Coefficient *4 d. Drift[mV](maximum) *5 e. Dynamic Load Regulation [mV](typical) *6 l. Recovery Time *6 Rise up time Hold up time	45	^^					
E.Temperature Coefficient *4 d.Drift[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 l.Recovery Time *6 Rise up time Hold up time		96	120	192	384		
d.Driff[mV](maximum) *5 e.Dynamic Load Regulation [mV](typical) *6 e.Recovery Time *6 Rise up time Hold up time		108	135	216	432		
e.Dynamic Load Regulation [mV](typical) *6 Recovery Time *6 Rise up time Hold up time			0.03%/°C				
Recovery Time *6 Rise up time Hold up time	40	75	90	135	255		
Rise up time Hold up time	150	360	450	720	1440		
Hold up time	0.3mS(typical)						
		500mS(maxir	mum) at 25°C and rated inpu	ıt/output			
unctions			not specified				
			·				
Over current Protection		Current	limiting with automatic recov	ery			
110% of Rated Output [A]	3.30	1.43	1.10	0.77	0.39		
Over voltage Protection		Output shutdown	(to reset, leave 1minute after	r 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						
Environmental			· ·				
Operating Temperature			0 to +50°C				
Operating Humidity	85%RH(non-condensing)						
Storage Temperature	-20 to +85°C						
Storage Humidity	85%RH(non-condensing)						
Vithstanding Voltage	Primary-Secondary AC2,000V for 1minute						
	Primary-Frame Ground AC2,000V for 1minute						
	Secondary-Frame Ground AC500V for 1minute						
solation Resistance Primary-Secondary-	50MΩ(minimum) by DC500V insulation tester						
	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X.Y.Z axes(non-operating)						
Shock	J , ,		294m/s ²				
Cooling	Convection						
Line conduction noise	not specified						
Safety			-				
Weight (typical)	- 120g						
MTBF [H]		600.000					
Switching Frequency[kHz](typical)			600.000				

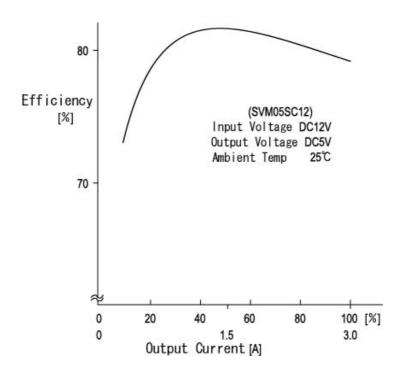
Conditions:

- *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

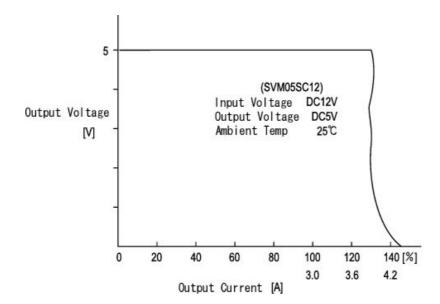
- *6 When output current changed between 25% and 75% of rated output current rapidly at DC110V input



Efficiency:

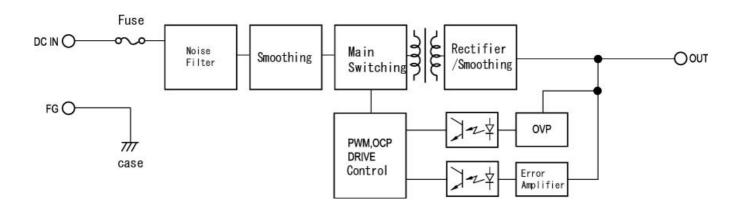


OCP:





Block diagram:



Dimension

