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Our SCHMID-M DC/DC Converters cover a range from 0.25W up to 40W. We always try to complete our product line according to the needs of our customers. Therefore we are proud to be able to introduce you our new SMD Series. Even if our standard series do not correspond to your special applications, please don't hesitate to contact us. With our customer designed series we will always be able to react to your individual needs.



Basic applications:

Portable Equipments, Industrial Control Circuits, Telecommunication Instruments, Bar Code Scanners, Notebooks and Palmtop PCs, Battery Chargers, Process Control Equipments, Local Area Network Circuits...

For more detailed information about all our series, power ranges and news, please have a look at our homepage:

www.schmid-m.com



Product Overview

Series	WATT	Single/Dual	Input Vdc	Output Vdc	Output Current (mA)	Features		
SA	0.25	Single	5, 12, 15	5 - 24	50 - 11	4 Pin SIL //8 DIL Package, Unregulated, Efficiency up to 82%, 1k / 3k Vdc Isolation, Non-conductive plastic case, MTBF > 2 Mhours		
	0.50				100 - 21			
	1.00	Dual Separate			5, 12, 24		5-24, $\pm 5 - \pm 24$	100-25, $\pm 100 - \pm 25$
		Single					5 - 24	200 - 50
		Dual					$\pm 5 - \pm 24$	$\pm 100 - \pm 25$
1.50	Single	5, 12, 24	5 - 24	300 - 62				
SB	1.00	Single	4.5~9.9~18, 18~36	5 - 24	200 - 42	8 Pin SIL// 16 Pin DIL Package, Regulated, Efficiency up to 78%, 1k/3k Vdc Isolation		
	2.00				400 - 83			
SC	Customer designed series							
SD	1.50	Single/ Dual	9 ~18, 18 ~36, 36 ~72	5 - 24/ $\pm 5 - \pm 24$	300 - 63/ $\pm 150 - \pm 32$	24 Pin DIL Package, Regulated, Efficiency up to 83%, 1.5k/ 3.5k Vdc Isolation, Nickel-Coated Copper metal, MTBF > 1.5 MHours, Continuous Short Circuit Protection, Wide 2:1 Input range		
	2.00				400 - 84/ $\pm 200 - \pm 42$			
	3.00				600 - 125/ $\pm 300 - \pm 63$			
	4.00				800 - 167/ $\pm 400 - \pm 84$			
	5.00				1000 - 209/ $\pm 500 - \pm 105$			
	6.00				1200 - 250/ $\pm 600 - \pm 125$			
SE	2.00	Single	5, 12, 24	5 - 24	400 - 83	4 Pin SIL Package, Unregulated, Efficiency up to 88%, 1k / 3k Vdc Isolation		
SF	1.50	Single	5, 12, 24	5 - 24	300 - 63	12 Pin DIL Package, Regulated, Efficiency up to 72%, 1k/ 3k Vdc isolation, MTFB > 1.5 MHours		
	2.00				400 - 83			
	3.00				600 - 125			
SG	1.50	Single / Dual	9 ~18, 18 ~36, 36 ~72	5 - 24/ $\pm 5 - \pm 24$	300 - 63/ $\pm 150 - \pm 32$	24 Pin DIL Package, Regulated, Efficiency up to 83%, 1.5k/3k Vdc Isolation, Nickel-coated Copper metal, MTBF > 1.12 MHours, Continuous Short circuit protection, Wide 2:1 Input Range		
	2.00				400 - 84/ $\pm 200 - \pm 42$			
	3.00				600 - 125/ $\pm 300 - \pm 63$			
	4.00				800 - 167/ $\pm 400 - \pm 84$			
	5.00				1000 - 209/ $\pm 500 - \pm 105$			
	6.00				1200 - 250/ $\pm 600 - \pm 125$			
SJ	1.50	Single / Dual	9~18, 18~36, 36~72	3.3-24/ $\pm 3.3 - \pm 24$	400 - 63/ $\pm 200 - \pm 32$	24 Pin DIL Package, Regulated, Efficiency up to 83%, 1.5k/ 3.5kVdc Isolation, Nickel-Coated copper metal, MTFB>1.05 MHours, Continuous Short Circuit Protection, Wide 4:1 Input Range		
	2.00		9 ~ 36, 18 ~ 72		600 - 84/ $\pm 300 - \pm 42$			
	3.00				900 - 125/ $\pm 600 - \pm 63$			
	4.00				1200 - 167/ $\pm 600 - \pm 84$			
	5.00				1000 - 209/ $\pm 758 - \pm 104$			
	6.00				1200 - 250/ $\pm 900 - \pm 125$			
SK	1.50	Single / Dual	9 ~ 36, 18 ~ 72	3.3-24/ $\pm 3.3 - \pm 24$	400 - 63/ $\pm 200 - \pm 32$	24 Pin DIL Package, Regulated, Efficiency up to 83%, 1.5k/ 3.5kVdc Isolation, Nickel-Coated copper metal, MTFB>1.05 MHours, Continuous Short Circuit Protection, Wide 2:1 Input Range		
	2.00				600 - 84/ $\pm 300 - \pm 42$			
	3.00				900 - 125/ $\pm 600 - \pm 63$			
	4.00				1200 - 167/ $\pm 600 - \pm 84$			
	5.00				1000 - 209/ $\pm 758 - \pm 104$			
	6.00				1200 - 250/ $\pm 900 - \pm 125$			
SQ	4.00	Single / Dual	9 ~ 36, 18 ~ 72	3.3-24/ $\pm 3.3 - \pm 24$	1200 - 167 / $\pm 600 - \pm 84$	24 Pin DIL Package, Regulated, Efficiency up to 78%, Wide 4:1 Input Range, 1/ 3kVdc Isolation, MTFB>1.03 MHours		
	5.00				1000-209 / $\pm 758 - \pm 104$			
	6.00				1200-250 / $\pm 900 - \pm 125$			
SR	0.5A output current	Single	4.75~30, 4.75~34, 6.5~34, 8.0~34,...	1.5~15	500	3 Pin SIL, Non Isolated, No need for heatsink. Wide input range, step-down switching		
S1	0.50	Single / Dual	5, 12, 24	5 - 24/ $\pm 5 - \pm 24$	100 - 21/ $\pm 50 - \pm 11$	7 Pin SIL // 14 PinDIL Package, Unregulated, Eff. up to 82%, 1k / 3k/6kVdc isolation, Non conductive Black Plastic Case MTBF>2Mhrs		
	0.75				150 - 32/ $\pm 75 - \pm 16$			
	1.00				200 - 42/ $\pm 100 - \pm 21$			
	1.00	Dual Separate			5, 3.3-5, 15		100, 151 - 100, 33	
	2.00	5, 5-5, 15			100, 100 - 34, 34			
S2	1.00	Dual Split	5, 12, 15, 24	5, 5	100, 100	7 Pin SIL Package, Regulated, Efficiency up to 69%, 1k/3kVdc Isolation		
S3	1.00	Dual Separate	5, 12, 24	5 - 24/ $\pm 5 - \pm 24$	5, 3.3 - 5, 15	7 Pin SIL // 14 PinDIL Package, Unregulated, Eff. up to 86%, 1k / 3k/6kVdc isolation, Low Ripple&Noise, MTBF>2Mhrs		
	2.00				5, 5 - 15, 15			
	2.00	Single / Dual			400 - 83/ $\pm 200 - \pm 42$			
S4	1.00	Single	5, 12, 24	5 - 15	200 - 67	7 Pin SIL // 14Pin DIL Package, Regulated, Eff. up to 70%, 1k/3kVdc Isolation		
S5	1.50	Single / Dual	5, 12, 24	5 - 24/ $\pm 5 - \pm 15$	200, 200 - 200, 67	24Pin DIL Package, Regulated, Eff. up to 72%, 1k/3kVdc isolation		
	2.00				200, 200 - 67, 67			
	3.00				400 - 83/ $\pm 200 - \pm 42$			
S6	1.50	Single / Dual	9 ~18, 18 ~36, 36 ~72	5 - 24/ $\pm 5 - \pm 24$	300 - 63/ $\pm 150 - \pm 32$	24 Pin DIL Package, Regulated, Efficiency up to 83%, 1.5k/3.5k Vdc Isolation, Nickel-coated Copper metal, Continuous Short Circuit Protection, MTFB > 1.1 MHours, Wide 2:1 Input Range		
	2.00				400 - 84/ $\pm 200 - \pm 42$			
	3.00				600 - 125/ $\pm 300 - \pm 63$			
	4.00				800 - 167/ $\pm 400 - \pm 84$			
	5.00				1000 - 209/ $\pm 500 - \pm 105$			
	6.00				1200 - 250/ $\pm 600 - \pm 125$			

S7	7.50	Single / Dual	9~18, 18~36, 36~72	5 -24/ ±5±24	1500 - 312/ ±750 - ±156	2" x 1" x 0.4" Package, Regulated, Eff. up to 90%, 1.5kVdc isolation, Nickel-coated Copper metal, Continuous Short Circuit Protection, Wide 2:1 Input Range
	10.00				2000 - 416/ ±1000 - ±208	
	12.00				2400 - 500/ ±1200 - ±250	
	15.00				3000 - 625/ ±1500 - ±312	
	20.00				4000 - 833/ ±2000 - ±416	
	25.00				5000 - 1041/ ±2500 - ±520	
30.00	6000 - 1250/ ±3000 - ±625					
S7E	10	Single / Dual	9~18, 18~36, 36~75	3.3-15/ ±3.3±15	2000-666 / ±1000 - ±333	Wide 2:1 Input Range, Continuous Short Circuit Protection
	15				3000-100 / ±1500 - ±500	
S7L	15	Single / Dual	9~18, 18~36, 36~72	3.3-24	3000-625/ ±1500 - ±312	Wide 2:1 Input Range, 1500 VDC Isolation, Continuous Short Circuit Protection, Efficiency up to 88% Low Profile metal package
	20				4000-833/ ±2000 - ±416	
	25				5000-1041/ ±2500 - ±520	
	30				6000-1250/ ±3000 - ±625	
SM	25	Single / Dual	9~18, 18~36, 36~75	3.3-5	2500-2000	High Power, Regulated, Wide 2:1 Input Range, 1.5kVdc isolation, Eff. up to 91%
	30			12-15	5500-5000/±1250 - ±1000	
SVD	1.5~5	Single	18~36	5	300-1000	Wide 2:1 Input Range, 1500 VDC Isolation, Up to 3500 VDC Continuous Short Circuit Protection, Efficiency up to 80%.
SVRB	15	Single	9~18, 18~36, 36~75	3.3-15	3000-1000	High power series, Efficiency up to 90%, Wide (2:1) Input Range, 1.5kVDC Isolation, Over Current, Voltage & Temperature Protection
	20				5400-833	
	30				6000-1250	
	40				8000-2666	
S9	20	Single / Dual	9~36, 18~75	(±)3.3-(±)15	5500-1330/±2000 - ±665	Ultra Wide 4:1 Input Range, Efficiency up to 91%, Adjustable Output Voltage, Remote On / Off Control, Continuous Short Circuit Protection
SRD	1.50	Single / Dual	4.5~9, 9~18 18~36, 36~72	(±)5-(±)24	300-62.5/±150-±31	24 Pin DIL Package, Regulated, Wide 2:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 83%, Non Conductive Plastic Case
	2.00				400-83/±200-±42	
	3.00		600-125/±300-±63			
	4.00		800-167/±400-±83			
	5.00		1000-209/±500-±104			
	6.00		1200-250/±600-±125			
SRG	1.50	Single / Dual	4.5~9, 9~18 18~36, 36~72	(±)5-(±)24	300-62.5/±150-±31	24 Pin DIL Package, Regulated, Wide 2:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 82%, Non Conductive Plastic Case
	2.00				400-83/±200-±42	
	3.00		600-125/±300-±63			
	4.00		800-167/±400-±83			
	5.00		1000-209/±500-±104			
	6.00		1200-250/±600-±125			
SRJ	1.50	Single / Dual	9~36, 18~72	(±)5-(±)24	400-63/±200-±32	24 Pin DIL Package, Regulated, Wide 4:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 82%, Non Conductive Plastic Case
	2.00			600-84/±300-±42		
	3.00			900-125/±450-±63		
	4.00			1200-167/±600-±84		
	5.00			1000-209/±500-±104		
	6.00			1200-250/±600-±125		
SRK	1.50	Single / Dual	9~36, 18~72	(±)5-(±)24	400-63/±200-±32	24 Pin DIL Package, Regulated, Wide 4:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 82%, Non Conductive Plastic Case
	2.00			600-84/±300-±42		
	3.00			900-125/±450-±63		
	4.00			1200-167/±600-±84		
	5.00			1000-209/±500-±104		
	6.00			1200-250/±600-±125		
SRP	1.50	Single / Dual	9~36, 18~72	(±)5-(±)24	400-63/±200-±32	24 Pin DIL Package, Regulated, Wide 4:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 83%, Non Conductive Plastic Case
	2.00			600-84/±300-±42		
	3.00			900-125/±450-±63		
	4.00			1200-167/±600-±84		
	5.00			1000-209/±500-±104		
	6.00			1200-250/±600-±125		
SR6	1.50	Single / Dual	4.5~9, 9~18 18~36, 36~72	(±)5-(±)24	300-62.5/±150-±31	24 Pin DIL Package, Regulated, Wide 2:1 Input Range, 1.5/3.5kVdc Isolation, Continuous Short Circuit Protection, Efficiency up to 83%, Non Conductive Plastic Case
	2.00				400-83/±200-±42	
	3.00		600-125/±300-±63			
	4.00		800-167/±400-±83			
	5.00		1000-209/±500-±104			
	6.00		1200-250/±600-±125			
SWRA	1	Dual	9-18, 18-36, 36-72	(±)5-(±)15	±100-±33/200-67	Miniature SMD Package, Eff. up to 81%, 1.5kVdc isolation, Wide 2:1 Input Range
	2				500-810/±200-±67	
	3				909-200/±300-±100	
	6				1200-250/±600-±200	
SWRB	1	Single	9-18, 18-36, 36-72	(±)5-(±)15	±100-±33/200-67	Miniature SMD Package, Eff. up to 81%, 1.5kVdc isolation, Wide 2:1 Input Range
	2				500-810/±200-±67	
	3				909-200/±300-±100	
	6				1200-250/±600-±200	

DC/DC Converters – SA-D01(H)/DD1(H) series

1 WATT

Dual Separate / Dual Output

FEATURES

- 8 Pin DIL Package
- Up to 3000 VDC Isolation
- 1000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 79 %
- Operating Temperature Range - 40°C ~ 85°C
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B

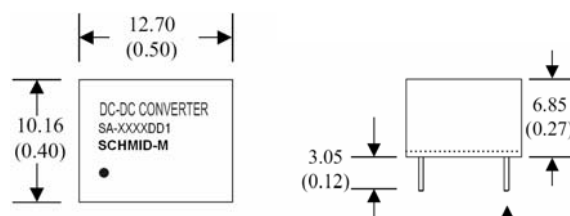
Model Number	Input Vdc	Output Vdc, out1, out2	Output Current (mA)	Eff. @FL (%)
SA-3R33R3D01	3.3	3.3, 3.3	152, 152	73
SA-3R305D01/		5, 5	100, 100	75
SA-3R37R2D01		7.2, 7.2	69, 69	75
SA-3R309D01		9, 9	56, 56	75
SA-3R312D01		12, 12	50, 50	78
SA-3R315D01		15, 15	33, 33	78
SA-3R318D01		18, 18	28, 28	78
SA-3R324D01		24, 24	25, 25	79
SA-053R3D01/DD1	5	3.3, 3.3	152, 152	74
SA-0505D01/DD1		5, 5	100, 100	74
SA-057R2D01/DD1		7.2, 7.2	69, 69	75
SA-0509D01/DD1		9, 9	56, 56	75
SA-0512D01/DD1		12, 12	50, 50	75
SA-0515D01/DD1		15, 15	33, 33	77
SA-0518D01/DD1		18, 18	28, 28	77
SA-0524D01/DD1		24, 24	25, 25	77
SA-123R3D01/DD1	12	3.3, 3.3	152, 152	75
SA-1205D01/DD1		5, 5	100, 100	75
SA-127R2D01/DD1		7.2, 7.2	69, 69	75
SA-1209D01/DD1		9, 9	56, 56	75
SA-1212D01/DD1		12, 12	50, 50	76
SA-1215D01/DD1		15, 15	33, 33	76
SA-1218D01/DD1		18, 18	28, 28	76
SA-1224D01/DD1		24, 24	25, 25	79
SA-153R3D01	15	3.3, 3.3	152, 152	75
SA-1505D01		5, 5	100, 100	76
SA-157R2D01		7.2, 7.2	69, 69	76
SA-1509D01		9, 9	56, 56	76
SA-1512D01		12, 12	50, 50	77
SA-1515D01		15, 15	33, 33	77
SA-1518D01		18, 18	28, 28	77
SA-1524D01		24, 24	25, 25	78
SA-243R3D01/DD1	24	3.3, 3.3	152, 152	73
SA-2405D01/DD1		5, 5	100, 100	75
SA-247R2D01/DD1		7.2, 7.2	69, 69	75
SA-2409D01/DD1		9, 9	56, 56	75
SA-2412D01/DD1		12, 12	50, 50	78
SA-2415D01/DD1		15, 15	33, 33	78
SA-2418D01/DD1		18, 18	28, 28	78
SA-2424D01/DD1		24, 24	25, 25	79

Input specifications:		
Input Reflected Ripple Current		20mA pk-pk, typ
Filter:		Capacitors
Voltage Range		±10%
Output specifications:		
Voltage accuracy		±3%
Ripple & noise (at 20MHz BW)		100mV pk-pk
Line regulation		±1.2%/Per 1% Vin change
Load regulation		±10%, load=20~100%
	3.3V models	±20%
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		80 kHz, variable
I/O isolation voltage (3 sec)		1000~3000Vdc
Safety standard		IEC 60950-1
EMC characteristics		
Radiated Emissions	EN55022	CLASS B
	FCC 47 CFR Part 15 Subp.B	CLASS B
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A

Notes:
Suffix H means 3KVdc isolation

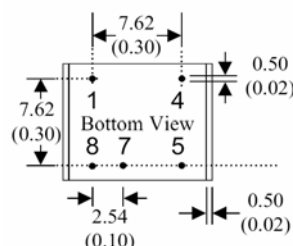
MECHANICAL DIMENSIONS & PIN CONNECTIONS

8 Pin DIL Package



Pin Size is 0.5 mm (0.02") DIA
or 0.50x0.30 mm (0.02x0.01")

PIN #	Dual
1	-Vin
4	+Vin
5	+Vout
7	Common
8	-Vout



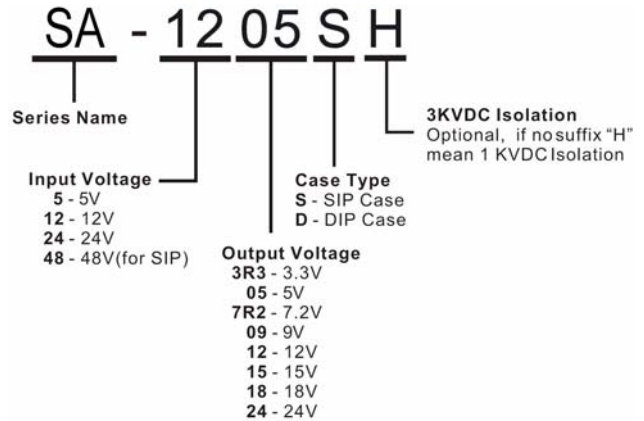


DC/DC Converters – SA-S/D1 series

1 WATT (available also 0.25, 0.5 and 1.5 WATT series)
Single Output

FEATURES

- 4 PIN SIL / 8 Pin DIL Package
- Up to 3000 VDC Isolation
- 1000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 78 %
- Operating Temperature Range - 40°C ~ 85°C
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B



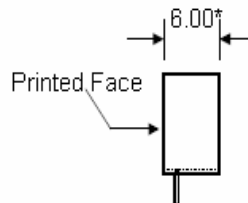
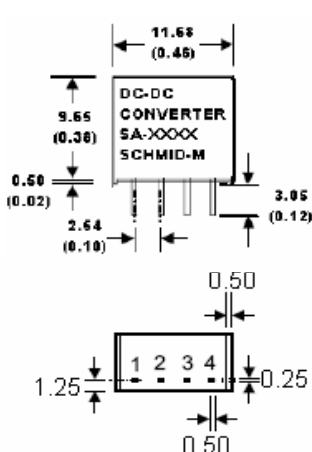
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Eff. @FL (%)
SA-053R3S1/D1	5	3.3	303	72
SA-0505S1/D1		5	200	75
SA-057R2S1/D1		7.2	138.8	76
SA-0509S1/D1		9	111.1	77
SA-0512S1/D1		12	83.3	78
SA-0515S1/D1		15	66.67	78
SA-0518S1/D1		18	55.5	78
SA-0524S1/D1		24	41.67	78
SA-123R3S1/D1	12	3.3	303	72
SA-1205S1/D1		5	200	75
SA-127R2S1/D1		7.2	138.8	76
SA-1209S1/D1		9	111.1	77
SA-1212S1/D1		12	83.3	78
SA-1215S1/D1		15	66.67	78
SA-1218S1/D1		18	55.5	78
SA-1224S1/D1		24	41.67	78
SA-243R3S1/D1	24	3.3	303	72
SA-2405S1/D1		5	200	75
SA-247R2S1/D1		7.2	138.8	76
SA-2409S1/D1		9	111.1	77
SA-2412S1/D1		12	83.3	78
SA-2415S1/D1		15	66.67	78
SA-2418S1/D1		18	55.5	78
SA-2424S1/D1		24	41.67	78
SA-483R3S1/D1	48	3.3	303	72
SA-4805S1/D1		5	200	75
SA-487R2S1/D1		7.2	138.8	76
SA-4809S1/D1		9	111.1	76
SA-4812S1/D1		12	83.3	76
SA-4815S1/D1		15	66.67	76
SA-4818S1/D1		18	55.5	76
SA-4824S1/D1		24	41.67	76

Input specifications:		
Input Reflected Ripple Current	20mA pk-pk, typ	
Filter:	Capacitors	
Voltage Range	±10%	
Output specifications:		
Voltage accuracy	±3%	
Ripple & noise (at 20MHz BW)	100mV pk-pk	
Line regulation	±1.2%/Per 1% Vin change	
Load regulation	±10%, load=20~100%	
	3.3V models	±20%
Temperature coefficient	±0.02%/°C	
General Specifications:		
Switching Frequency	80 kHz, variable	
I/O isolation voltage (3 sec)	1000~3000Vdc	
Safety standard	IEC 60950-1	
EMC characteristics		
Radiated Emissions	EN55022	CLASS B
	FCC 47 CFR Part 15 Subp.B	CLASS B
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A
Environmental specifications:		
Operating Temperature	-40°C ~ +85°C	
Case temperature	100°C Max.	
Storage Temperature	-40°C ~ +125°C	
Cooling	Nature Convection	

Notes:
Suffix H means 3KVdc isolation

MECHANICAL DIMENSIONS & PIN CONNECTIONS

4 Pin SIL Package



PIN #	Single
1	-V Input
2	+V Input
3	-V Output
4	+V Output

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

8 Pin DIL Package is on next page

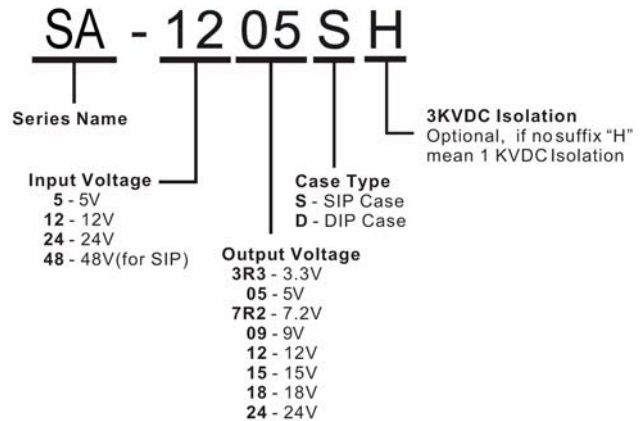


DC/DC Converters – SA-S/D1.5 series

1 WATT (available also 0.25, 0.5 and 1 WATT series)
Single Output

FEATURES

- 4 PIN SIL / 8 Pin DIL Package
- Up to 3000 VDC Isolation
- 1000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 79 %
- Operating Temperature Range - 40°C ~ 85°C
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B



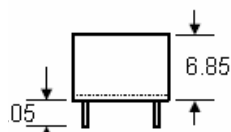
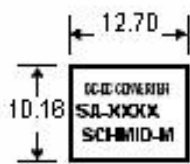
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Eff. @FL (%)
SA-053R3S/D1.5	5	3.3	400	73
SA-0505S/D1.5		5	300	75
SA-057R2S/D1.5		7.2	208	75
SA-0509S/D1.5		9	167	75
SA-0512S/D1.5		12	125	78
SA-0515S/D1.5		15	100	78
SA-0518S/D1.5		18	83	78
SA-0524S/D1.5		24	62.5	79
SA-123R3S/D1.5	12	3.3	400	74
SA-1205S/D1.5		5	300	74
SA-127R2S/D1.5		7.2	208	75
SA-1209S/D1.5		9	167	75
SA-1212S/D1.5		12	125	75
SA-1215S/D1.5		15	100	77
SA-1218S/D1.5		18	83	77
SA-1224S/D1.5		24	62.5	77
SA-243R3S/D1.5	24	3.3	400	75
SA-2405S/D1.5		5	300	75
SA-247R2S/D1.5		7.2	208	75
SA-2409S/D1.5		9	167	75
SA-2412S/D1.5		12	125	76
SA-2415S/D1.5		15	100	76
SA-2418S/D1.5		18	83	76
SA-2424S/D1.5		24	62.5	79
SA-483R3S/D1.5	48	3.3	400	75
SA-4805S/D1.5		5	300	76
SA-487R2S/D1.5		7.2	208	76
SA-4809S/D1.5		9	167	76
SA-4812S/D1.5		12	125	77
SA-4815S/D1.5		15	100	77
SA-4818S/D1.5		18	83	77
SA-4824S/D1.5		24	62.5	78

Input specifications:	
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors
Voltage Range	±10%
Output specifications:	
Voltage accuracy	±3%
Ripple & noise (at 20MHz BW)	100mV pk-pk
Line regulation	±1.2%/Per 1% Vin change
Load regulation	±10%, load=20~100%
3.3V models	±20%
Temperature coefficient	±0.02%/°C
General Specifications:	
Switching Frequency	80 kHz, variable
I/O isolation voltage (3 sec)	1000~3000Vdc
Safety standard	IEC 60950-1
EMC characteristics	
Radiated Emissions	EN55022 CLASS B
	FCC 47 CFR Part 15 Subp.B CLASS B
ESD	IEC61000-4-2 Perf. Criteria B
RS	IEC61000-4-3 Perf. Criteria A
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection

Notes:
Suffix H means 3KVdc isolation

MECHANICAL DIMENSIONS & PIN CONNECTIONS

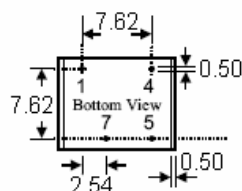
8 Pin DIL Package



Pin Size is 0.5mm DIA or 0.50x0.30mm.

PIN #	Single
1	-V Input
2	+V Input
3	-V Output
4	+V Output

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



4 Pin SIL Package is on previous page

DC/DC Converters – SB-S/D1(HM) series

1 WATT (available also 2 and 3 WATT series)

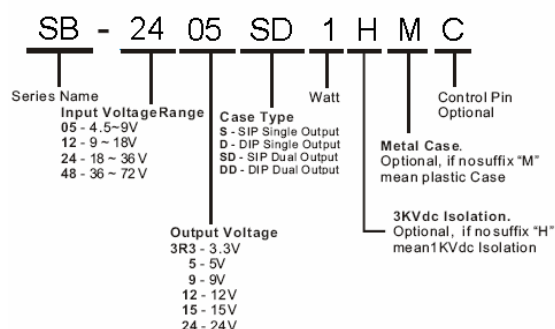
Single / Dual Output

FEATURES

- 8 Pin SIL / 16 Pin DIL Package (3 WATT series – 8 Pin SIL only)
- Wide 2:1 Input Range
- Full SMD Technology
- 1000 Vdc Isolation, Up to 3000 Vdc Isolation (3 WATT series only 1500 Vdc Isolation)
- Continuous Short Circuit Protection
- Operating Temperature Range - 40°C ~ 85°C (3 WATT 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	18-36	15.0	67	77
SB-1224S1		24.0	42	73
SB-243R3S1		3.3	303	70
SB-2405S1		5.0	200	72
SB-2409S1		9.0	111	75
SB-2412S1	36-72	12.0	83	75
SB-2415S1		15.0	67	75
SB-2424S1		24.0	42	75
SB-483R3S1		3.3	303	66
SB-4805S1		5.0	200	68
SB-4809S1	4.5-9	9.0	111	70
SB-4812S1		12.0	83	70
SB-4815S1		15.0	67	70
SB-4824S1		24.0	42	68
SB-053R3D1		9-18	3.3	303
SB-0505D1	5.0		200	67
SB-0509D1	9.0		111	70
SB-0512D1	12.0		83	70
SB-0515D1	15.0		67	70
SB-0524D1	36-72	24.0	42	68
SB-123R3D1		3.3	303	70
SB-1205D1		5.0	200	72
SB-1209D1		9.0	111	77
SB-1212D1		12.0	83	77
SB-1215D1	18-36	15.0	67	77
SB-1224D1		24.0	42	73
SB-243R3D1		3.3	303	70
SB-2405D1		5.0	200	72
SB-2409D1		9.0	111	75
SB-2412D1	36-72	12.0	83	75
SB-2415D1		15.0	67	75
SB-2424D1		24.0	42	75
SB-483R3D1		3.3	303	66
SB-4805D1		5.0	200	68
SB-4809D1	4.5-9	9.0	111	70
SB-4812D1		12.0	83	70

Input specifications:	
Input Reflected Ripple Current Filter:	35mA pk-pk Capacitors
Output specifications:	
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
General Specifications:	
Switching Frequency	100-650 kHz, var
I/O isolation voltage (3 sec)	1000-3000Vdc
Metal Case	1000Vdc
Safety standard	IEC 60950-1:2001
Environmental specifications:	
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



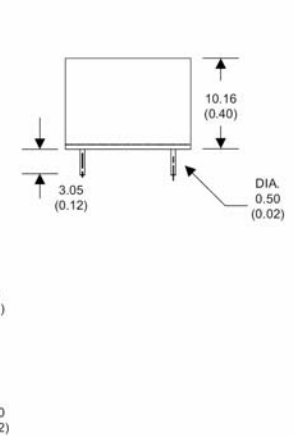
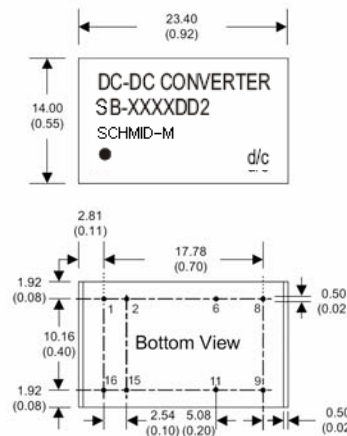
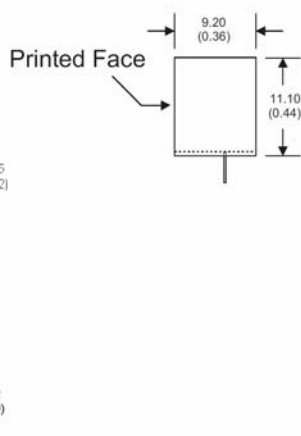
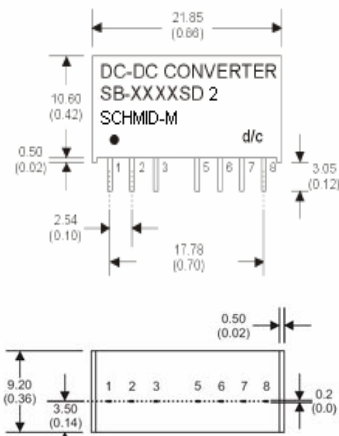
Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
SB-4815D1	36-72	15.0	67	70
SB-4824D1		24.0	42	68
SB-053R3SD1	4.5-9	±3.3	±152	70
SB-0505SD1		±5.0	±100	74
SB-0509SD1		±9.0	±56	74
SB-0512SD1		±12.0	±42	75
SB-0515SD1		±15.0	±33	70
SB-0524SD1		±24.0	±21	67
SB-123R3SD1		9-18	±3.3	±152
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
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
SB-4805SD1	±5.0		±100	70
SB-4809SD1	±9.0		±56	74
SB-4812SD1	±12.0		±42	76
SB-4815SD1	±15.0		±33	72

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
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
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
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±0.05 (0.02±0.002)
 2. Pin pitch tolerance: ±0.35 (±0.014)
 3. Case Tolerance: ±0.5 (±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

DC/DC Converters – SD - S/D3 series

3 WATT (available also 1 and 2 WATT series)

Single / Dual Output

FEATURES

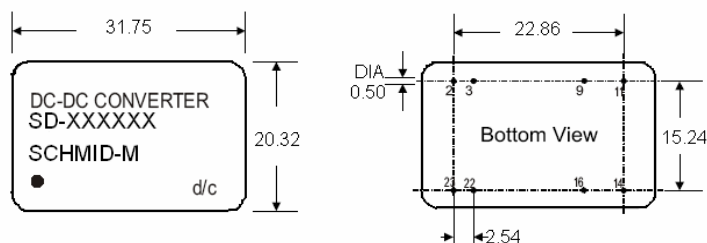
- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 82 %
- Metal Case Standard, optional Plastic Case

Input specifications:	
Input Reflected Ripple Current Filter:	35mA pk-pk, typ Pi Type
Output specifications:	
Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Short Circuit Protection	Indefinite
Line regulation	±0.5%
Load regulation	±0.5% (10-100% load)
	(±)3.3V models ±0.7% (10-100% load)
Temperature coefficient	±0.02%/°C
General Specifications:	
Switching Frequency	330 kHz, typ
I/O isolation voltage (3 sec)	1500Vdc
	Metal Case 1000Vdc
Safety standard	IEC 60950
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SD-123R3S3	9-18	3.3	900	72
SD-1205S3		5	600	76
SD-1209S3		9	333	78
SD-1212S3		12	250	80
SD-1215S3		15	200	80
SD-1224S3		24	125	80
SD-123R3D3	9-18	±3.3	±450	72
SD-1205D3		±5	±300	76
SD-1209D3		±9	±167	80
SD-1212D3		±12	±125	80
SD-1215D3		±15	±100	80
SD-1224D3		±24	±63	80
SD-243R3S3	18-36	3.3	900	72
SD-2405S3		5	600	76
SD-2409S3		9	333	78
SD-2412S3		12	250	80
SD-2415S3		15	200	82
SD-2424S3		24	125	82
SD-243R3D3	18-36	±3.3	±450	72
SD-2405D3		±5	±300	78
SD-2409D3		±9	±167	80
SD-2412D3		±12	±125	82
SD-2415D3		±15	±100	82
SD-2424D3		±24	±63	82
SD-483R3S3	36-72	3.3	900	72
SD-4805S3		5	600	76
SD-4809S3		9	333	78
SD-4812S3		12	250	80
SD-4815S3		15	200	80
SD-4824S3		24	125	80
SD-483R3D3	36-72	±3.3	±450	72
SD-4805D3		±5	±300	76
SD-4809D3		±9	±167	78
SD-4812D3		±12	±125	80
SD-4815D3		±15	±100	80
SD-4824D3		±24	±63	80

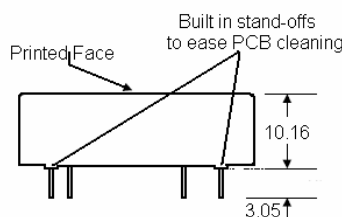
MECHANICAL DIMENSIONS & PIN CONNECTIONS

PIN #	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)



DC/DC Converters – SD - S/D5 series

5 WATT (available also 4 WATT series)

Single / Dual Output

FEATURES

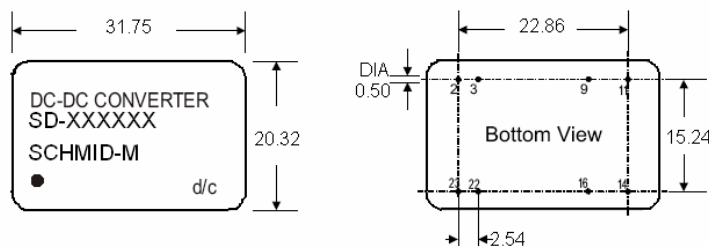
- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500VDC
- Continuous Short Circuit Protection
- Efficiency up to 83%
- Metal case Standard, Optional Plastic Case - P

Input specifications:	
Filter:	π (Pi) Type
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	390 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	60 mVp-p, Max
Short Circuit Protection	Indefinite
Line regulation	$\pm 0.5\%$, Max
Load regulation	$\pm 0.5\%$, Max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Switching Frequency	266 kHz, Typ.
Capacitance	470 pF, Typ.
Resistance	1000 M Ω
Enviromental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100 $^{\circ}\text{C}$ Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SD-123R3S5	9-18	3.3	1300	73
SD-1205S5		5	1000	77
SD-1209S5		9	555	78
SD-1212S5		12	417	81
SD-1215S5		15	333	80
SD-1224S5		24	208	80
SD-123R3D5	9-18	± 3.3	± 750	73
SD-1205D5		± 5	± 500	77
SD-1209D5		± 9	± 278	80
SD-1212D5		± 12	± 208	80
SD-1215D5		± 15	± 167	79
SD-1224D5		± 24	± 104	80
SD-243R3S5	18-36	3.3	1300	75
SD-2405S5		5	1000	80
SD-2409S5		9	555	82
SD-2412S5		12	417	80
SD-2415S5		15	333	82
SD-2424S5		24	208	82
SD-243R3D5	18-36	± 3.3	± 750	75
SD-2405D5		± 5	± 500	78
SD-2409D5		± 9	± 278	83
SD-2412D5		± 12	± 208	80
SD-2415D5		± 15	± 167	80
SD-2424D5		± 24	± 104	80
SD-483R3S5	36-72	3.3	1300	75
SD-4805S5		5	1000	80
SD-4809S5		9	555	82
SD-4812S5		12	417	80
SD-4815S5		15	333	83
SD-4824S5		24	208	83
SD-483R3D5	36-72	± 3.3	± 750	73
SD-4805D5		± 5	± 500	79
SD-4809D5		± 9	± 278	79
SD-4812D5		± 12	± 208	80
SD-4815D5		± 15	± 167	80
SD-4824D5		± 24	± 104	80

MECHANICAL DIMENSIONS & PIN CONNECTIONS

PIN #	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

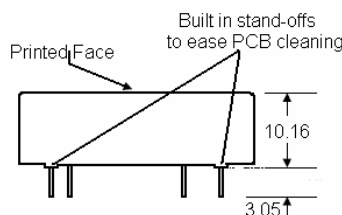


Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)

2. Pin pitch tolerance: ± 0.35 (± 0.014)

3. Case Tolerance: ± 0.5 (± 0.02)



DC/DC Converters – SD - S/D6 series

6 WATT

Single / Dual Output

FEATURES

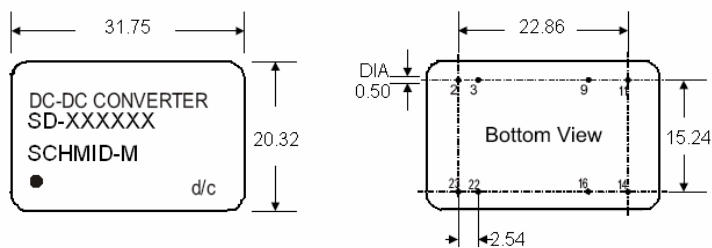
- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500VDC
- Continuous Short Circuit Protection
- Efficiency up to 75%
- Metal case Standard, Optional Plastic Case - P

Input specifications:	
Filter:	π (Pi) Type
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	390 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	60 mVp-p, Max
Short Circuit Protection	Indefinite
Line regulation	$\pm 0.5\%$, Max
Load regulation	$\pm 0.5\%$, Max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Switching Frequency	266 kHz, Typ.
Capacitance	470 pF, Typ.
Resistance	1000 M Ω
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100°C Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SD-123R3S6	9-18	3.3	1400	73
SD-1205S6		5	1200	77
SD-1209S6		9	666	78
SD-1212S6		12	500	81
SD-1215S6		15	400	80
SD-1224S6		24	250	80
SD-123R3D6	9-18	± 3.3	± 909	73
SD-1205D6		± 5	± 600	77
SD-1209D6		± 9	± 333	80
SD-1212D6		± 12	± 250	80
SD-1215D6		± 15	± 200	79
SD-1224D6		± 24	± 125	80
SD-243R3S6	18-36	3.3	1400	75
SD-2405S6		5	1200	80
SD-2409S6		9	666	82
SD-2412S6		12	500	80
SD-2415S6		15	400	82
SD-2424S6		24	250	82
SD-243R3D6	18-36	± 3.3	± 909	75
SD-2405D6		± 5	± 600	78
SD-2409D6		± 9	± 333	83
SD-2412D6		± 12	± 250	80
SD-2415D6		± 15	± 200	80
SD-2424D6		± 24	± 125	80
SD-483R3S6	36-72	3.3	1400	75
SD-4805S6		5	1200	80
SD-4809S6		9	666	82
SD-4812S6		12	500	80
SD-4815S6		15	400	83
SD-4824S6		24	250	83
SD-483R3D6	36-72	± 3.3	± 909	73
SD-4805D6		± 5	± 600	79
SD-4809D6		± 9	± 333	79
SD-4812D6		± 12	± 250	80
SD-4815D6		± 15	± 200	80
SD-4824D6		± 24	± 125	80

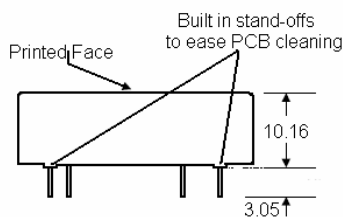
MECHANICAL DIMENSIONS & PIN CONNECTIONS

PIN #	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
2. Pin pitch tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)



DC/DC Converters – SD- S/D8 series

8 WATT (available also 10 WATT series)

Single / Dual Output

FEATURES

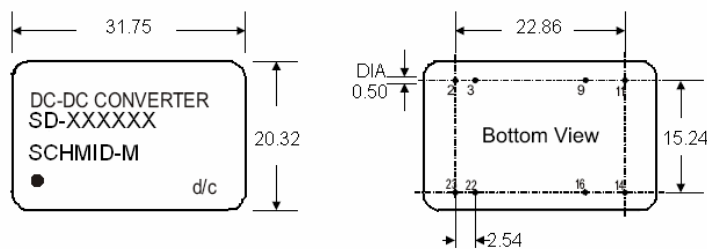
- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 85 %
- Metal Case Standard, Optional Plastic Case – suffix P
- High Power Density: 8W in 24-DIL Package

Input specifications:		
Input Reflected Ripple Current		35mA pk-pk, typ
Filter:		Pi Type
Output specifications:		
Voltage accuracy		±1%
Ripple & noise (at 20MHz BW)		75mV pk-pk
Short Circuit Protection		Indefinite
Line regulation		±0.5%
Load regulation		±0.5% (10-100% load)
	(±)3.3V models	±0.7% (10-100% load)
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		330 kHz, typ
I/O isolation voltage (3 sec)		1500Vdc
	Metal Case	1000Vdc
Safety standard		IEC 60950
Environmental specifications:		
Operating Temperature		-40°C ~ +85°C
Case temperature		100°C Max.
Storage Temperature		-40°C ~ +125°C
Cooling		Nature Convection
Humidity		95% rel H
EMC Characteristics		
Radiated Emissions	EN55022	CLASS A
Conducted Emissions	EN55022	CLASS A
ESD, EFT, Surge	EN61000-2,4,5	Perf. Criteria B
RS, CS, PFMF	EN61000-3,6,8	Perf. Criteria A

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SD-123R3S8	9-18	3.3	2000	80
SD-1205S8		5	1500	82
SD-1212S8		12	665	85
SD-1215S8		15	535	83
SD-1205D8		±5	±800	82
SD-1212D8		±12	±335	84
SD-1215D8	±15	±265	84	
SD-2243R3S8	18-36	3.3	2000	80
SD-2405S8		5	1500	82
SD-2412S8		12	665	85
SD-2415S8		15	535	84
SD-2405D8		±5	±800	82
SD-2412D8		±12	±335	83
SD-2415D8	±15	±265	85	
SD-483R3S8	36-72	3.3	2000	80
SD-4805S8		5	1500	82
SD-4812S8		12	665	84
SD-4815S8		15	535	84
SD-4805D8		±5	±800	82
SD-4812D8		±12	±335	85
SD-4815D8	±15	±265	85	

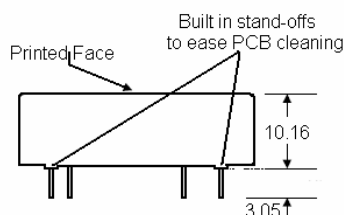
MECHANICAL DIMENSIONS & PIN CONNECTIONS

PIN #	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)



DC/DC Converters – SE-S(H) series

2 WATT

Single Output

FEATURES

- 4 Pin SIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Efficiency up to 84 %
- Extended Operating Temperature Range - 40°C ~ 85°C
- Non-Conductive Black Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SE-053R3S	5	3.3	400	71
SE-0505S		5	400	77
SE-057R2S		7.2	278	77
SE-0509S		9	222	80
SE-0512S		12	167	82
SE-0515S		15	133	82
SE-0518S		18	111	82
SE-0524S		24	83	82
SE-123R3S	12	3.3	400	72
SE-1205S		5	400	78
SE-127R2S		7.2	278	80
SE-1209S		9	222	82
SE-1212S		12	167	84
SE-1215S		15	133	84
SE-1218S		18	111	84
SE-1224S		24	83	82
SE-153R3S	15	3.3	400	73
SE-1505S		5	400	78
SE-157R2S		7.2	278	80
SE-1509S		9	222	82
SE-1512S		12	167	84
SE-1515S		15	133	84
SE-1518S		18	111	84
SE-1524S		24	83	82
SE-243R3S	24	3.3	400	74
SE-2405S		5	400	80
SE-247R2S		7.2	278	80
SE-2409S		9	222	84
SE-2412S		12	167	84
SE-2415S		15	133	84
SE-2418S		18	111	84
SE-2424S		24	83	84
SE-483R3S	48	3.3	400	72
SE-4805S		5	400	78
SE-487R2S		7.2	278	80
SE-4809S		9	222	82
SE-4812S		12	167	80
SE-4815S		15	133	82
SE-4818S		18	111	82
SE-4824S		24	83	82

Input specifications:

Input Reflected Ripple Current 20mA p-p, typ
Filter: Capacitors
Voltage Range $\pm 10\%$

Output specifications:

Voltage accuracy $\pm 3\%$
Ripple & noise (at 20MHz BW) 150mV pk-pk
Line regulation $\pm 1.2\%$ /Per 1% Vin change
Load regulation $\pm 10\%$, load=20~100%
3.3V models $\pm 20\%$
Temperature coefficient $\pm 0.02\%/^{\circ}\text{C}$

General Specifications:

Efficiency 71% ~ 84%
Switching Frequency 70 kHz, variable
I/O isolation voltage (3 sec) 1000~3000Vdc
Safety standard IEC/EN 60950-1

EMC characteristics

Radiated Emissions EN55022 CLASS B
FCC 47 CFR Part 15 Subp.B CLASS A
ESD IEC61000-4-2 Perf. Criteria B
RS IEC61000-4-3 Perf. Criteria A

Environmental specifications:

Operating Temperature $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature 100°C Max.
Storage Temperature $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Cooling Nature Convection

Notes:

Suffix H means 3KVdc isolation

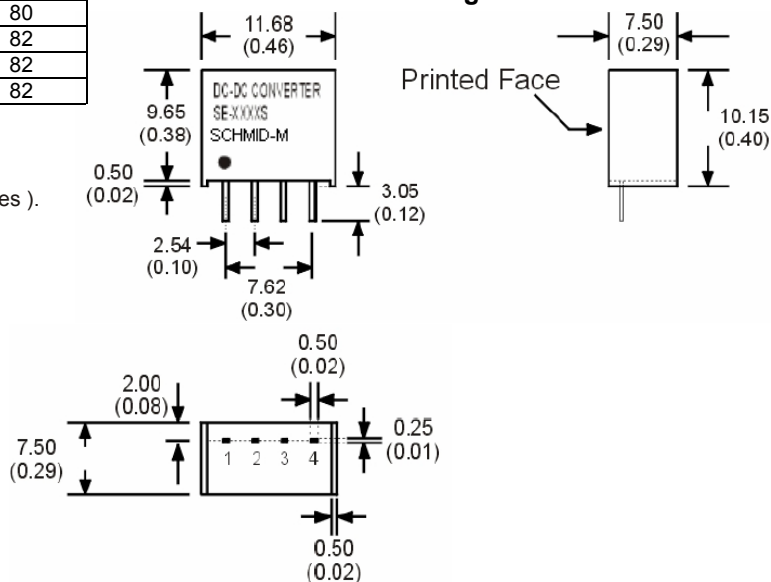
Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
2. Pin pitch tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)

PIN #	Single
1	-Vin
2	+Vin
3	-Vout
4	+Vout

MECHANICAL DIMENSIONS & PIN CONNECTIONS

4-SIL Package



DC/DC Converters – SJ-S/D1 series

1.5 WATT (available also 2 WATT series)
Single / Dual Output

FEATURES

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 80 %
- Metal Case Standard, Optional Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)	
SJ-243R3S1	9-36	3.3	454	73	
SJ-2405S1		5	300	77	
SJ-2409S1		9	167	78	
SJ-2412S1		12	125	81	
SJ-2415S1		15	100	80	
SJ-2424S1		24	63	80	
SJ-243R3D1		±3.3	±227	73	
SJ-2405D1		±5	±150	77	
SJ-2409D1		±9	±84	80	
SJ-2412D1		±12	±63	80	
SJ-2415D1		±15	±50	79	
SJ-2424D1		±24	±32	80	
SJ-483R3S1		18-72	3.3	454	75
SJ-4805S1			5	300	80
SJ-4809S1	9		167	82	
SJ-4812S1	12		125	80	
SJ-4815S1	15		100	82	
SJ-4824S1	24		63	82	
SJ-483R3D1	±3.3		±227	75	
SJ-4805D1	±5		±150	78	
SJ-4809D1	±9		±84	83	
SJ-4812D1	±12		±63	80	
SJ-4815D1	±15		±50	80	
SJ-4824D1	±24		±32	80	

Suffix „P“ means Plastic Case, „H“ means 3500Vdc Isolation

Input specifications:
Input Reflected Ripple Current 35mA pk-pk, typ
Filter: Pi Type

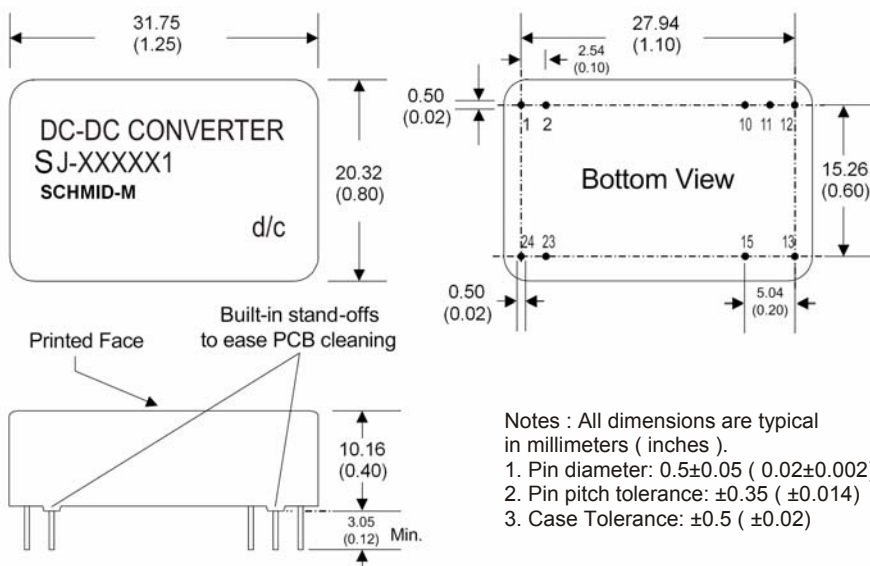
Output specifications:
Voltage accuracy ±1%
Ripple & noise (at 20MHz BW) 60mV pk-pk
Short Circuit Protection Indefinite
Line regulation ±0.5%
Load regulation ±0.5%
(±)3.3V models ±1.5%
Temperature coefficient ±0.02%/°C

General Specifications:
Efficiency 73% ~ 82%
Switching Frequency 266 kHz, typ
I/O isolation voltage (3 sec) 1500~3500Vdc
Metal Case 1000Vdc
Safety standard IEC 60950-1:2001

Environmental specifications:
Operating Temperature -40°C ~ +85°C
Case temperature 100°C Max.
Storage Temperature -40°C ~ +125°C
Cooling Nature Convection
Humidity 95% rel H

MECHANICAL DIMENSIONS & PIN CONNECTIONS

24 Pin DIL Package



PIN #	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	N.C.	Common
11	N.C.	Common
12	-Vout	N.C.
13	+Vout	-Vout
15	N.C.	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

DC/DC Converters – SJ-S/D3 series

3 WATT (available also 4, 5 and 6 WATT series)

Single / Dual Output

FEATURES

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 80 %
- Metal Case Standard, Optional Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)	
SJ-243R3S3	9-36	3.3	900	75	
SJ-2405S3		5	600	78	
SJ-2409S3		9	333	80	
SJ-2412S3		12	250	80	
SJ-2415S3		15	200	80	
SJ-2424S3		24	125	80	
SJ-243R3D3		±3.3	±454	75	
SJ-2405D3		±5	±300	78	
SJ-2409D3		±9	±166	80	
SJ-2412D3		±12	±125	80	
SJ-2415D3		±15	±100	80	
SJ-2424D3		±24	±63	80	
SJ-483R3S3		18-72	3.3	900	75
SJ-4805S3			5	600	78
SJ-4809S3	9		333	80	
SJ-4812S3	12		250	80	
SJ-4815S3	15		200	80	
SJ-4824S3	24		125	80	
SJ-483R3D3	±3.3		±454	75	
SJ-4805D3	±5		±300	78	
SJ-4809D3	±9		±166	80	
SJ-4812D3	±12		±125	80	
SJ-4815D3	±15		±100	80	
SJ-4824D3	±24		±63	80	

Suffix „P“ means Plastic Case, „H“ means 3500Vdc Isolation

Input specifications:
Input Reflected Ripple Current 35mA pk-pk, typ
Filter: Pi Type

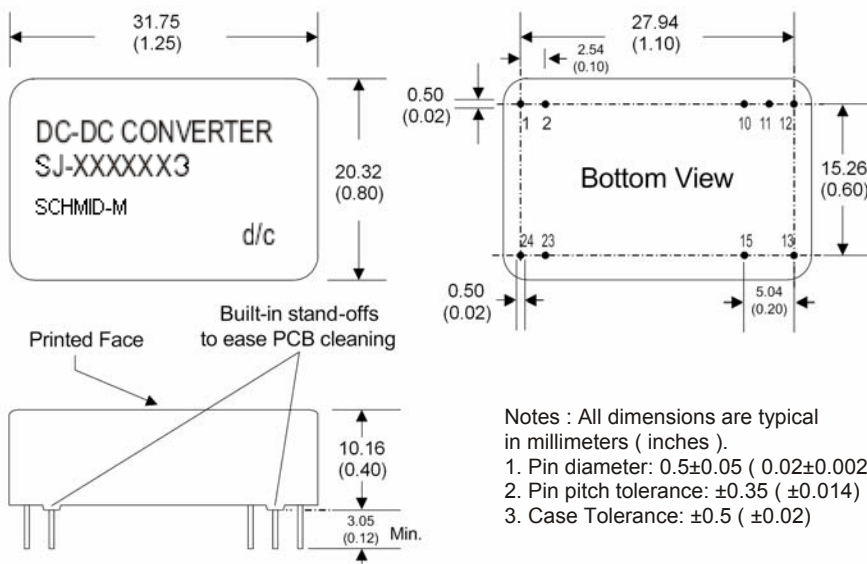
Output specifications:
Voltage accuracy ±1%
Ripple & noise (at 20MHz BW) 60mV pk-pk
Short Circuit Protection Indefinite
Line regulation ±0.5%
Load regulation ±0.5%
(±)3.3V models ±1.5%
Temperature coefficient ±0.02%/°C

General Specifications:
Efficiency 75% ~ 80%
Switching Frequency 266 kHz, typ
I/O isolation voltage (3 sec) 1500~3500Vdc
Metal Case 1000Vdc
Safety standard IEC 60950-1:2001

Environmental specifications:
Operating Temperature -40°C ~ +85°C
Case temperature 100°C Max.
Storage Temperature -40°C ~ +125°C
Cooling Nature Convection
Humidity 95% rel H

MECHANICAL DIMENSIONS & PIN CONNECTIONS

24 Pin DIL Package



PIN #	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	N.C.	Common
11	N.C.	Common
12	-Vout	N.C.
13	+Vout	-Vout
15	N.C.	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

DC/DC Converters – SK-S/D4 series

4 WATT

Single / Dual Output

FEATURES

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 82 %
- Metal Case Standard, Optional Plastic Case
- **EMI Complies With EN55022 Class A**

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SK-243R3S4	9-36	3.3	1200	75
SK-2405S4		5	800	79
SK-247R2S4		7.2	555	79
SK-2409S4		9	444	83
SK-2412S4		12	333	82
SK-2415S4		15	266	82
SK-2418S4		18	222	82
SK-2424S4		24	166	82
SK-243R3D4	9-36	±3.3	±606	75
SK-2405D4		±5	±400	79
SK-247R2D4		±7.2	±277	79
SK-2409D4		±9	±222	80
SK-2412D4		±12	±166	82
SK-2415D4		±15	±133	80
SK-2418D4		±18	±111	80
SK-2424D4		±24	±83	80
SK-483R3S4	18-72	3.3	1200	76
SK-4805S4		5	800	79
SK-487R2S4		7.2	555	82
SK-4809S4		9	444	83
SK-4812S4		12	333	80
SK-4815S4		15	266	84
SK-4818S4		18	222	84
SK-4824S4		24	166	82
SK-483R3D4	18-72	±3.3	±606	78
SK-4805D4		±5	±400	79
SK-487R2D4		±7.2	±277	79
SK-4809D4		±9	±222	80
SK-4812D4		±12	±166	82
SK-4815D4		±15	±133	80
SK-4818D4		±18	±111	81
SK-4824D4		±24	±83	80

Suffix „P“ means Plastic Case, „H“ means 3500Vdc Isolation

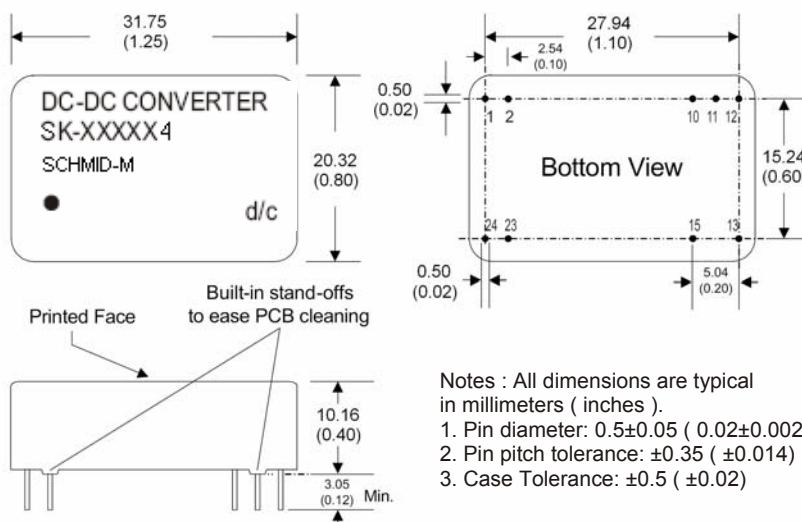
Input specifications:
Input Reflected Ripple Current Filter: 35mA pk-pk, typ Pi Type

Output specifications:
Voltage accuracy: ±1%
Ripple & noise (at 20MHz BW): 60mV pk-pk
Short Circuit Protection: Indefinite
Line regulation: ±0.5%
Load regulation: ±0.5%
(±)3.3V models: ±1.5%
Temperature coefficient: ±0.02%/°C

General Specifications:
Efficiency: 75% ~ 80%
Switching Frequency: 266 kHz, typ
I/O isolation voltage (3 sec): 1500~3500Vdc
Metal Case: 1000Vdc
Safety standard: IEC 60950-1:2001

Environmental specifications:
Operating Temperature: -40°C ~ +85°C
Case temperature: 100°C Max.
Storage Temperature: -40°C ~ +125°C
Cooling: Nature Convection
Humidity: 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN CONNECTIONS

PIN #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	N.P.	Common
11	N.C.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

DC/DC Converters – SK-S/D6 series

6 WATT

Single / Dual Output

FEATURES

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 84 %
- Metal Case Standard, Optional Plastic Case
- **EMI Complies With EN55022 Class A**

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SK-243R3S6	9-36	3.3	1400	80
SK-2405S6		5	1200	80
SK-247R2S6		7.2	833	81
SK-2409S6		9	666	83
SK-2412S6		12	500	82
SK-2415S6		15	400	82
SK-2418S6		18	333	80
SK-2424S6		24	250	76
SK-243R3D6	9-36	±3.3	909	80
SK-2405D6		±5	600	80
SK-247R2D6		±7.2	416	82
SK-2409D6		±9	333	83
SK-2412D6		±12	250	84
SK-2415D6		±15	200	83
SK-2418D6		±18	166	83
SK-2424D6		±24	125	77
SK-483R3S6	18-72	3.3	1400	79
SK-4805S6		5	1200	80
SK-487R2S6		7.2	833	81
SK-4809S6		9	666	82
SK-4812S6		12	500	84
SK-4815S6		15	400	80
SK-4818S6		18	333	81
SK-4824S6		24	250	80
SK-483R3D6	18-72	±3.3	909	80
SK-4805D6		±5	600	81
SK-487R2D6		±7.2	416	83
SK-4809D6		±9	333	82
SK-4812D6		±12	250	82
SK-4815D6		±15	200	80
SK-4818D6		±18	166	76
SK-4824D6		±24	125	80

Suffix „P“ means Plastic Case, „H“ means 3500Vdc Isolation

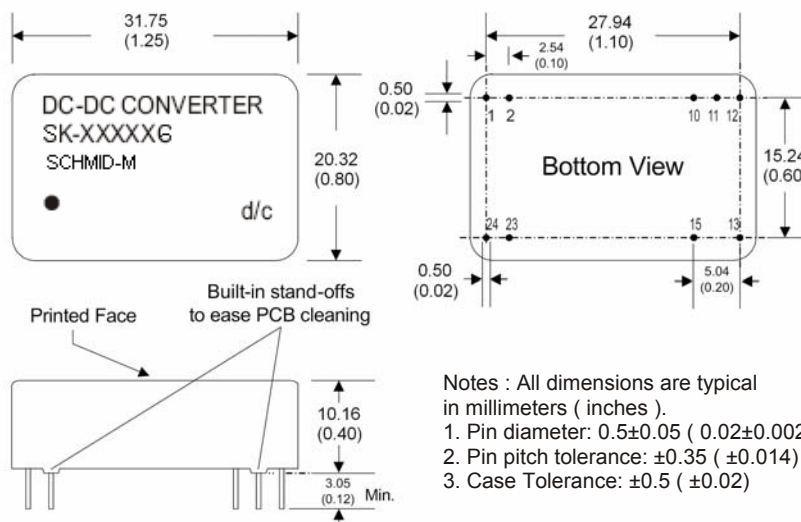
Input specifications:
Input Reflected Ripple Current Filter: 35mA pk-pk, typ
Pi Type

Output specifications:
Voltage accuracy: ±1%
Ripple & noise (at 20MHz BW): 60mV pk-pk
Short Circuit Protection: Indefinite
Line regulation: ±0.5%
Load regulation: ±0.5%
(±)3.3V models: ±1.5%
Temperature coefficient: ±0.02%/°C

General Specifications:
Efficiency: 75% ~ 80%
Switching Frequency: 266 kHz, typ
I/O isolation voltage (3 sec): 1500~3500Vdc
Metal Case: 1000Vdc
Safety standard: IEC 60950-1:2001

Environmental specifications:
Operating Temperature: -40°C ~ +85°C
Case temperature: 100°C Max.
Storage Temperature: -40°C ~ +125°C
Cooling: Nature Convection
Humidity: 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN CONNECTIONS

PIN #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	N.P.	Common
11	N.C.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

DC/DC Converters – SM series

25 / 30 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation,
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 91 %
- Over Temperature, Current and Voltage Protection
- Remote on/off control
- Soft Start

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)	
SM-123R3S25	9-18	2.5	3000	81	
SM-1205S25		3.3	3000	84	
SM-1212S30		5	2000	86	
SM-1215S30		12	833	87	
SM-243R3S25		15	667	89	
SM-2405S25		±12	±416	87	
SM-2412S30		±15	±333	88	
SM-2415S30		18-36	2.5	3000	84
SM-483R3S25			3.3	3000	85
SM-4805S25			5	2000	89
SM-4812S30	12		833	88	
SM-4815S30	15		667	88	
SM-1212D30	±12		±416	88	
SM-1215D30	±15		±333	90	
SM-2412D30	36-72		2.5	3000	84
SM-2415D30			3.3	3000	85
SM-4812D30			5	2000	88
SM-4815D30		12	833	87	

Input specifications:

Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Pi Type
Remote On/Off control:	ON: 2.5...5.5Vdc or open circuit OFF: -0.7...0.8Vdc or short circuit pins 2 and 3

Output specifications:

Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	75mV pk-pk, max
Short Circuit Protection	Indefinite
Line regulation	±0.5%
Load regulation	±0.5% (10-100% load) ±0.7% (10-100% load) (±)3.3V models
Temperature coefficient	±0.02%/°C
Over Voltage protection: (Zener diode clamp)	3.3V out 3.9V 5V out 6.2V 12V out 15V 15V out 18V

General Specifications:

Switching Frequency	330 kHz, typ
I/O isolation voltage (3 sec)	1500Vdc
Case I/O	1000Vdc
Safety standard	IEC/EN 60950-1
Safety Approvals	TUV, CB

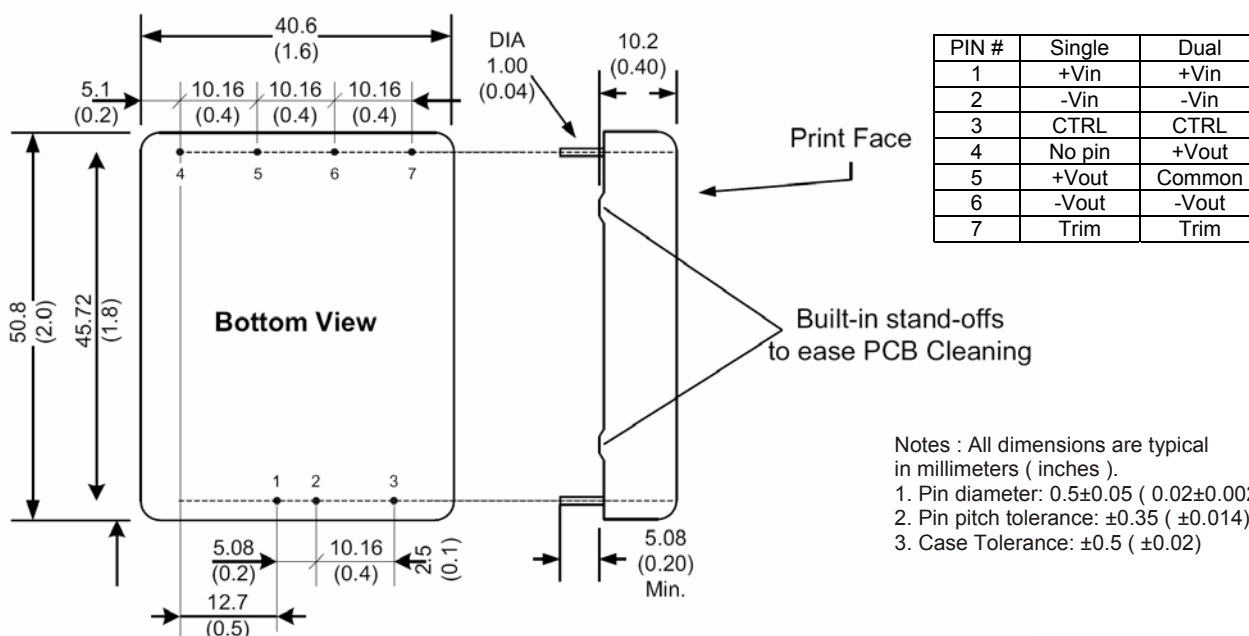
Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

EMC Characteristics

Radiated Emissions	EN55022	CLASS A
Conducted Emissions	EN55022	CLASS A
ESD, EFT, Surge	EN61000-2,4,5	Perf. Criteria B
RS, CS, PFMF	EN61000-3,6,8	Perf. Criteria A

MECHANICAL DIMENSIONS & PIN CONNECTIONS



DC/DC Converters – SQ-S/D5 series

5 WATT

Single / Dual Output

FEATURES

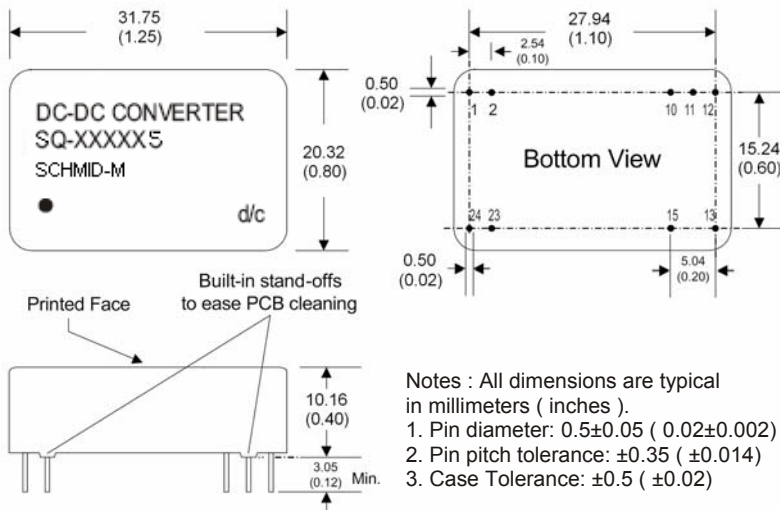
- Wide 4:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 VDC
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 82 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SQ-243R3S5	9-36	3.3	1300	75
SQ-2405S5		5	1000	80
SQ-2409S5		9	555	81
SQ-2412S5		12	416	81
SQ-2415S5		15	333	82
SQ-2424S5		24	208	80
SQ-243R3D5		±3.3	±757	74
SQ-2405D5		±5	±500	80
SQ-2409D5		±9	±277	81
SQ-2412D5		±12	±208	81
SQ-2415D5		±15	±166	82
SQ-2424D5		±24	±104	80
SQ-483R3S5	18-72	3.3	1300	75
SQ-4805S5		5	1000	80
SQ-4809S5		9	555	81
SQ-4812S5		12	416	81
SQ-4815S5		15	333	82
SQ-4824S5		24	208	80
SQ-483R3D5		±3.3	±757	74
SQ-4805D5		±5	±500	80
SQ-4809D5		±9	±277	81
SQ-4812D5		±12	±208	81
SQ-4815D5		±15	±166	82
SQ-4824D5		±24	±104	80

Suffix „P“ means Plastic Case, „H“ means 3500Vdc Isolation

Input specifications:	
Input Reflected Ripple Current	35mA pk-pk
Filter:	Pi Type
Output specifications:	
Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	60mV pk-pk
Short Circuit Protection	Indefinite
Line regulation	±0.5%
Load regulation	±0.5%
	out (±)3.3V models ±1.5%
Temperature coefficient	±0.02%/°C
General Specifications:	
Switching Frequency	266 kHz, typ
I/O isolation voltage (3 sec)	1500~3500Vdc
	Metal Case 1000Vdc
Safety standard	IEC 60950-1:2001
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

MECHANICAL DIMENSIONS & PIN CONNECTIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.

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

DC/DC Converters – SR-78M series

0.5A output current
Single Output

FEATURES

- 3 Pin SIL Package
- Non isolation, No need for heatsinks
- Wide Input Range, Step-down switching dc-dc converter
- Full SMD Technology
- Continuous Short Circuit Protection
- Pin-out compatible with LM78Mxx three terminals positive Regulator
- Efficiency up to 97 %
- -40°C ~ 85°C Operation Temperature Range

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SR-78M1R5	4.75-30	1.5	500	78
SR-78M1R8	4.75-34	1.8	500	82
SR-78M2R5	4.75-34	2.5	500	87
SR-78M3R3	4.75-34	3.3	500	91
SR-78M05	6.5-34	5.0	500	94
SR-78M6R5	8.0-34	6.5	500	95
SR-78M7R2	9.0-34	7.2	500	95
SR-78M09	11-34	9.0	500	96
SR-78M12	15-34	12	500	97
SR-78M15	18-34	15	500	97

Input specifications:

Input Reflected Ripple Current Filter: 35mA pk-pk Capacitors

Output specifications:

Voltage accuracy ±2%
Ripple & noise (at 20MHz BW) 60mV pk-pk
Short Circuit Protection Indefinite
Line voltage regulation ±0.5%
Load voltage regulation ±0.8%,load=10~100%
Temperature coefficient ±0.02%/°C

General Specifications:

Efficiency 78% ~ 97%
Switching Frequency 330 kHz, Typ.

Environmental specifications:

Operating Temperature -40°C ~ +85°C
Case temperature 100°C Max.
Storage Temperature -40°C ~ +125°C
Humidity 95% rel H
Cooling Nature Convection

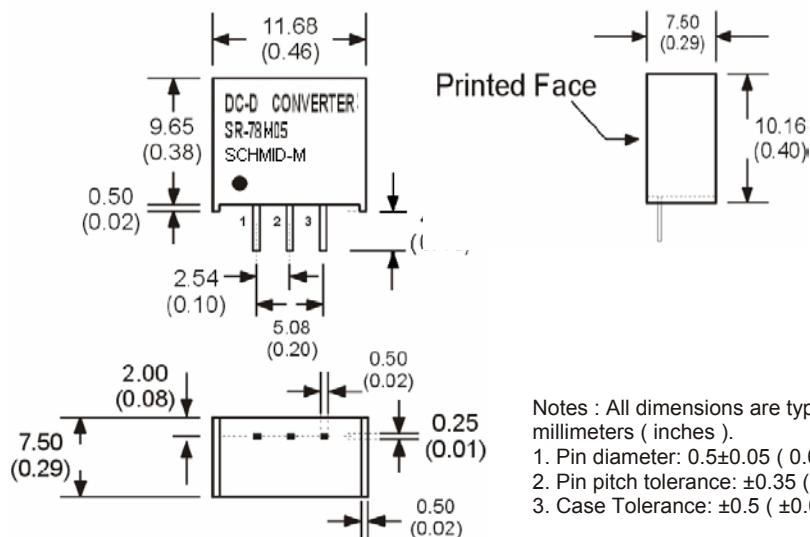
Capacitive Load:

220µF

Note:

Measured Input reflected ripple current with a simulated source inductance of 12µH.

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Single
1	+V Input
2	GND
3	+V Output

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)



DC/DC Converters – SVRB_D-40 series

40 WATT (available also 15, 20 and 30 WATT series)
Single Output

FEATURES

- Efficiency up to 90%
- Wide (2:1) Input Range
- 1.5KVDC Input/Output Isolation
- Over Current Protection
- Over Temperature Protection
- Short Circuit Protection
- Over Voltage Protection
- Under Voltage Protection
- Remote Voltage Compensate
- Operating temperature: -40°C to +85°C
- MTBF>1,000,000 hours
- Internal SMD Construction
- Metal Shielding Package 2"×2"×0.42"
- Industry Standard Pinout

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SVRB1203D-40	9-18	3.3	8000	86
SVRB1205D-40		5	8000	86
SVRB1212D-40		12	3300	86
SVRB1215D-40		15	2666	87
SVRB2403D-40	18-36	3.3	8000	87
SVRB2405D-40		5	8000	89
SVRB2412D-40		12	3300	88
SVRB2415D-40		15	2666	89
SVRB4803D-40	36-75	3.3	8000	88
SVRB4805D-40		5	8000	90
SVRB4812D-40		12	3300	90
SVRB4815D-40		15	2666	90

Input specifications:

Under Voltage protection		
9-18V Input	DC-DC Module ON	9 Vdc
	DC-DC Module OFF	8 Vdc
18-36V Input	DC-DC Module ON	17.8 Vdc
	DC-DC Module OFF	16 Vdc
36-75V Input	DC-DC Module ON	36 Vdc
	DC-DC Module OFF	33 Vdc
CTRL	DC-DC Module ON	Open or 3.5V<Vc<12V
	DC-DC Module OFF	Short or 0V<Vc<1.2V Input current < 1mA

Output specifications:

Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	75mV pk-pk, typ
Short Circuit Protection	Hiccup
Load regulation	±0.5% (10-100% load)
Temperature coefficient	±0.02%/°C
Over Current protection	120-125%Po
Over Voltage protection	110-130%Vo
Over Temperature protection	115°C

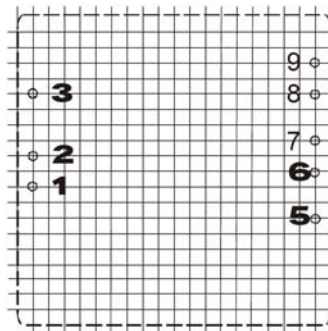
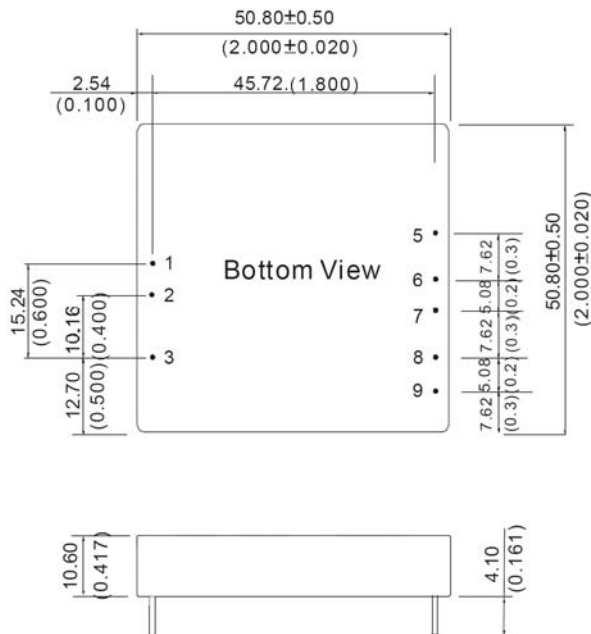
General Specifications:

Switching Frequency	300 kHz, typ
I/O isolation voltage (1 min/1mA)	1500Vdc

Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Lead temperature	300°C Max./10 seconds
Storage Temperature	-40°C ~+125°C
Cooling	Nature Convection
Humidity	95%

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Function
1	Vin
2	GND
3	Ctrl
5	-Sense
6	+Sense
7	+Vo
8	0V
9	Trim

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

DC/DC Converters – S1-S/D05 series

0.5 WATT

Single / Dual Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Up to 6000 Vdc Isolation
- Operating Temperature Range - 40°C ~ 85°C
- Low Ripple and Noise
- Efficiency up to 80 %
- Non-Conductive Black Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-053R3S05	5	±3.3	±75.7	60
S1-0505S05		±5	±50	74
S1-057R2S05		±7.2	±34.7	77
S1-0509S05		±9	±27.7	78
S1-0512S05		±12	±20.8	78
S1-0515S05		±15	±16.7	78
S1-0518S05		±18	±13.9	79
S1-0524S05		±24	±10.4	79
S1-123R3S05	12	±3.3	±75.7	60
S1-1205S05		±5	±50	74
S1-127R2S05		±7.2	±34.7	77
S1-1209S05		±9	±27.7	78
S1-1212S05		±12	±20.8	78
S1-1215S05		±15	±16.7	78
S1-1218S05		±18	±13.9	80
S1-1224S05		±24	±10.4	80
S1-243R3S05	24	±3.3	±75.7	60
S1-2405S05		±5	±50	74
S1-247R2S05		±7.2	±34.7	76
S1-2409S05		±9	±27.7	76
S1-2412S05		±12	±20.8	78
S1-2415S05		±15	±16.7	78
S1-2418S05		±18	±13.9	78
S1-2424S05		±24	±10.4	80
S1-483R3S05	48	±3.3	±75.7	60
S1-4805S05		±5	±50	74
S1-487R2S05		±7.2	±34.7	76
S1-4809S05		±9	±27.7	76
S1-4812S05		±12	±20.8	76
S1-4815S05		±15	±16.7	77
S1-4818S05		±18	±13.9	77
S1-4824S05		±24	±10.4	79
S1-053R3D05	5	±3.3	±75.7	60
S1-0505D05		±5	±50	74
S1-057R2D05		±7.2	±34.7	77
S1-0509D05		±9	±27.7	78
S1-0512D05		±12	±20.8	78
S1-0515D05		±15	±16.7	78
S1-0518D05		±18	±13.9	79
S1-0524D05		±24	±10.4	79
S1-123R3D05	12	±3.3	±75.7	60
S1-1205D05		±5	±50	74
S1-127R2D05		±7.2	±34.7	77
S1-1209D05		±9	±27.7	78
S1-1212D05		±12	±20.8	78
S1-1215D05		±15	±16.7	78
S1-1218D05		±18	±13.9	80
S1-1224D05		±24	±10.4	80

Input specifications:	
Voltage Range	
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors
Output specifications:	
Voltage accuracy	±3%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Line regulation	±1.2%/1% Vin change
Load regulation	±10%
	20%-100% load out 3.3V models ±20%
Temperature coefficient	±0.02%/°C
General Specifications:	
Efficiency	65% ~ 83%
Switching Frequency	80 kHz, var
I/O isolation voltage (3 sec)	1000~6000Vdc
Safety standard	IEC 60950-1:2001
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

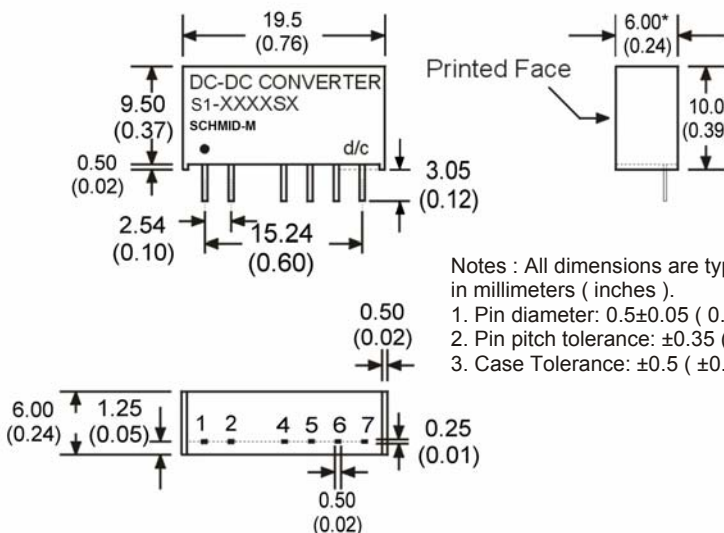
S1 - 12 05 SS H6 05	
Series Name	0.5 Watts
Input Voltage	3KVDC Isolation
5 - 5V	Optional, if no suffix "H"
12 - 12V	mean 1KVDC Isolation
24 - 24V	H - 3KVdc Isolation
48 - 48V	H2 - 2KVdc Isolation
Case and Output Type	H4 - 4KVdc Isolation
S - SIP Case, DualOutput	H5 - 5.2KVdc Isolation
D - DIP Case, DualOutput	H6 - 6KVdc Isolation
SS - SIP Case, SingleOutput	
DS - DIP Case, SingleOutput	
Output Voltage	
3R3 - 3.3V	
5 - 5V	
7R2 - 7.2V	
9 - 9V	
12 - 12V	
15 - 15V	
18 - 18V	
24 - 24V	

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-243R3D05	24	±3.3	±75.7	60
S1-2405D05		±5	±50	74
S1-247R2D05		±7.2	±34.7	76
S1-2409D05		±9	±27.7	76
S1-2412D05		±12	±20.8	78
S1-2415D05		±15	±16.7	78
S1-2418D05		±18	±13.9	78
S1-2424D05		±24	±10.4	80
S1-053R3SS05	5	3.3	151.5	70
S1-0505SS05		5	100	74
S1-057R2SS05		7.2	69.4	74
S1-0509SS05		9	55.5	75
S1-0512SS05		12	41.6	76
S1-0515SS05		15	33.3	76
S1-0518SS05		18	27.8	76
S1-0524SS05		24	20.8	78
S1-123R3SS05	12	3.3	151.5	70
S1-1205SS05		5	100	73
S1-127R2SS05		7.2	69.4	74
S1-1209SS05		9	55.5	75
S1-1212SS05		12	41.6	76
S1-1215SS05		15	33.3	76
S1-1218SS05		18	27.8	76
S1-1224SS05		24	20.8	78
S1-243R3SS05	24	3.3	151.5	70
S1-2405SS05		5	100	73
S1-247R2SS05		7.2	69.4	74
S1-2409SS05		9	55.5	75
S1-2412SS05		12	41.6	76
S1-2415SS05		15	33.3	78
S1-2418SS05		18	27.8	78
S1-2424SS05		24	20.8	78

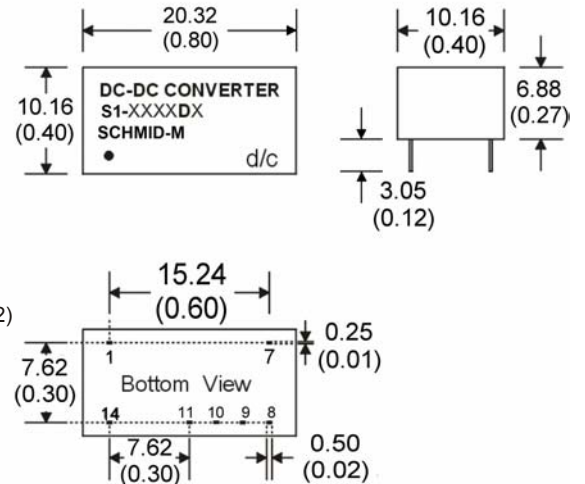
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-483R3SS05	48	3.3	151.5	70
S1-4805SS05		5	100	72
S1-487R2SS05		7.2	69.4	72
S1-4809SS05		9	55.5	74
S1-4812SS05		12	41.6	74
S1-4815SS05		15	33.3	75
S1-4818SS05		18	27.8	75
S1-4824SS05		24	20.8	77
S1-053R3DS05	5	3.3	151.5	70
S1-0505DS05		5	100	74
S1-057R2DS05		7.2	69.4	74
S1-0509DS05		9	55.5	75
S1-0512DS05		12	41.6	76
S1-0515DS05		15	33.3	76
S1-0518DS05		18	27.8	76
S1-0524DS05		24	20.8	78
S1-123R3DS05	12	3.3	151.5	70
S1-1205DS05		5	100	73
S1-127R2DS05		7.2	69.4	74
S1-1209DS05		9	55.5	75
S1-1212DS05		12	41.6	76
S1-1215DS05		15	33.3	76
S1-1218DS05		18	27.8	76
S1-1224DS05		24	20.8	78
S1-243R3DS05	24	3.3	151.5	70
S1-2405DS05		5	100	73
S1-247R2DS05		7.2	69.4	74
S1-2409DS05		9	55.5	75
S1-2412DS05		12	41.6	76
S1-2415DS05		15	33.3	78
S1-2418DS05		18	27.8	78
S1-2424DS05		24	20.8	78

MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package



14 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
4	-Vout	-Vout	N.P.	N.P.
5	N.P.	Common	-Vout	-Vout
6	+Vout	+Vout	N.P.	Common
7	N.P.	N.P.	+Vout	+Vout

PIN #	Single	Dual	Single-H	Dual-H
1	-Vin	-Vin	-Vin	-Vin
7	N.C.	N.C.	N.C.	N.C.
8	N.P.	Common	+Vout	+Vout
9	+Vout	+Vout	N.P.	Common
10	N.P.	N.P.	-Vout	-Vout
11	-Vout	-Vout	N.P.	N.P.
14	+Vin	+Vin	+Vin	+Vin

DC/DC Converters – S1-S/D07 series

0.75 WATT

Single / Dual Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Up to 6000 Vdc Isolation
- Operating Temperature Range - 40°C ~ 85°C
- Low Ripple and Noise
- Efficiency up to 80 %
- Non-Conductive Black Plastic Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-053R3S07	5	±3.3	±113.6	65
S1-0505S07		±5	±75	71
S1-057R2S07		±7.2	±52	74
S1-0509S07		±9	±41.6	74
S1-0512S07		±12	±31.2	76
S1-0515S07		±15	±25	76
S1-0518S07		±18	±20.8	79
S1-0524S07		±24	±15.6	79
S1-123R3S07	12	±3.3	±113.6	65
S1-1205S07		±5	±75	73
S1-127R2S07		±7.2	±52	74
S1-1209S07		±9	±41.6	74
S1-1212S07		±12	±31.2	78
S1-1215S07		±15	±25	80
S1-1218S07		±18	±20.8	80
S1-1224S07		±24	±15.6	78
S1-243R3S07	24	±3.3	±113.6	67
S1-2405S07		±5	±75	74
S1-247R2S07		±7.2	±52	76
S1-2409S07		±9	±41.6	76
S1-2412S07		±12	±31.2	78
S1-2415S07		±15	±25	78
S1-2418S07		±18	±20.8	78
S1-2424S07		±24	±15.6	78
S1-483R3S07	48	±3.3	±113.6	62
S1-4805S07		±5	±75	65
S1-487R2S07		±7.2	±52	70
S1-4809S07		±9	±41.6	72
S1-4812S07		±12	±31.2	74
S1-4815S07		±15	±25	74
S1-4818S07		±18	±20.8	72
S1-4824S07		±24	±15.6	70
S1-053R3D07	5	±3.3	±113.6	65
S1-0505D07		±5	±75	71
S1-057R2D07		±7.2	±52	74
S1-0509D07		±9	±41.6	74
S1-0512D07		±12	±31.2	76
S1-0515D07		±15	±25	76
S1-0518D07		±18	±20.8	79
S1-0524D07		±24	±15.6	79
S1-123R3D07	12	±3.3	±113.6	65
S1-1205D07		±5	±75	73
S1-127R2D07		±7.2	±52	74
S1-1209D07		±9	±41.6	74
S1-1212D07		±12	±31.2	78
S1-1215D07		±15	±25	80
S1-1218D07		±18	±20.8	80
S1-1224D07		±24	±15.6	78

Input specifications:

Voltage accuracy	±10%
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors

Output specifications:

Voltage accuracy	±3%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Line regulation	±1.2%/1% Vin change
Load regulation	±10%
	20%-100% load out 3.3V models ±20%
Temperature coefficient	±0.02%/°C

General Specifications:

Efficiency	65% ~ 83%
Switching Frequency	80 kHz, var
I/O isolation voltage (3 sec)	1000~6000Vdc
Safety standard	IEC 60950-1:2001

Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

S1 - 12 05 SS H6 05		0.5 Watts
Series Name		
Input Voltage	5 - 5V 12 - 12V 24 - 24V 48 - 48V	
Case and Output Type	S - SIP Case, DualOutput D - DIP Case, DualOutput SS - SIP Case, SingleOutput DS - DIP Case, SingleOutput	3KVDC Isolation Optional, if no suffix "H" mean 1KVDC Isolation H - 3KVdc Isolation H2 - 2KVdc Isolation H4 - 4KVdc Isolation H5 - 5.2KVdc Isolation H6 - 6KVdc Isolation
Output Voltage	3R3 - 3.3V 5 - 5V 7R2 - 7.2V 9 - 9V 12 - 12V 15 - 15V 18 - 18V 24 - 24V	

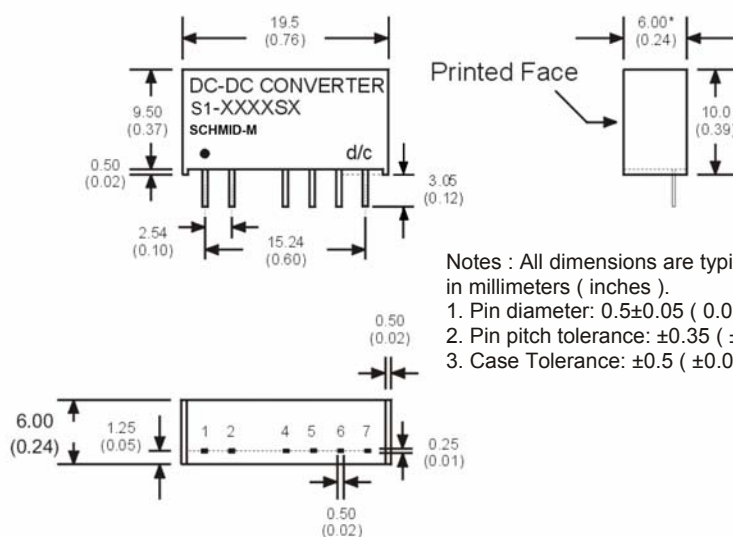


Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-243R3D07	24	±3.3	±113.6	67
S1-2407D07		±5	±75	74
S1-247R2D07		±7.2	±52	76
S1-2409D07		±9	±41.6	76
S1-2412D07		±12	±31.2	78
S1-2415D07		±15	±25	78
S1-2418D07		±18	±20.8	78
S1-2424D07		±24	±15.6	78
S1-073R3SS07	5	3.3	227.3	73
S1-0707SS07		5	150	75
S1-077R2SS07		7.2	104.2	74
S1-0709SS07		9	83.3	75
S1-0712SS07		12	62.5	76
S1-0715SS07		15	50	76
S1-0718SS07		18	41.7	76
S1-0724SS07		24	31.2	77
S1-123R3SS07	12	3.3	227.3	73
S1-1207SS07		5	150	74
S1-127R2SS07		7.2	104.2	74
S1-1209SS07		9	83.3	75
S1-1212SS07		12	62.5	77
S1-1215SS07		15	50	78
S1-1218SS07		18	41.7	78
S1-1224SS07		24	31.2	78
S1-243R3SS07	24	3.3	227.3	74
S1-2407SS07		5	150	74
S1-247R2SS07		7.2	104.2	75
S1-2409SS07		9	83.3	75
S1-2412SS07		12	62.5	78
S1-2415SS07		15	50	78
S1-2418SS07		18	41.7	78
S1-2424SS07		24	31.2	80

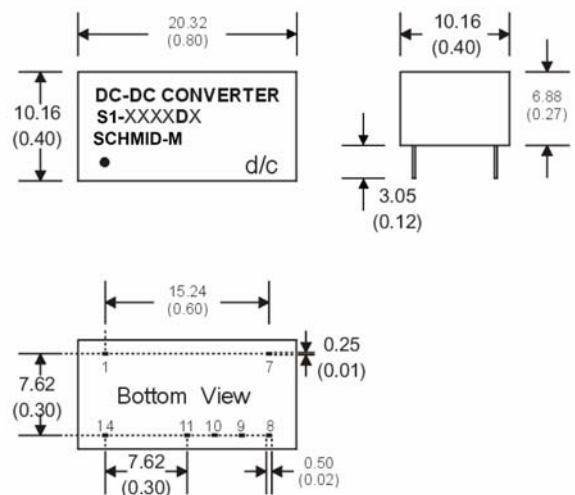
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-483R3SS07	48	3.3	151.5	70
S1-4807SS07		5	100	72
S1-487R2SS07		7.2	69.4	72
S1-4809SS07		9	55.5	74
S1-4812SS07		12	41.6	74
S1-4815SS07		15	33.3	75
S1-4818SS07		18	27.8	75
S1-4824SS07		24	20.8	77
S1-073R3DS07	5	3.3	151.5	70
S1-0707DS07		5	100	74
S1-077R2DS07		7.2	69.4	74
S1-0709DS07		9	55.5	75
S1-0712DS07		12	41.6	76
S1-0715DS07		15	33.3	76
S1-0718DS07		18	27.8	76
S1-0724DS07		24	20.8	78
S1-123R3DS07	12	3.3	151.5	70
S1-1207DS07		5	100	73
S1-127R2DS07		7.2	69.4	74
S1-1209DS07		9	55.5	75
S1-1212DS07		12	41.6	76
S1-1215DS07		15	33.3	76
S1-1218DS07		18	27.8	76
S1-1224DS07		24	20.8	78
S1-243R3DS07	24	3.3	151.5	70
S1-2407DS07		5	100	73
S1-247R2DS07		7.2	69.4	74
S1-2409DS07		9	55.5	75
S1-2412DS07		12	41.6	76
S1-2415DS07		15	33.3	78
S1-2418DS07		18	27.8	78
S1-2424DS07		24	20.8	78

MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package



14 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
4	-Vout	-Vout	N.P.	N.P.
5	N.P.	Common	-Vout	-Vout
6	+Vout	+Vout	N.P.	Common
7	N.P.	N.P.	+Vout	+Vout

PIN #	Single	Dual	Single-H	Dual-H
1	-Vin	-Vin	-Vin	-Vin
7	N.C.	N.C.	N.C.	N.C.
8	N.P.	Common	+Vout	+Vout
9	+Vout	+Vout	N.P.	Common
10	N.P.	N.P.	-Vout	-Vout
11	-Vout	-Vout	N.P.	N.P.
14	+Vin	+Vin	+Vin	+Vin

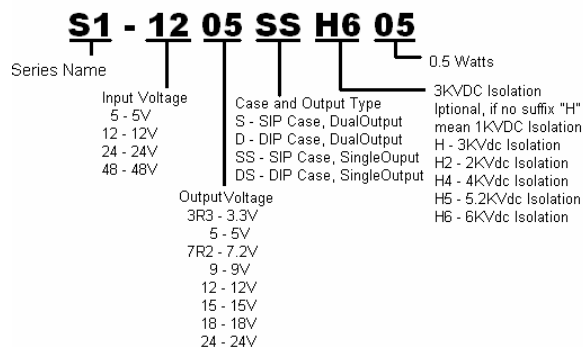
DC/DC Converters – S1-S/D series

1 WATT

Single / Dual Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Up to 6000 Vdc Isolation
- Operating Temperature Range - 40°C ~ 85°C
- Low Ripple and Noise
- Efficiency up to 80 %
- Non-Conductive Black Plastic Case
- **EN55022 CLASS B For Sip Series**



Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-053R3S	5	±3.3	±151.5	65
S1-0505S		±5	±100	74
S1-057R2S		±7.2	±69.44	77
S1-0509S		±9	±55.55	78
S1-0512S		±12	±41.67	78
S1-0515S		±15	±33.33	80
S1-0518S		±18	±27.77	79
S1-0524S		±24	±20.83	80
S1-123R3S	12	±3.3	±151.5	66
S1-1205S		±5	±100	75
S1-127R2S		±7.2	±69.44	76
S1-1209S		±9	±55.55	76
S1-1212S		±12	±41.67	78
S1-1215S		±15	±33.33	80
S1-1218S		±18	±27.77	80
S1-1224S		±24	±20.83	76
S1-243R3S	24	±3.3	±151.5	68
S1-2405S		±5	±100	74
S1-247R2S		±7.2	±69.44	76
S1-2409S		±9	±55.55	76
S1-2412S		±12	±41.67	78
S1-2415S		±15	±33.33	78
S1-2418S		±18	±27.77	78
S1-2424S		±24	±20.83	78
S1-483R3S	48	±3.3	±151.5	60
S1-4805S		±5	±100	70
S1-487R2S		±7.2	±69.44	70
S1-4809S		±9	±55.55	72
S1-4812S		±12	±41.67	74
S1-4815S		±15	±33.33	74
S1-4818S		±18	±27.77	72
S1-4824S		±24	±20.83	70
S1-053R3D	5	±3.3	±151.5	65
S1-0505D		±5	±100	74
S1-057R2D		±7.2	±69.44	77
S1-0509D		±9	±55.55	78
S1-0512D		±12	±41.67	78
S1-0515D		±15	±33.33	80
S1-0518D		±18	±27.77	78
S1-0524D		±24	±20.83	75
S1-123R3D	12	±3.3	±151.5	66
S1-1205D		±5	±100	75
S1-127R2D		±7.2	±69.44	72
S1-1209D		±9	±55.55	75
S1-1212D		±12	±41.67	78
S1-1215D		±15	±33.33	78
S1-1218D		±18	±27.77	75
S1-1224D		±24	±20.83	75

Input specifications:

Voltage Range	±10%
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors

Output specifications:

Voltage accuracy	±3%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Line regulation	±1.2%/1% Vin change
Load regulation	±10%
	20%-100% load out 3.3V models ±20%
Temperature coefficient	±0.02%/°C

General Specifications:

Efficiency	65% ~ 83%
Switching Frequency	80 kHz, var
I/O isolation voltage (3 sec)	1000~6000Vdc
Safety standard	IEC 60950-1:2001

Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

EMC Specifications (For SIP series)

Radiated Emissions	EN55022	Class B
	FCC 47 CFR	Class B
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A

Notes:

Suffix „H“ means 3KVdc isolation, „H2“ means 2KVDC isolation, „H4“ means 4KVdc isolation, „H5“ means 5.2KVdc isolation, „H6“ means 6KVdc isolation

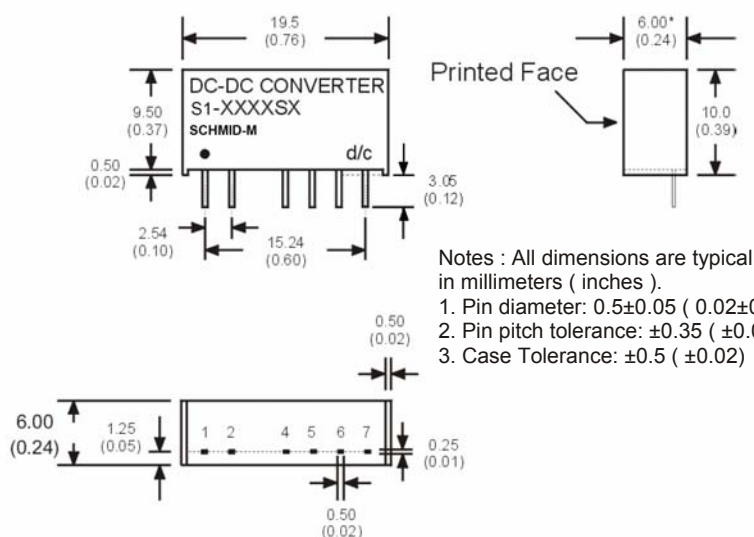


Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-243R3D	24	±3.3	±151.5	67
S1-2405D		±5	±100	72
S1-247R2D		±7.2	±69.44	70
S1-2409D		±9	±55.55	75
S1-2412D		±12	±41.67	78
S1-2415D		±15	±33.33	75
S1-2418D		±18	±27.77	72
S1-2424D		±24	±20.83	70
S1-053R3SS	5	3.3	303	75
S1-0505SS		5	200	78
S1-057R2SS		7.2	138.9	74
S1-0509SS		9	111.1	75
S1-0512SS		12	83.3	76
S1-0515SS		15	66.7	76
S1-0518SS		18	55.6	75
S1-0524SS		24	41.7	72
S1-123R3SS	12	3.3	303	74
S1-1205SS		5	200	74
S1-127R2SS		7.2	138.9	74
S1-1209SS		9	111.1	75
S1-1212SS		12	83.3	77
S1-1215SS		15	66.7	78
S1-1218SS		18	55.6	78
S1-1224SS		24	41.7	75
S1-243R3SS	24	3.3	303	75
S1-2405SS		5	200	77
S1-247R2SS		7.2	138.9	75
S1-2409SS		9	111.1	75
S1-2412SS		12	83.3	78
S1-2415SS		15	66.7	78
S1-2418SS		18	55.6	78
S1-2424SS		24	41.7	78

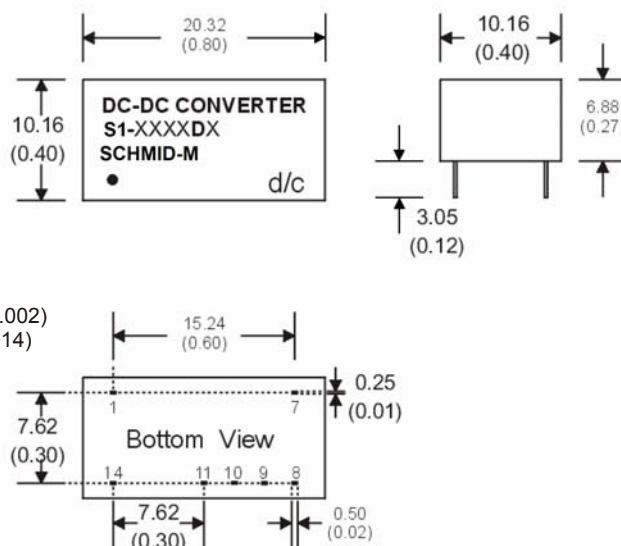
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-483R3SS	48	3.3	303	72
S1-4805SS		5	200	72
S1-487R2SS		7.2	138.9	72
S1-4809SS		9	111.1	74
S1-4812SS		12	83.3	74
S1-4815SS		15	66.7	75
S1-4818SS		18	55.6	72
S1-4824SS		24	41.7	70
S1-053R3DS	5	3.3	303	75
S1-0505DS		5	200	78
S1-057R2DS		7.2	138.9	75
S1-0509DS		9	111.1	75
S1-0512DS		12	83.3	76
S1-0515DS		15	66.7	76
S1-0518DS		18	55.6	75
S1-0524DS		24	41.7	72
S1-123R3DS	12	3.3	303	74
S1-1205DS		5	200	74
S1-127R2DS		7.2	138.9	74
S1-1209DS		9	111.1	75
S1-1212DS		12	83.3	77
S1-1215DS		15	66.7	78
S1-1218DS		18	55.6	78
S1-1224DS		24	41.7	75
S1-243R3DS	24	3.3	303	75
S1-2405DS		5	200	77
S1-247R2DS		7.2	138.9	75
S1-2409DS		9	111.1	75
S1-2412DS		12	83.3	78
S1-2415DS		15	66.7	78
S1-2418DS		18	55.6	78
S1-2424DS		24	41.7	78

MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package



14 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
4	-Vout	-Vout	N.P.	N.P.
5	N.P.	Common	-Vout	-Vout
6	+Vout	+Vout	N.P.	Common
7	N.P.	N.P.	+Vout	+Vout

PIN #	Single	Dual	Single-H	Dual-H
1	-Vin	-Vin	-Vin	-Vin
7	N.C.	N.C.	N.C.	N.C.
8	N.P.	Common	+Vout	+Vout
9	+Vout	+Vout	N.P.	Common
10	N.P.	N.P.	-Vout	-Vout
11	-Vout	-Vout	N.P.	N.P.
14	+Vin	+Vin	+Vin	+Vin

DC/DC Converters – S1-S/D01(02) series

1 WATT

Dual Separate Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Up to 3000 Vdc Isolation
- Low Ripple and Noise
- Operating Temperature Range - 40°C ~ 85°C
- Efficiency up to 80 %
- Non-Conductive Black Plastic Case

Model Number	Input Vdc	Output Vdc	Iout (mA) out 1, 2	Eff. @FL (%)
S1-053R3S/D01	5	5, 3.3	100, 152	77
S1-057R2S/D01		5, 7.2	100, 69	75
S1-0509S/D01		5, 9	100, 56	77
S1-0512S/D01		5, 12	100, 42	77
S1-0515S/D01		5, 15	100, 33	78
S1-123R3S/D01	12	5, 3.3	100, 152	78
S1-127R2S/D01		5, 7.2	100, 69	75
S1-1209S/D01		5, 9	100, 56	77
S1-1212S/D01		5, 12	100, 42	80
S1-1215S/D01		5, 15	100, 33	78
S1-243R3S/D01	24	5, 3.3	100, 152	75
S1-247R2S/D01		5, 7.2	100, 69	75
S1-2409S/D01		5, 9	100, 56	77
S1-2412SD/01		5, 12	100, 42	78
S1-2415S/D01		5, 15	100, 33	78
S1-0505S/D02	5	5, 5	100, 100	75
S1-057R2S/D02		7.2, 7.2	69, 69	77
S1-0509S/D02		9, 9	56, 56	79
S1-0512S/D02		12, 12	42, 42	80
S1-0515S/D02		15, 15	33, 33	82
S1-1205S/D02	12	5, 5	100, 100	75
S1-127R2S/D02		7.2, 7.2	69, 69	77
S1-1209S/D02		9, 9	56, 56	77
S1-1212S/D02		12, 12	42, 42	80
S1-1215S/D02		15, 15	33, 33	81
S1-2405S/D02	24	5, 5	100, 100	75
S1-247R2S/D02		7.2, 7.2	69, 69	77
S1-2409S/D02		9, 9	56, 56	79
S1-2412SD/02		12, 12	42, 42	82
S1-2415S/D02		15, 15	33, 33	82

Input specifications:

Voltage Range	±10%
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors

Output specifications:

Voltage accuracy	±3%
Ripple & noise (at 20MHz BW)	75mV pk-pk
Line regulation	±1.2%/1% Vin change
Load regulation	±10% 20-100% load 3.3V models
Temperature coefficient	±0.02%/°C

General Specifications:

Efficiency	75% ~ 82%
Switching Frequency	80 kHz, var
I/O1&O2 isolation voltage (3 sec)	1000~3000Vdc
O1/O2	1000Vdc
Safety standard	IEC 60950-1

Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

Input Voltage is from 5V to 48V and output voltage is from 3.3V to 24 V, suffix „H“ means 3000Vdc Isolation

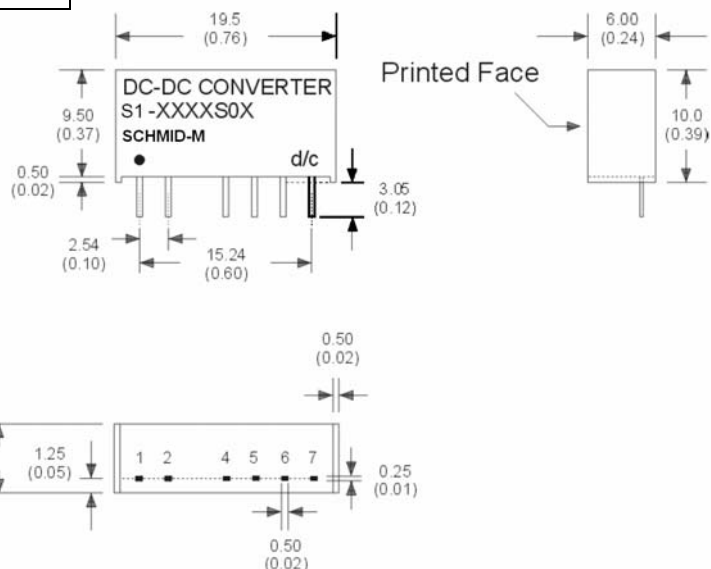
Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

PIN CONNECTIONS

PIN #	Dual
1	+Vin
2	-Vin
4	+V1out
5	-V1out
6	+V2out
7	-V2out

MECHANICAL DIMENSIONS 7 Pin SIL Package





DC/DC Converters – S3- DS/SS, S3-D/S

2 WATT

Single / Dual Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Low Ripple and Noise
- Up to 6000 VDC Isolation
- Non-Conductive Black Plastic Case

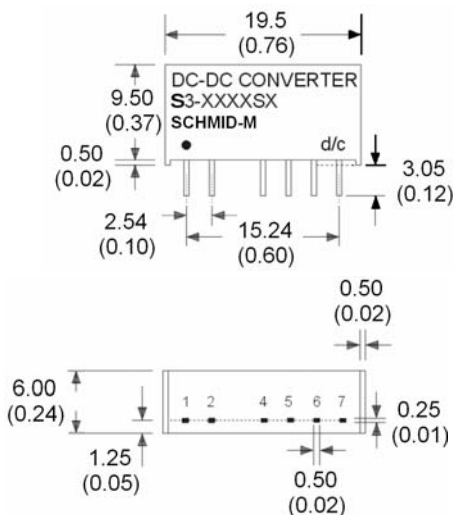
Input specifications:	
Filter:	Capacitors
Voltage Range	±10%
Isolation specification:	
Rated Voltage	1000 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	±3%, Max
Voltage Balance	±1%
Ripple & noise (at 20MHz BW)	>75 mVpk-pk
Short Circuit Protection	Momentary
Line regulation	±1.2%/1% of Vin
Load regulation	±10%, Load=20~100%
Temperature coefficient	±0.02%/°C
General Specifications:	
Efficiency	Up to 82%
Switching Frequency	Variable 80kHz
Enviromental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Humidity	95%
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S3-053R3D/S	5	±3.3	±200	65
S3-0505D/S		±5	±200	72
S3-057R2D/S		±7.2	±138,8	72
S3-0509D/S		±9	±111,1	77
S3-0512D/S		±12	±83,3	78
S3-0515D/S		±15	±66,67	80
S3-0518D/S		±18	±55,55	80
S3-0524D/S		±24	±41,67	80
S3-053R3DS/SS	5	3,3	400	72
S3-0505DS/SS		5	400	78
S3-057R2DS/SS		7,2	277,7	80
S3-0509DS/SS		9	222,2	80
S3-0512DS/SS		12	166,7	82
S3-0515DS/SS		15	133,3	82
S3-0518DS/SS		18	111,1	82
S3-0524DS/SS		24	83,3	82
S3-123R3D/S	12	±3,3	±200	67
S3-1205D/S		±5	±200	75
S3-127R2D/S		±7,2	±138,8	76
S3-1209D/S		±9	±111,1	77
S3-1212D/S		±12	±83,3	82
S3-1215D/S		±15	±66,67	82
S3-1218D/S		±18	±55,55	82
S3-1224D/S		±24	±41,67	82
S3-123R3DS/SS	12	3,3	400	65
S3-1205DS/SS		5	400	77
S3-127R2DS/SS		7,2	277,7	80
S3-1209DS/SS		9	222,2	80
S3-1212DS/SS		12	166,7	82
S3-1215DS/SS		15	133,3	82
S3-1218DS/SS		18	111,1	80
S3-1224DS/SS		24	83,3	80
S3-243R3D/S	24	±3,3	±200	68
S3-2405D/S		±5	±200	75
S3-247R2D/S		±7,2	±138,8	75
S3-2409D/S		±9	±111,1	80
S3-2412D/S		±12	±83,3	82
S3-2415D/S		±15	±66,67	82
S3-2418D/S		±18	±55,55	82
S3-2424D/S		±24	±41,67	82
S3-243DS/SS	24	3,3	400	72
S3-2405DS/SS		5	400	79
S3-247R2DS/SS		7,2	277,7	80
S3-2409DS/SS		9	222,2	80
S3-2412DS/SS		12	166,7	80
S3-2415DS/SS		15	133,3	82
S3-2418DS/SS		18	111,1	82
S3-2424DS/SS		24	83,3	80

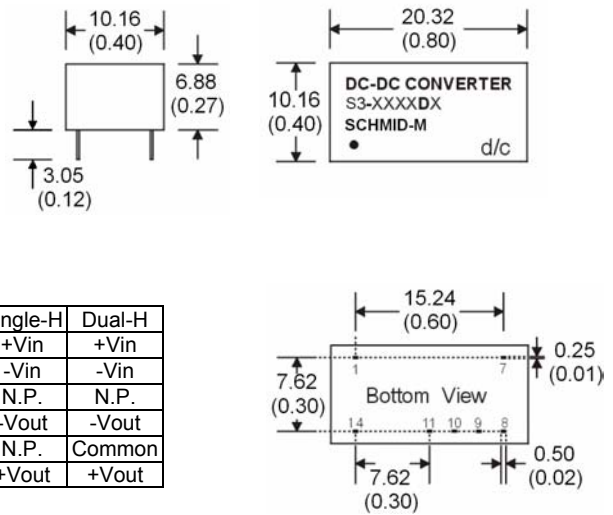
Input Voltage is from 5V to 48V and output Voltage is from 3.3 to 24V.

MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package



14 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
4	-Vout	-Vout	N.P.	N.P.
5	N.P.	Common	-Vout	-Vout
6	+Vout	+Vout	N.P.	Common
7	N.P.	N.P.	+Vout	+Vout

DC/DC Converters – S4-T(H) series

1 WATT

Single Output

FEATURES

- 7 Pin SIL / 14 Pin DIL Package
- 1000 Vdc Isolation
- Up to 3000 Vdc Isolation
- Low Ripple and Noise
- Operating Temperature Range - 40°C ~ 85°C
- Efficiency up to 68 %
- Non-Conductive Black Plastic Case

Input specifications:

Voltage Range	±10%
Input Reflected Ripple Current	20mA pk-pk, typ
Filter:	Capacitors

Output specifications:

Voltage accuracy	±2%
Ripple & noise (at 20MHz BW)	50mV pk-pk
Line regulation	±0.5%
Load regulation	0-100% load ±0.5%
	3.3V models ±1.0%
Temperature coefficient	±0.02%/°C

General Specifications:

Switching Frequency	50 kHz, var
I/O Isolation voltage (3 sec)	1000~3000Vdc
Safety standard	IEC 60950-1

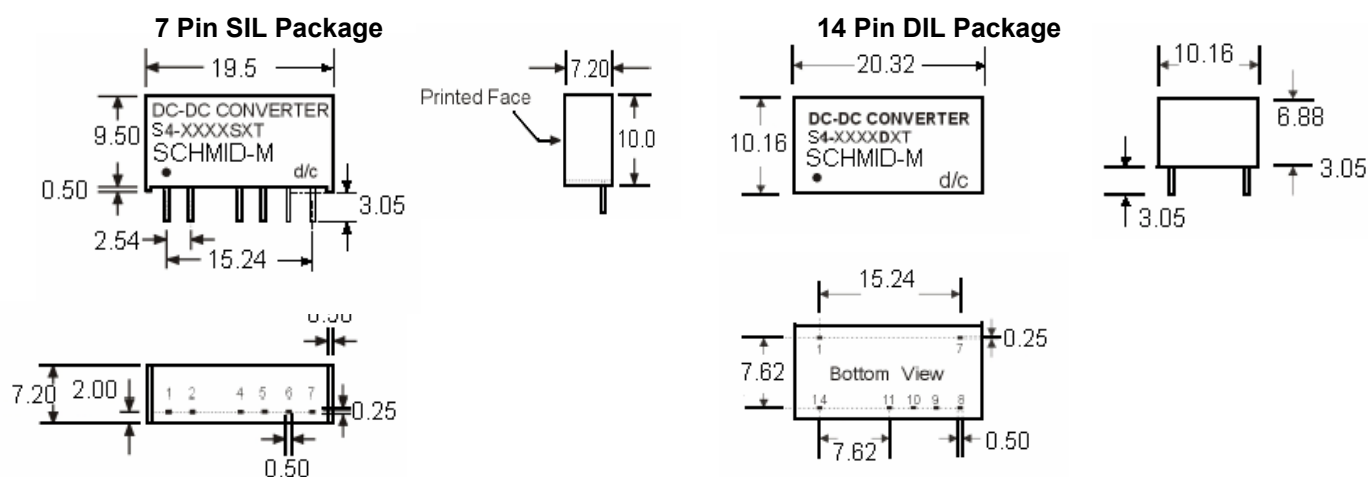
Environmental specifications:

Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H

Model Number	Input Vdc	Output Vdc	Output current (mA)	Eff. @FL (%)
S4-053R3ST	5	3.3	333	57
S4-0505ST		5	200	65
S4-057R2ST		7.2	138.9	65
S4-0509ST		9	111.1	65
S4-0512ST		12	83.3	68
S4-0515ST		15	66.7	68
S4-123R3ST	12	3.3	333	57
S4-1205ST		5	200	63
S4-127R2ST		7.2	138.9	65
S4-1209ST		9	111.1	66
S4-1212ST		12	83.3	68
S4-1215ST		15	66.7	66
S4-243R3ST	24	3.3	333	60
S4-2405ST		5	200	65
S4-247R2ST		7.2	138.9	65
S4-2409ST		9	111.1	68
S4-2412ST		12	83.3	68
S4-2415ST		15	66.7	68
S4-053R3DT	5	3.3	333	57
S4-0505DT		5	200	63
S4-057R2DT		7.2	138.9	61
S4-0509DT		9	111.1	67
S4-0512DT		12	83.3	67
S4-0515DT		15	66.7	67
S4-123R3DT	12	3.3	333	57
S4-1205DT		5	200	63
S4-127R2DT		7.2	138.9	63
S4-1209DT		9	111.1	65
S4-1212DT		12	83.3	68
S4-1215DT		15	66.7	66

Input Voltage is from 5V to 48V and output voltage is from 3.3V to 24 V, suffix „H“ means 3000Vdc Isolation

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Single	Single-H
1	+Vin	+Vin
2	-Vin	-Vin
4	-Vout	N.P.
5	N.P.	-Vout
6	+Vout	N.P.
7	N.P.	+Vout

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

PIN #	Single	Single - H
1	-V Input	-V Input
7	N.C.	N.C.
8	N.P.	+V Output
9	+V Output	N.P.
10	N.P.	-V Output
11	-V Output	N.P.
14	+V Input	+V Input

DC/DC Converters – S5 –S/D2

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

FEATURES

- 24 Pin DIL Package
- Regulated
- 1000 Vdc Isolation (3000 Vdc Isolation available)
- Continuous Short Circuit Protection
- Plastic Case Standard, Optional metal case – suffix M
- Full SMD technology

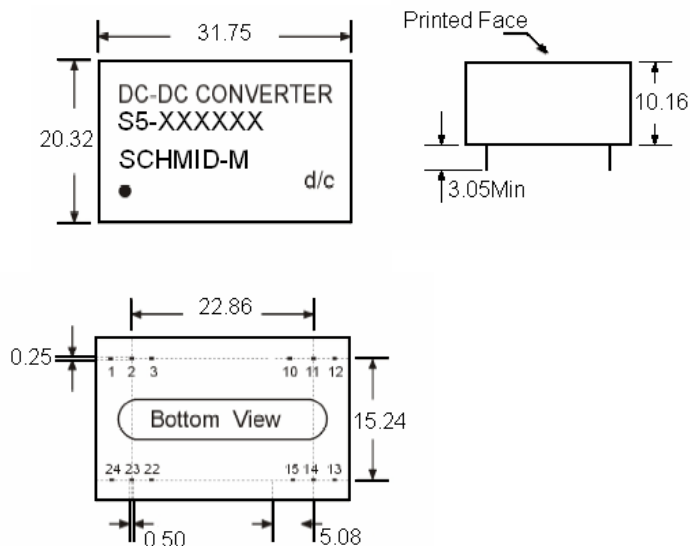
Input specifications:	
Filter:	π (Pi) type
Voltage Range	$\pm 10\%$
Isolation specification:	
Rated Voltage	1000 Vdc, Standard
Resistance	1000 M Ω
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 2\%$, Max
Ripple & noise (at 20MHz BW)	75 mVpk-pk
Short Circuit Protection	Indefinite
Line regulation	$\pm 5.0\%$, Max
Load regulation	$\pm 5.0\%$, Max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	Up to 80%
Switching Frequency	40 kHz, Typ.
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100 $^{\circ}\text{C}$ Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Humidity	95%
Cooling	Nature Convection

Notes:

Suffix „H“ means 3KVdc isolation, „M“ means Metal Case

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S5-053R3S2	5	3.3	500	53
S5-0505S2		5	400	65
S5-0509S2		9	222	67
S5-0512S2		12	166	70
S5-0515S2		15	133	68
S5-0524S2	5	24	83,3	65
S5-053R3D2-R		± 3.3	± 300	62
S5-0505D2-R		± 5	± 200	68
S5-0509D2-R		± 9	± 111	70
S5-0512D2-R		± 12	± 83	70
S5-0515D2-R	12	± 15	± 67	70
S5-0524D2-R		± 24	± 42	69
S5-123R3S2		3.3	500	56
S5-1205S2		5	400	64
S5-1209S2		9	222	68
S5-1212S2	12	12	166	70
S5-1215S2		15	133	66
S5-1224S2		24	83,3	65
S5-123R3D2-R		± 3.3	± 300	66
S5-1205D2-R		± 5	± 200	73
S5-1209D2-R	12	± 9	± 111	75
S5-1212D2-R		± 12	± 83	78
S5-1215D2-R		± 15	± 67	77
S5-1224D2-R		± 24	± 42	76
S5-243R3S2		24	3.3	500
S5-2405S2	5		400	63
S5-2409S2	9		222	63
S5-2412S2	12		166	68
S5-2415S2	15		133	68
S5-2424S2	24	24	83,3	68
S5-243R3D2-R		± 3.3	± 300	68
S5-2405D2-R		± 5	± 200	73
S5-2409D2-R		± 9	± 111	75
S5-2412D2-R		± 12	± 83	80
S5-2415D2-R	24	± 15	± 67	77
S5-2424D2-R		± 24	± 42	75

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN NUMBER	PIN CONNECTIONS			
	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	N.C.	-V Output	+V Input	+V Input
3	N.C.	Common	N.P.	N.P.
10	-V Output	Common	N.P.	Common
11	+V Output	+V Output	N.P.	Common
12	-V Input	-V Input	-V Output	N.P.
13	-V Input	-V Input	+V Output	-V Output
14	+V Output	+V Output	N.P.	N.P.
15	-V Output	Common	N.P.	+V Output
22	N.C.	Common	N.P.	N.P.
23	N.C.	-V Output	-V Input	-V Input
24	+V Input	+V Input	-V Input	-V Input

DC/DC Converters – S5 –S/D3

3 WATT

Single / Dual Output

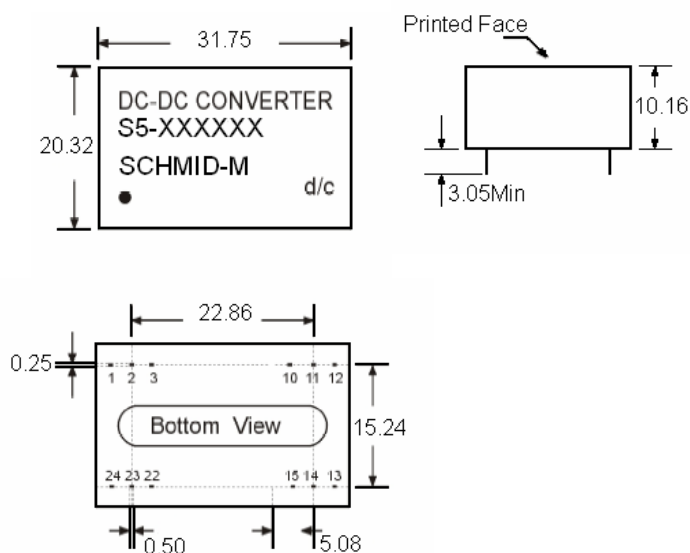
FEATURES

- 24 Pin DIL Package
- Regulated
- 1000 Vdc Isolation (3000 Vdc Isolation available)
- Regulated
- Continuous Short Circuit Protection
- Plastic Case Standard, Optional metal case
- Full SMD technology

Input specifications:	
Filter:	π (Pi) type
Voltage Range	$\pm 10\%$
Isolation specification:	
Rated Voltage	1000 Vdc, Standard
Resistance	1000 M Ω
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 2\%$, Max
Ripple & noise (at 20MHz BW)	75 mVpk-pk
Short Circuit Protection	Indefinite
Line regulation	$\pm 5.0\%$, Max
Load regulation	$\pm 5.0\%$, Max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	Up to 80%
Switching Frequency	40 kHz, Typ.
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100°C Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Humidity	95%
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S5-053R3S3	5	3.3	600	55
S5-0505S3		5	600	65
S5-0509S3		9	333	68
S5-0512S3		12	250	71
S5-0515S3		15	200	71
S5-0524S3		24	125	64
S5-053R3D3-R	5	± 3.3	± 400	64
S5-0505D3-R		± 5	± 300	66
S5-0509D3-R		± 9	± 167	68
S5-0512D3-R		± 12	± 125	70
S5-0515D3-R		± 15	± 100	70
S5-0524D3-R		± 24	± 63	69
S5-123R3S3	12	3.3	600	58
S5-1205S3		5	600	65
S5-1209S3		9	333	70
S5-1212S3		12	250	71
S5-1215S3		15	200	73
S5-1224S3		24	125	68
S5-123R3D3-R	12	± 3.3	± 400	68
S5-1205D3-R		± 5	± 300	75
S5-1209D3-R		± 9	± 167	78
S5-1212D3-R		± 12	± 125	80
S5-1215D3-R		± 15	± 100	78
S5-1224D3-R		± 24	± 63	76
S5-243R3S3	24	3.3	600	58
S5-2405S3		5	600	65
S5-2409S3		9	333	69
S5-2412S3		12	250	72
S5-2415S3		15	200	72
S5-2424S3		24	125	70
S5-243R3D3-R	24	± 3.3	± 400	70
S5-2405D3-R		± 5	± 300	77
S5-2409D3-R		± 9	± 167	78
S5-2412D3-R		± 12	± 125	80
S5-2415D3-R		± 15	± 100	78
S5-2424D3-R		± 24	± 63	76

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	+V Input	+V Input
2	N.C.	-V Output	+V Input	+V Input
3	N.C.	Common	N.P.	N.P.
10	-V Output	Common	N.P.	Common
11	+V Output	+V Output	N.P.	Common
12	-V Input	-V Input	-V Output	N.P.
13	-V Input	-V Input	+V Output	-V Output
14	+V Output	+V Output	N.P.	N.P.
15	-V Output	Common	N.P.	+V Output
22	N.C.	Common	N.P.	N.P.
23	N.C.	-V Output	-V Input	-V Input
24	+V Input	+V Input	-V Input	-V Input

DC/DC Converters – S6-S/D1 series

1.5 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 75 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S1	9-18	3.3	454	72
S6-1205S1		5	300	74
S6-1209S1		9	167	75
S6-1212S1		12	125	75
S6-1215S1		15	100	75
S6-1224S1		24	63	75
S6-123R3D1	9-18	±3.3	±227	72
S6-1205D1		±5	±150	74
S6-1209D1		±9	±84	75
S6-1212D1		±12	±63	75
S6-1215D1		±15	±50	75
S6-1224D1		±24	±32	75
S6-243R3S1	18-36	3.3	454	72
S6-2405S1		5	300	74
S6-2409S1		9	167	75
S6-2412S1		12	125	75
S6-2415S1		15	100	75
S6-2424S1		24	63	75
S6-243R3D1	18-36	±3.3	±227	72
S6-2405D1		±5	±150	74
S6-2409D1		±9	±84	75
S6-2412D1		±12	±63	75
S6-2415D1		±15	±50	75
S6-2424D1		±24	±32	75
S6-483R3S1	36-72	3.3	454	72
S6-4805S1		5	300	74
S6-4809S1		9	167	74
S6-4812S1		12	125	74
S6-4815S1		15	100	74
S6-4824S1		24	63	74
S6-483R3D1	36-72	±3.3	±227	72
S6-4805D1		±5	±150	74
S6-4809D1		±9	±84	74
S6-4812D1		±12	±63	74
S6-4815D1		±15	±50	74
S6-4824D1		±24	±32	74

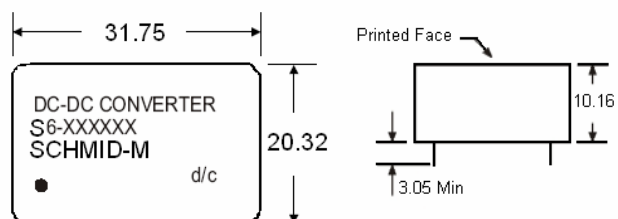
Input specifications:
 Input Reflected Ripple Current 35mA pk-pk, typ
 Filter: Pi Type

Output specifications:
 Voltage accuracy ±1%
 Ripple & noise (at 20MHz BW) 60mV pk-pk
 Line regulation ±0.5%
 Load regulation ±0.5%
 Temperature coefficient out (±)3.3V models ±20%
 ±0.02%/°C

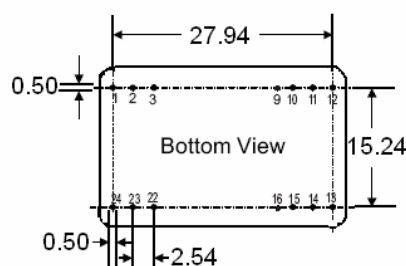
General Specifications:
 Switching Frequency 266 kHz, typ
 I/O isolation voltage (3 sec) 1500~3500Vdc
 Metal Case 1000Vdc
 Safety standard IEC 60950-1:2001

Environmental specifications:
 Operating Temperature -40°C ~ +85°C
 Case temperature 100°C Max.
 Storage Temperature -40°C ~ +125°C
 Cooling Nature Convection
 Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.



DC/DC Converters – S6-S/D2 series

2 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 78 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S2	9-18	3.3	600	74
S6-1205S2		5	400	75
S6-1209S2		9	222	76
S6-1212S2		12	167	76
S6-1215S2		15	133	76
S6-1224S2		24	83	76
S6-123R3D2	9-18	±3.3	±300	72
S6-1205D2		±5	±200	75
S6-1209D2		±9	±111	76
S6-1212D2		±12	±83	76
S6-1215D2		±15	±67	76
S6-1224D2		±24	±42	76
S6-243R3S2	18-36	3.3	600	76
S6-2405S2		5	400	78
S6-2409S2		9	222	78
S6-2412S2		12	167	78
S6-2415S2		15	133	78
S6-2424S2		24	83	78
S6-243R3D2	18-36	±3.3	±300	74
S6-2405D2		±5	±200	76
S6-2409D2		±9	±111	78
S6-2412D2		±12	±83	78
S6-2415D2		±15	±67	78
S6-2424D2		±24	±42	78
S6-483R3S2	36-72	3.3	600	74
S6-4805S2		5	400	75
S6-4809S2		9	222	75
S6-4812S2		12	167	75
S6-4815S2		15	133	75
S6-4824S2		24	83	75
S6-483R3D2	36-72	±3.3	±300	74
S6-4805D2		±5	±200	75
S6-4809D2		±9	±111	75
S6-4812D2		±12	±83	75
S6-4815D2		±15	±67	75
S6-4824D2		±24	±42	75

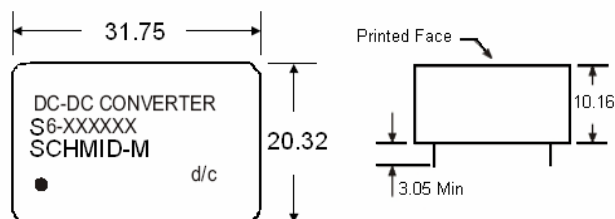
Input specifications:
 Input Reflected Ripple Current 35mA pk-pk, typ
 Filter: Pi Type

Output specifications:
 Voltage accuracy ±1%
 Ripple & noise (at 20MHz BW) 60mV pk-pk
 Line regulation ±0.5%
 Load regulation ±0.5%
 out (±)3.3V models ±20%
 Temperature coefficient ±0.02%/°C

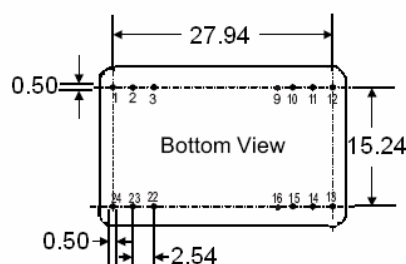
General Specifications:
 Switching Frequency 266 kHz, typ
 I/O isolation voltage (3 sec) 1500~3500Vdc
 Metal Case 1000Vdc
 Safety standard IEC 60950-1:2001

Environmental specifications:
 Operating Temperature -40°C ~ +85°C
 Case temperature 100°C Max.
 Storage Temperature -40°C ~ +125°C
 Cooling Nature Convection
 Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.



DC/DC Converters – S6-S/D3 series

3 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 82 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S3	9-18	3.3	900	72
S6-1205S3		5	600	76
S6-1209S3		9	333	78
S6-1212S3		12	250	80
S6-1215S3		15	200	80
S6-1224S3		24	125	80
S6-123R3D3	9-18	±3.3	±450	72
S6-1205D3		±5	±300	76
S6-1209D3		±9	±167	80
S6-1212D3		±12	±125	80
S6-1215D3		±15	±100	80
S6-1224D3		±24	±63	80
S6-243R3S3	18-36	3.3	900	72
S6-2405S3		5	600	76
S6-2409S3		9	333	78
S6-2412S3		12	250	80
S6-2415S3		15	200	82
S6-2424S3		24	125	82
S6-243R3D3	18-36	±3.3	±450	72
S6-2405D3		±5	±300	78
S6-2409D3		±9	±167	80
S6-2412D3		±12	±125	82
S6-2415D3		±15	±100	82
S6-2424D3		±24	±63	82
S6-483R3S3	36-72	3.3	900	72
S6-4805S3		5	600	76
S6-4809S3		9	333	78
S6-4812S3		12	250	80
S6-4815S3		15	200	80
S6-4824S3		24	125	80
S6-483R3D3	36-72	±3.3	±450	72
S6-4805D3		±5	±300	76
S6-4809D3		±9	±167	78
S6-4812D3		±12	±125	80
S6-4815D3		±15	±100	80
S6-4824D3		±24	±63	80

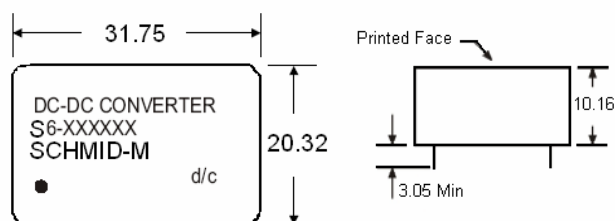
Input specifications:
 Input Reflected Ripple Current 35mA pk-pk, typ
 Filter: Pi Type

Output specifications:
 Voltage accuracy ±1%
 Ripple & noise (at 20MHz BW) 60mV pk-pk
 Line regulation ±0.5%
 Load regulation ±0.5%
 out (±)3.3V models ±20%
 Temperature coefficient ±0.02%/°C

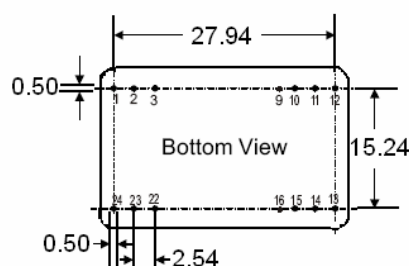
General Specifications:
 Switching Frequency 266 kHz, typ
 I/O isolation voltage (3 sec) 1500~3500Vdc
 Metal Case 1000Vdc
 Safety standard IEC 60950-1:2001

Environmental specifications:
 Operating Temperature -40°C ~ +85°C
 Case temperature 100°C Max.
 Storage Temperature -40°C ~ +125°C
 Cooling Nature Convection
 Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.



DC/DC Converters – S6-S/D4 series

4 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 82 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S4	9-18	3.3	1200	72
S6-1205S4		5	800	78
S6-1209S4		9	444	78
S6-1212S4		12	333	80
S6-1215S4		15	266	80
S6-1224S4		24	166	80
S6-123R3D4	9-18	±3.3	±600	73
S6-1205D4		±5	±400	78
S6-1209D4		±9	±220	80
S6-1212D4		±12	±166	80
S6-1215D4		±15	±133	80
S6-1224D4		±24	±83	79
S6-243R3S4	18-36	3.3	1200	75
S6-2405S4		5	800	80
S6-2409S4		9	444	80
S6-2412S4		12	333	83
S6-2415S4		15	266	80
S6-2424S4		24	166	85
S6-243R3D4	18-36	±3.3	±600	73
S6-2405D4		±5	±400	79
S6-2409D4		±9	±220	80
S6-2412D4		±12	±166	82
S6-2415D4		±15	±133	80
S6-2424D4		±24	±83	78
S6-483R3S4	36-72	3.3	1200	75
S6-4805S4		5	800	80
S6-4809S4		9	444	82
S6-4812S4		12	333	80
S6-4815S4		15	266	81
S6-4824S4		24	166	82
S6-483R3D4	36-72	±3.3	±600	72
S6-4805D4		±5	±400	78
S6-4809D4		±9	±220	78
S6-4812D4		±12	±166	80
S6-4815D4		±15	±133	80
S6-4824D4		±24	±83	80

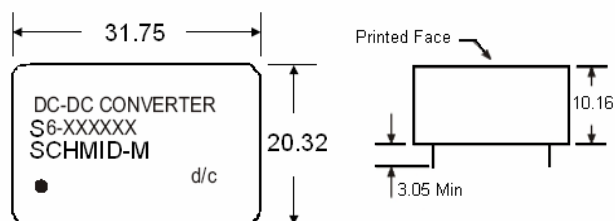
Input specifications:
 Input Reflected Ripple Current 35mA pk-pk, typ
 Filter: Pi Type

Output specifications:
 Voltage accuracy ±1%
 Ripple & noise (at 20MHz BW) 60mV pk-pk
 Line regulation ±0.5%
 Load regulation ±0.5%
 out (±)3.3V models ±20%
 Temperature coefficient ±0.02%/°C

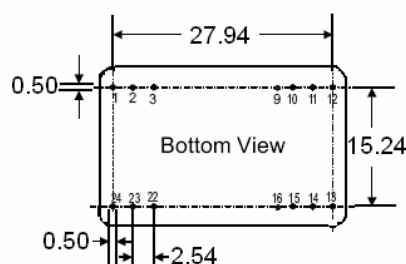
General Specifications:
 Switching Frequency 266 kHz, typ
 I/O isolation voltage (3 sec) 1500~3500Vdc
 Metal Case 1000Vdc
 Safety standard IEC 60950-1:2001

Environmental specifications:
 Operating Temperature -40°C ~ +85°C
 Case temperature 100°C Max.
 Storage Temperature -40°C ~ +125°C
 Cooling Nature Convection
 Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.



DC/DC Converters – S6-S/D5 series

5 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 83 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S5	9-18	3.3	1300	73
S6-1205S5		5	1000	77
S6-1209S5		9	555	78
S6-1212S5		12	417	81
S6-1215S5		15	333	80
S6-1224S5		24	208	80
S6-123R3D5	9-18	±3.3	±750	73
S6-1205D5		±5	±500	77
S6-1209D5		±9	±278	80
S6-1212D5		±12	±208	80
S6-1215D5		±15	±167	79
S6-1224D5		±24	±104	80
S6-243R3S5	18-36	3.3	1300	75
S6-2405S5		5	1000	80
S6-2409S5		9	555	82
S6-2412S5		12	417	80
S6-2415S5		15	333	82
S6-2424S5		24	208	82
S6-243R3D5	18-36	±3.3	±750	75
S6-2405D5		±5	±500	78
S6-2409D5		±9	±278	83
S6-2412D5		±12	±208	80
S6-2415D5		±15	±167	80
S6-2424D5		±24	±104	80
S6-483R3S5	36-72	3.3	1300	75
S6-4805S5		5	1000	80
S6-4809S5		9	555	82
S6-4812S5		12	417	80
S6-4815S5		15	333	83
S6-4824S5		24	208	83
S6-483R3D5	36-72	±3.3	±750	73
S6-4805D5		±5	±500	79
S6-4809D5		±9	±278	79
S6-4812D5		±12	±208	80
S6-4815D5		±15	±167	80
S6-4824D5		±24	±104	80

Input specifications:

Input Reflected Ripple Current 35mA pk-pk, typ
Filter: Pi Type

Output specifications:

Voltage accuracy ±1%
Ripple & noise (at 20MHz BW) 60mV pk-pk
Line regulation ±0.5%
Load regulation ±0.5%
Temperature coefficient out (±)3.3V models ±20%
±0.02%/°C

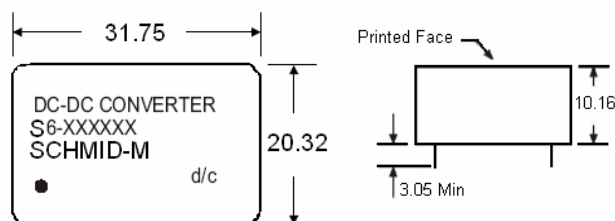
General Specifications:

Switching Frequency 266 kHz, typ
I/O isolation voltage (3 sec) 1500~3500Vdc
Metal Case 1000Vdc
Safety standard IEC 60950-1:2001

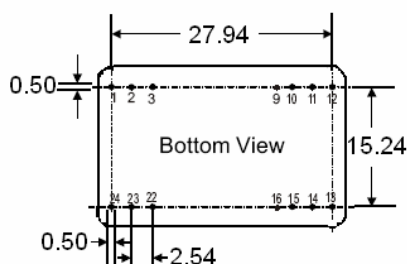
Environmental specifications:

Operating Temperature -40°C ~ +85°C
Case temperature 100°C Max.
Storage Temperature -40°C ~ +125°C
Cooling Nature Convection
Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.



DC/DC Converters – S6-S/D6 series

6 WATT

Single / Dual Output

FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500 Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 83 %
- Metal Case Standard, optional Plastic Case

Model Number	Input Voltage Range(V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S6-123R3S6	9-18	3.3	1400	73
S6-1205S6		5	1200	77
S6-1209S6		9	666	78
S6-1212S6		12	500	81
S6-1215S6		15	400	80
S6-1224S6		24	250	80
S6-123R3D6	9-18	±3.3	±909	73
S6-1205D6		±5	±600	77
S6-1209D6		±9	±333	80
S6-1212D6		±12	±250	80
S6-1215D6		±15	±200	79
S6-1224D6		±24	±125	80
S6-243R3S6	18-36	3.3	1400	75
S6-2405S6		5	1200	80
S6-2409S6		9	666	82
S6-2412S6		12	500	80
S6-2415S6		15	400	82
S6-2424S6		24	250	82
S6-243R3D6	18-36	±3.3	±909	75
S6-2405D6		±5	±600	78
S6-2409D6		±9	±333	83
S6-2412D6		±12	±250	80
S6-2415D6		±15	±200	80
S6-2424D6		±24	±125	80
S6-483R3S6	36-72	3.3	1400	75
S6-4805S6		5	1200	80
S6-4809S6		9	666	82
S6-4812S6		12	500	80
S6-4815S6		15	400	83
S6-4824S6		24	250	83
S6-483R3D6	36-72	±3.3	±909	73
S6-4805D6		±5	±600	79
S6-4809D6		±9	±333	79
S6-4812D6		±12	±250	80
S6-4815D6		±15	±200	80
S6-4824D6		±24	±125	80

Input specifications:

Input Reflected Ripple Current 35mA pk-pk, typ
Filter: Pi Type

Output specifications:

Voltage accuracy ±1%
Ripple & noise (at 20MHz BW) 60mV pk-pk
Line regulation ±0.5%
Load regulation ±0.5%
Temperature coefficient out (±)3.3V models ±20%
±0.02%/°C

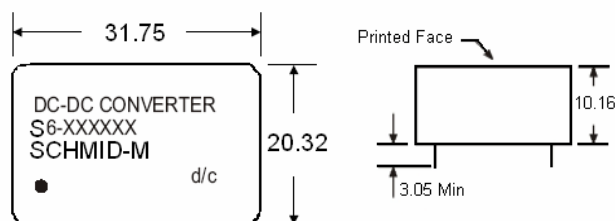
General Specifications:

Switching Frequency 266 kHz, typ
I/O isolation voltage (3 sec) 1500~3500Vdc
Metal Case 1000Vdc
Safety standard IEC 60950-1:2001

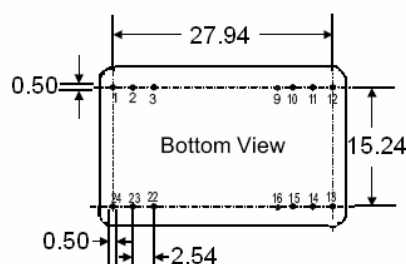
Environmental specifications:

Operating Temperature -40°C ~ +85°C
Case temperature 100°C Max.
Storage Temperature -40°C ~ +125°C
Cooling Nature Convection
Humidity 95% rel H

MECHANICAL DIMENSIONS 24 Pin DIL Package



PIN #	Single	Dual	Single-H	Dual-H
1	+Vin	+Vin	N.P.	N.P.
2	N.C.	-Vout	-Vin	-Vin
3	N.C.	Common	-Vin	-Vin
9	N.P.	N.P.	N.C.	Common
10	-Vout	Common	N.P.	N.P.
11	+Vout	+Vout	N.C.	-Vout
12	-Vin	-Vin	N.P.	N.P.
13	-Vin	-Vin	N.P.	N.P.
14	+Vout	+Vout	+Vout	+Vout
15	-Vout	Common	N.P.	N.P.
16	N.P.	N.P.	-Vout	Common
22	N.C.	Common	+Vin	+Vin
23	N.C.	-Vout	+Vin	+Vin
24	+Vin	+Vin	N.P.	N.P.





DC/DC Converters – S7- S/D7 series

7.5 WATT(available also 10 W series)
Single / Dual Output

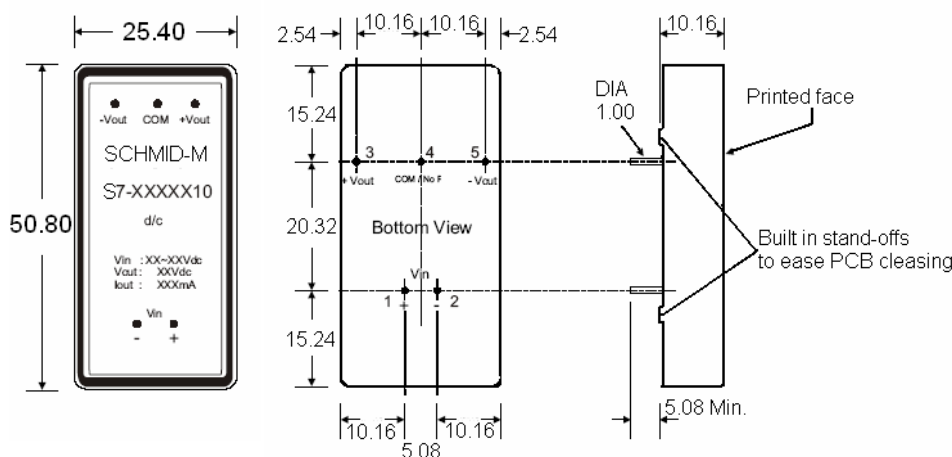
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 1" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 90%
- EMI Complies With EN55022 Class A

Input specifications:		
Input Reflected Ripple Current		35mA pk-pk
Filter:		Capacitors
Output specifications:		
Voltage accuracy		±1%
Ripple & noise (at 20MHz BW)		100mV pk-pk
Line regulation		±0.5%
Load regulation		±0.5%,load=10~100%
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		200 kHz, Typ
I/O isolation voltage (3 sec)		1000~3000Vdc
Safety standard		IEC 60950-1:2001
EMC characteristics		
Radiated Emissions	EN55022	CLASS A
	FCC 47 CFR Part 15 Subp.B	CLASS A
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A
Environmental specifications:		
Operating Temperature		-40°C ~ +85°C
Case temperature		100°C Max.
Storage Temperature		-40°C ~ +125°C
Cooling		Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-123R3S7	9-18	3.3	1500	80
S7-1205S7		5	1500	81
S7-127R2S7		7.2	1041	82
S7-1209S7		9	833	82
S7-1212S7		12	625	83
S7-1215S7		15	500	83
S7-1218S7		18	416	84
S7-1224S7		24	312	85
S7-123R3D7	9-18	±3.3	±750	80
S7-2405D7		±5	±750	81
S7-127R2D7		±7.2	±520	82
S7-1209D7		±9	±416	82
S7-1212D7		±12	±312	82
S7-1215D7		±15	±250	83
S7-1218D7		±18	±208	83
S7-1224D7		±24	±156	84
S7-243R3S7	18-36	3.3	1500	81
S7-2405S7		5	1500	82
S7-247R2S7		7.2	1041	83
S7-2409S7		9	833	84
S7-2412S7		12	625	84
S7-2415S7		15	500	85
S7-2418S7		18	416	86
S7-2424S7		24	312	86
S7-243R3D7	18-36	±3.3	±750	81
S7-2405D7		±5	±750	82
S7-247R2D7		±7.2	±520	83
S7-2409D7		±9	±416	83
S7-2412D7		±12	±312	84
S7-2415D7		±15	±250	84
S7-2418D7		±18	±208	85
S7-2424D7		±24	±156	85
S7-483R3S7	36-72	3.3	1500	80
S7-4805S7		5	1500	81
S7-487R2S7		7.2	1041	82
S7-4809S7		9	833	82
S7-4812S7		12	625	83
S7-4815S7		15	500	83
S7-4818S7		18	416	84
S7-4824S7		24	312	84
S7-483R3D7	36-72	±3.3	±750	80
S7-4805D7		±5	±750	81
S7-487R2D7		±7.2	±520	82
S7-4809D7		±9	±416	82
S7-4812D7		±12	±312	83
S7-4815D7		±15	±250	84
S7-4818D7		±18	±208	84
S7-4824D7		±24	±156	85

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output



DC/DC Converters – S7- S/D12 series

12 WATT

(available also 10, 12, 15, 20, 25 and 30W series)

Single / Dual Output

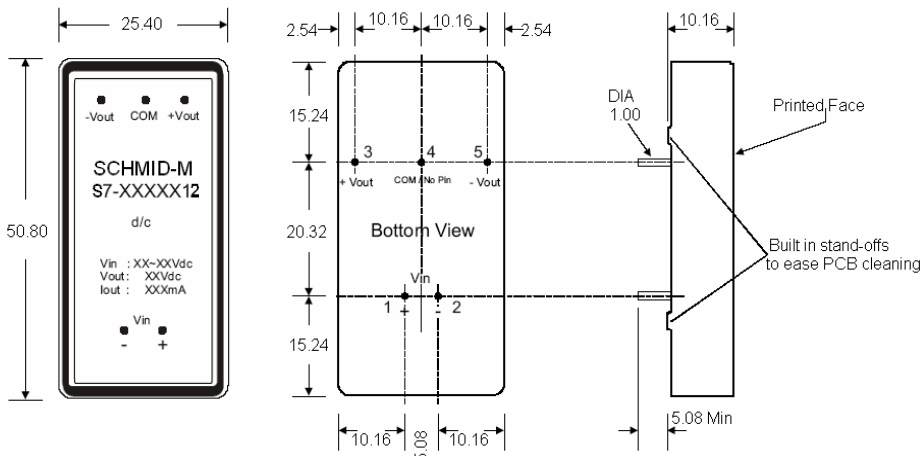
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 1" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 90%

Input specifications:		
Input Reflected Ripple Current Filter:		35mA pk-pk Capacitors
Output specifications:		
Voltage accuracy		±1%
Ripple & noise (at 20MHz BW)		100mV pk-pk
Line regulation		±0.5%
Load regulation		±0.5%, load=10~100%
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		200 kHz, Typ
I/O isolation voltage (3 sec)		1000~3000Vdc
Safety standard		IEC 60950-1:2001
EMC characteristics		
Radiated Emissions	EN55022	CLASS A
	FCC 47 CFR Part 15 Subp.B	CLASS A
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A
Enviromental specifications:		
Operating Temperature		-40°C ~ +85°C
Case temperature		100°C Max.
Storage Temperature		-40°C ~ +125°C
Cooling		Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-123R3S12	9-18	3.3	2400	79
S7-1205S12		5	2400	82
S7-127R2S12		7.2	1666	83
S7-1209S12		9	1333	83
S7-1212S12		12	1000	84
S7-1215S12		15	800	84
S7-1218S12		18	666	85
S7-1224S12		24	500	85
S7-123R3D12	9-18	±3.3	±1200	79
S7-1205D12		±5	±1200	82
S7-127R2D12		±7.2	±833	83
S7-1209D12		±9	±666	84
S7-1212D12		±12	±500	84
S7-1215D12		±15	±400	85
S7-1218D12		±18	±333	85
S7-1224D12		±24	±250	85
S7-243R3S12	18-36	3.3	2400	79
S7-2405S12		5	2400	82
S7-247R2S12		7.2	1666	83
S7-2409S12		9	1333	84
S7-2412S12		12	1000	84
S7-2415S12		15	800	85
S7-2418S12		18	666	85
S7-2424S12		24	500	86
S7-243R3D12	18-36	±3.3	±1200	79
S7-2405D12		±5	±1200	82
S7-247R2D12		±7.2	±833	83
S7-2409D12		±9	±666	83
S7-2412D12		±12	±500	84
S7-2415D12		±15	±400	84
S7-2418D12		±18	±333	85
S7-2424D12		±24	±250	85
S7-483R3S12	36-72	3.3	2400	79
S7-4805S12		5	2400	83
S7-487R2S12		7.2	1666	83
S7-4809S12		9	1333	84
S7-4812S12		12	1000	84
S7-4815S12		15	800	84
S7-4818S12		18	666	85
S7-4824S12		24	500	86
S7-483R3D12	36-72	±3.3	±1200	79
S7-4805D12		±5	±1200	82
S7-487R2D12		±7.2	±833	84
S7-4809D12		±9	±666	84
S7-4812D12		±12	±500	85
S7-4815D12		±15	±400	85
S7-4818D12		±18	±333	86
S7-4824D12		±24	±250	86

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output

DC/DC Converters – S7W-10 series

10 WATT (available also 12 WATT series)
Single / Dual Output

FEATURES

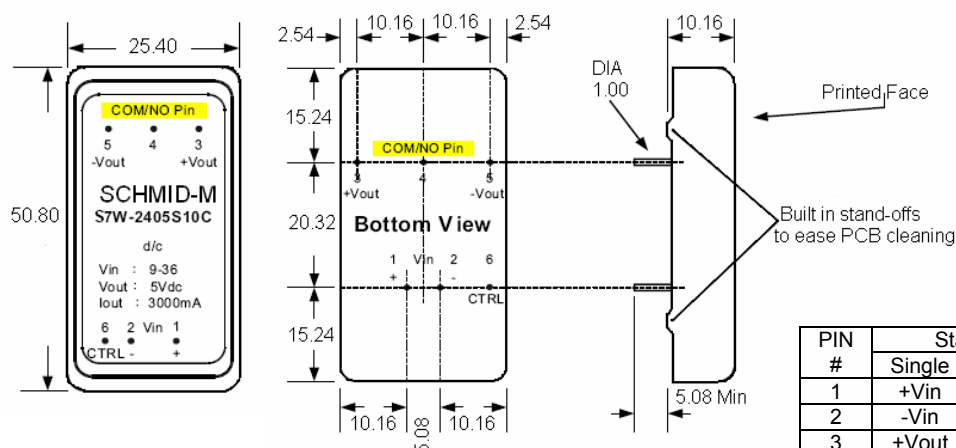
- Wide 4:1 Input Range
- 1500 VDC Isolation
- Full SMD Technology
- Continuous Short Circuit Protection
- Efficiency up to 85 %
- Operating Temperature Range - 40°C ~ 85°C
- Remote on/off Control (Optional)
- EMI Complies With EN55022 Class A

Model Number	Input Voltage Range (V)	Output Vdc	Output Current (mA)	Eff. @FL (%)
S7W-243R3S10	9-36	3.3	2000	80
S7W-2405S10		5	2000	82
S7W-247R2S10		7.2	1388	83
S7W-2409S10		9	1111	83
S7W-2412S10		12	833	85
S7W-2415S10		15	666	85
S7W-2405D10		±5	1000	82
S7W-247R2D10		±7.2	±694	83
S7W-2409D10		±9	±555	83
S7W-2412D10		±12	±416	85
S7W-2415D10		±15	±333	85
S7W-483R3S10		18-72	3.3	2000
S7W-4805S10	5		2000	82
S7W-487R2S10	7.2		1388	83
S7W-4809S10	9		1111	83
S7W-4812S10	12		833	85
S7W-4815S10	15		666	85
S7W-4805D10	±5		±1000	82
S7W-487R2D10	±7.2		±694	83
S7W-4809D10	±9		±555	83
S7W-4812D10	±12		±416	85
S7W-4815D10	±15		±333	85

Input specifications:		
Input Reflected Ripple Current Filter:		35mA pk-pk Pi Type
Output specifications:		
Voltage accuracy		±1%
Ripple & noise (at 20MHz BW)		75mV pk-pk
Line regulation		±0.5%
Load regulation		±0.5%, load=10~100% ±0.5%, load below 10%
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		300 kHz, Typ
I/O isolation voltage (3 sec)		1500Vdc
Safety standard		IEC 60950-1:2001
EMC characteristics		
Radiated Emissions	EN55022	CLASS A
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A
Environmental specifications:		
Operating Temperature		-40°C ~ +85°C
Case temperature		100°C Max.
Storage Temperature		-40°C ~ +125°C
Cooling		Nature Convection

Suffix „C“ means with Control Pin

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Standard		Remote ctrl(opt.)	
	Single	Dual	Single	Dual
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
3	+Vout	+Vout	+Vout	+Vout
4	N.P.	Common	N.P.	Common
5	-Vout	-Vout	-Vout	-Vout
6	N.P.	N.P.	CTRL	CTRL

DC/DC Converters – S7W-15 series

15 WATT

Single / Dual Output

FEATURES

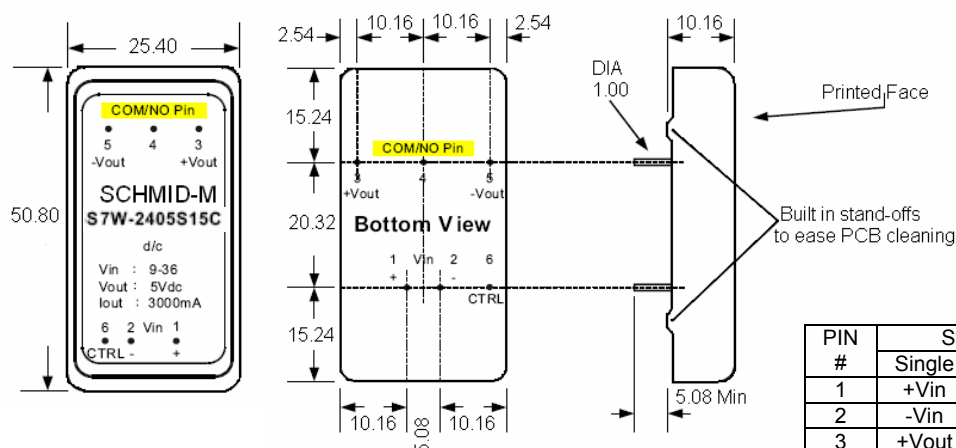
- Wide 4:1 Input Range
- 1500 VDC Isolation
- Full SMD Technology
- Continuous Short Circuit Protection
- Efficiency up to 86 %
- Operating Temperature Range - 40°C ~ 85°C
- Remote on/off Control (Optional)
- EMI Complies With EN55022 Class A

Model Number	Input Voltage Range (V)	Output Vdc	Output Current (mA)	Eff. @FL (%)	
S7W-243R3S15	9-36	3.3	3000	80	
S7W-2405S15		5	3000	83	
S7W-247R2S15		7.2	2083	84	
S7W-2409S15		9	1666	84	
S7W-2412S15		12	1250	85	
S7W-2415S15		15	1000	86	
S7W-2405D15		±5	±1500	83	
S7W-247R2D15		±7.2	±1041	84	
S7W-2409D15		±9	±833	84	
S7W-2412D15		±12	±625	85	
S7W-2415D15		±15	±500	86	
S7W-483R3S15		18-72	3.3	3000	80
S7W-4805S15			5	3000	83
S7W-487R2S15			7.2	2083	84
S7W-4809S15	9		1666	84	
S7W-4812S15	12		1250	85	
S7W-4815S15	15		1000	86	
S7W-4805D15	±5		±1500	83	
S7W-487R2D15	±7.2		±1041	84	
S7W-4809D15	±9		±833	84	
S7W-4812D15	±12		±625	85	
S7W-4815D15	±15		±500	86	

Input specifications:		
Input Reflected Ripple Current Filter:		35mA pk-pk Pi Type
Output specifications:		
Voltage accuracy		±1%
Ripple & noise (at 20MHz BW)		75mV pk-pk
Line regulation		±0.5%
Load regulation		±0.5%, load=10~100% ±0.5%, load below 10%
Temperature coefficient		±0.02%/°C
General Specifications:		
Switching Frequency		300 kHz, Typ
I/O isolation voltage (3 sec)		1500Vdc
Safety standard		IEC 60950-1:2001
EMC characteristics		
Radiated Emissions	EN55022	CLASS A
ESD	IEC61000-4-2	Perf. Criteria B
RS	IEC61000-4-3	Perf. Criteria A
Environmental specifications:		
Operating Temperature		-40°C ~ +85°C
Case temperature		100°C Max.
Storage Temperature		-40°C ~ +125°C
Cooling		Nature Convection

Suffix „C“ means with Control Pin

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Standard		Remote ctrl(opt.)	
	Single	Dual	Single	Dual
1	+Vin	+Vin	+Vin	+Vin
2	-Vin	-Vin	-Vin	-Vin
3	+Vout	+Vout	+Vout	+Vout
4	N.P.	Common	N.P.	Common
5	-Vout	-Vout	-Vout	-Vout
6	N.P.	N.P.	CTRL	CTRL



DC/DC Converters – S7- S/D15 series

15 WATT
Single / Dual Output

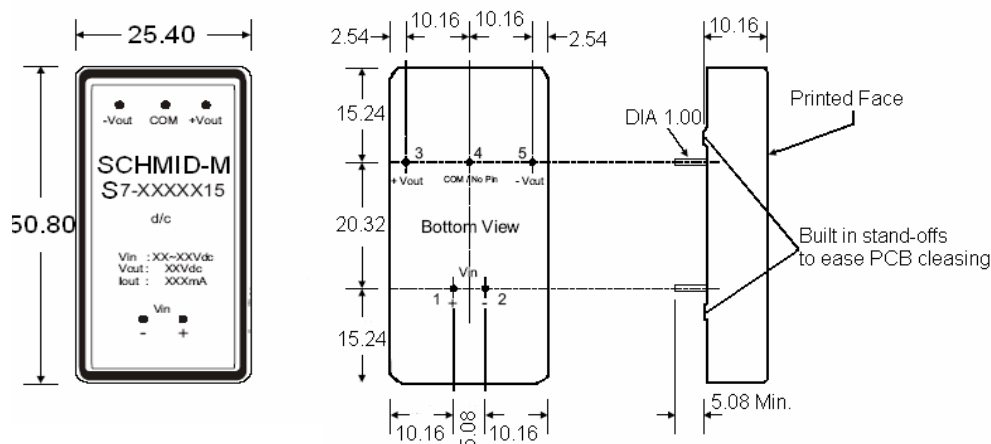
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 1" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 90%

Input specifications:	
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Filter	Capacitors
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	500 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	100 mVp-p, Max
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Line regulation	$\pm 0.5\%$ Max.
Load regulation	$\pm 0.5\%$ Max.
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	80% ~ 90%
Switching Frequency	200 kHz, Typ.
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Derating	None required
Humidity	Up to 90%, Non-condensing

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-123R3S15	9-18	3.3	3000	80
S7-1205S15		5	3000	82
S7-127R2S15		7.2	2083	83
S7-1209S15		9	1666	85
S7-1212S15		12	1250	85
S7-1215S15		15	1000	85
S7-1218S15		18	833	85
S7-1224S15		24	625	86
S7-123R3D15	9-18	± 3.3	± 1500	80
S7-1205D15		± 5	± 1500	82
S7-127R2D15		± 7.2	± 1041	83
S7-1209D15		± 9	± 833	84
S7-1212D15		± 12	± 625	84
S7-1215D15		± 15	± 500	84
S7-1218D15		± 18	± 416	85
S7-1224D15		± 24	± 312	85
S7-243R3S15	18-36	3.3	3000	80
S7-2405S15		5	3000	84
S7-247R2S15		7.2	2083	84
S7-2409S15		9	1666	85
S7-2412S15		12	1250	85
S7-2415S15		15	1000	86
S7-2418S15		18	833	86
S7-2424S15		24	625	87
S7-243R3D15	18-36	± 3.3	± 1500	80
S7-2405D15		± 5	± 1500	83
S7-247R2D15		± 7.2	± 1041	84
S7-2409D15		± 9	± 833	85
S7-2412D15		± 12	± 625	86
S7-2415D15		± 15	± 500	86
S7-2418D15		± 18	± 416	87
S7-2424D15		± 24	± 312	87
S7-483R3S15	36-72	3.3	3000	80
S7-4805S15		5	3000	84
S7-487R2S15		7.2	2083	84
S7-4809S15		9	1666	85
S7-4812S15		12	1250	86
S7-4815S15		15	1000	87
S7-4818S15		18	833	87
S7-4824S15		24	625	87
S7-483R3D15	36-72	± 3.3	± 1500	80
S7-4805D15		± 5	± 1500	84
S7-487R2D15		± 7.2	± 1041	84
S7-4809D15		± 9	± 833	85
S7-4812D15		± 12	± 625	86
S7-4815D15		± 15	± 500	87
S7-4818D15		± 18	± 416	87
S7-4824D15		± 24	± 312	87

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Ouput	+V Output
4	N.P.	Common
5	-V Output	-V Output



DC/DC Converters – S7- S/D20L series

20 WATT
Single / Dual Output

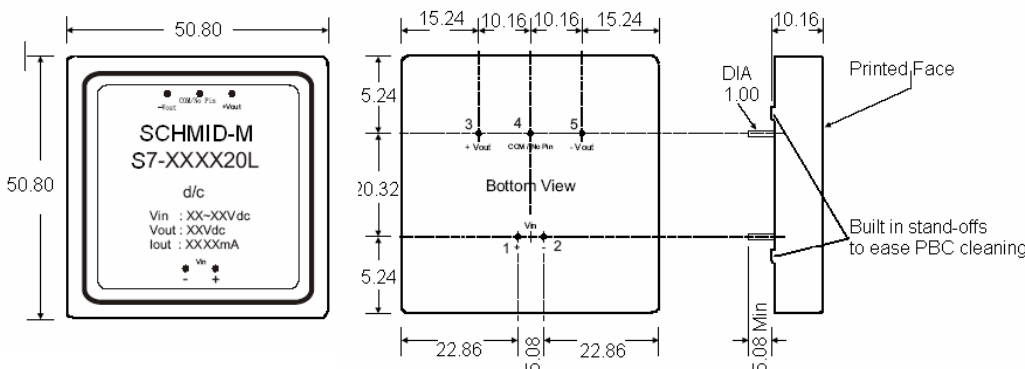
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 2" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 92%

Input specifications:	
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Filter	Capacitors
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	500 pF, Typ.
Output specifications:	
Voltage accuracy	±1%, Max
Voltage Balance	±1%
Ripple & noise (at 20MHz BW)	(±)100 mVp-p, Max
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Line regulation	±0.5% Max.
Load regulation	±0.5% Max.
Temperature coefficient	±0.02%/°C
General Specifications:	
Efficiency	84% ~ 92%
Switching Frequency	200 kHz, Typ.
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Derating	None required
Humidity	Up to 90%, Non-condensing

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-123R3S20L	9-18	3.3	4000	80
S7-1205S20L		5	4000	83
S7-127R2S20L		7.2	2777	84
S7-1209S20L		9	2222	84
S7-1212S20L		12	1666	85
S7-1215S20L		15	1333	85
S7-1218S20L		18	111	85
S7-1224S20L		24	833	85
S7-123R3D20L	9-18	±3.3	±2000	78
S7-1205D20L		±5	±2000	82
S7-127R2D20L		±7.2	±1388	83
S7-1209D20L		±9	±1111	85
S7-1212D20L		±12	±833	84
S7-1215D20L		±15	±666	86
S7-1218D20L		±18	±555	85
S7-1224D20L		±24	±416	85
S7-243R3S20L	18-36	3.3	4000	79
S7-2405S20L		5	4000	84
S7-247R2S20L		7.2	2777	84
S7-2409S20L		9	2222	86
S7-2412S20L		12	1666	87
S7-2415S20L		15	1333	87
S7-2418S20L		18	1111	85
S7-2424S20L		24	833	87
S7-243R3D20L	18-36	±3.3	±2000	79
S7-2405D20L		±5	±2000	84
S7-247R2D20L		±7.2	±1388	84
S7-2409D20L		±9	±1111	87
S7-2412D20L		±12	±833	86
S7-2415D20L		±15	±666	87
S7-2418D20L		±18	±555	88
S7-2424D20L		±24	±416	86
S7-483R3S20L	36-72	3.3	4000	79
S7-4805S20L		5	4000	83
S7-487R2S20L		7.2	2777	85
S7-4809S20L		9	2222	87
S7-4812S20L		12	1666	87
S7-4815S20L		15	1333	86
S7-4818S20L		18	1111	86
S7-4824S20L		24	833	87
S7-483R3D20L	36-72	±3.3	±2000	80
S7-4805D20L		±5	±2000	83
S7-487R2D20L		±7.2	±1388	85
S7-4809D20L		±9	±1111	87
S7-4812D20L		±12	±833	87
S7-4815D20L		±15	±666	87
S7-4818D20L		±18	±555	86
S7-4824D20L		±24	±416	87

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output



DC/DC Converters – S7- S/D25L series

25 WATT
Single / Dual Output

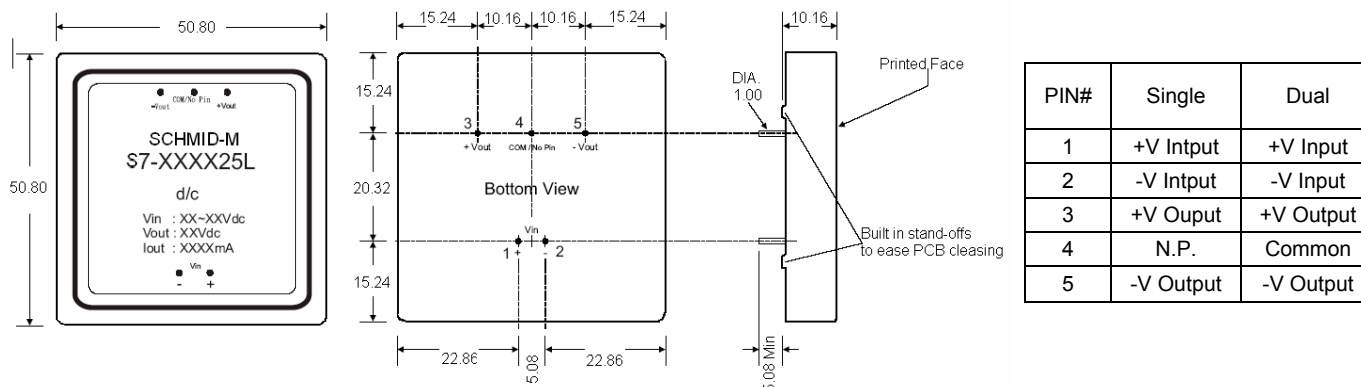
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 2" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 92%

Input specifications:	
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Filter	Capacitors
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	500 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	(\pm)100 mVp-p, Max
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Line regulation	$\pm 0.5\%$ Max.
Load regulation	$\pm 0.5\%$ Max.
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	84% ~ 92%
Switching Frequency	200 kHz, Typ.
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Derating	None required
Humidity	Up to 90%, Non-condensing

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-1205S25L	9-18	5	5000	83
S7-127R2S25L		7.2	3472	84
S7-1209S25L		9	2777	84
S7-1212S25L		12	2083	84
S7-1215S25L		15	1666	85
S7-1218S25L		18	1388	85
S7-1224S25L		24	1041	85
S7-123R3D25L	9-18	± 3.3	± 2500	80
S7-1205D25L		± 5	± 2500	82
S7-127R2D25L		± 7.2	± 1736	83
S7-1209D25L		± 9	± 1388	84
S7-1212D25L		± 12	± 1041	84
S7-1215D25L		± 15	± 833	85
S7-1218D25L		± 18	± 694	85
S7-1224D25L	± 24	± 520	85	
S7-243R3S25L	18-36	3.3	5000	82
S7-2405S25L		5	5000	85
S7-247R2S25L		7.2	3472	84
S7-2409S25L		9	2777	84
S7-2412S25L		12	2083	85
S7-2415S25L		15	1666	85
S7-2418S25L		18	1388	85
S7-2424S25L	24	1041	86	
S7-243R3D25L	18-36	± 3.3	± 2500	81
S7-2405D25L		± 5	± 2500	84
S7-247R2D25L		± 7.2	± 1736	84
S7-2409D25L		± 9	± 1388	84
S7-2412D25L		± 12	± 1041	85
S7-2415D25L		± 15	± 833	86
S7-2418D25L		± 18	± 694	86
S7-2424D25L	± 24	± 520	87	
S7-483R3S25L	36-72	3.3	5000	79
S7-4805S25L		5	5000	83
S7-487R2S25L		7.2	3472	84
S7-4809S25L		9	2777	84
S7-4812S25L		12	2083	85
S7-4815S25L		15	1666	86
S7-4818S25L		18	1388	86
S7-4824S25L	24	1041	88	
S7-483R3D25L	36-72	± 3.3	± 2500	80
S7-4805D25L		± 5	± 2500	82
S7-487R2D25L		± 7.2	± 1736	82
S7-4809D25L		± 9	± 1388	84
S7-4812D25L		± 12	± 1041	85
S7-4815D25L		± 15	± 833	88
S7-4818D25L		± 18	± 694	87
S7-4824D25L	± 24	± 520	85	

MECHANICAL DIMENSIONS & PIN CONNECTIONS





DC/DC Converters – S7- S/D30L

30 WATT
Single / Dual Output

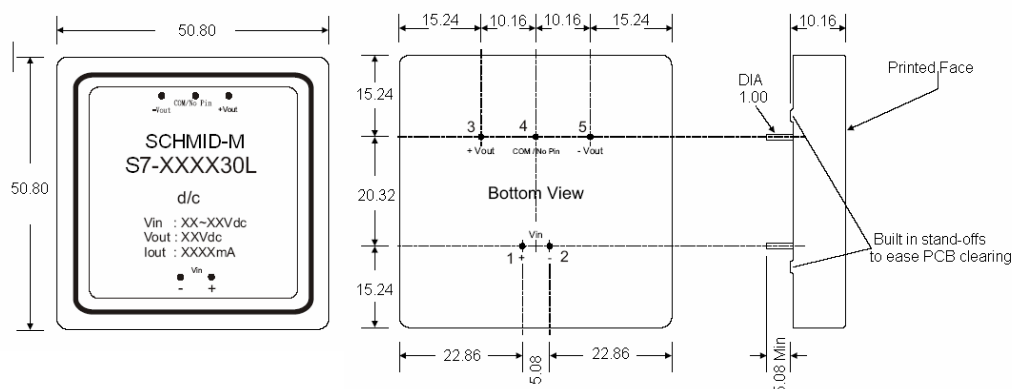
FEATURES

- 1500 Vdc Isolation
- Wide 2:1 Input Range
- 2" X 2" X 0.4" Package
- Regulated
- Continuous Short Circuit protection
- Nickel-Coated Copper Metal
- High Efficiency up to 92%

Input specifications:	
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Filter	Capacitors
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	500 pF, Typ.
Output specifications:	
Voltage accuracy	±1%, Max
Voltage Balance	±1%
Ripple & noise (at 20MHz BW)	(±)100 mVp-p, Max
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Line regulation	±0.5% Max.
Load regulation	±0.5% Max.
Temperature coefficient	±0.02%/°C
General Specifications:	
Efficiency	84% ~ 92%
Switching Frequency	200 kHz, Typ.
Environmental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Derating	None required
Humidity	Up to 90%, Non-condensing

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S7-1205S30L	9-18	5	6000	83
S7-127R2S30L		7.2	4166	83
S7-1209S30L		9	3333	84
S7-1212S30L		12	2500	84
S7-1215S30L		15	2000	86
S7-1218S30L		18	1388	85
S7-1224S30L		24	1250	85
S7-123R3D30L	9-18	±3.3	±3000	78
S7-1205D30L		±5	±3000	82
S7-127R2D30L		±7.2	±2083	83
S7-1209D30L		±9	±1666	83
S7-1212D30L		±12	±1250	84
S7-1215D30L		±15	±1000	85
S7-1218D30L		±18	±833	85
S7-1224D30L	±24	±625	85	
S7-243R3S30L	18-36	3.3	6000	80
S7-2405S30L		5	6000	85
S7-247R2S30L		7.2	4166	84
S7-2409S30L		9	3333	87
S7-2412S30L		12	2500	87
S7-2415S30L		15	2000	87
S7-2418S30L		18	1388	86
S7-2424S30L	24	1250	86	
S7-243R3D30L	18-36	±3.3	±3000	78
S7-2405D30L		±5	±3000	84
S7-247R2D30L		±7.2	±2083	86
S7-2409D30L		±9	±1666	85
S7-2412D30L		±12	±1250	85
S7-2415D30L		±15	±1000	87
S7-2418D30L		±18	±833	88
S7-2424D30L	±24	±625	87	
S7-483R3S30L	36-72	3.3	6000	79
S7-4805S30L		5	6000	83
S7-487R2S30L		7.2	4166	84
S7-4809S30L		9	3333	84
S7-4812S30L		12	2500	86
S7-4815S30L		15	2000	88
S7-4818S30L		18	1388	86
S7-4824S30L	24	1250	88	
S7-483R3D30L	36-72	±3.3	±3000	80
S7-4805D30L		±5	±3000	82
S7-487R2D30L		±7.2	±2083	82
S7-4809D30L		±9	±1666	85
S7-4812D30L		±12	±1250	87
S7-4815D30L		±15	±1000	88
S7-4818D30L		±18	±833	86
S7-4824D30L	±24	±625	86	

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output

DC/DC Converters – S9 series

20 WATT

Single / Dual Output

FEATURES

- Ultra Wide 4:1 Input Range
- Full SMD Technology
- 1600 VDC isolation
- No Minimum Load Required
- Efficiency up to 91 %
- Extended Operating Temperature Range – 40°C ~ 85°C max.
- Adjustable Output Voltage
- Remote On/Off Control (CTRL)
- Continuous Short Circuit Protection
- Over Current Protection
- Over Voltage Protection
- Soft Start

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S9-243R3S20	9-36	3.3	5500	89
S9-2405S20		5	4000	91
S9-2412S20		12	1670	89
S9-2415S20		15	1330	89
S9-483R3S20	18-75	3.3	5500	91
S9-4805S20		5	4000	89
S9-4812S20		12	1670	89
S9-4815S20		15	1330	89
S9-2405D20	9-36	±5	±2000	89
S9-2412D20		±12	±835	89
S9-2415D20		±15	±665	89
S9-4805D20	18-75	±5	±2000	89
S9-4812D20		±12	±835	89
S9-4815D20		±15	±665	89

Input specifications:

Input Reflected Ripple Current	20mA p-p, typ
Filter:	Pi Type
Start Up Time	20mS, typ
Under Voltage Lockout	
24V Modes	Module ON/OFF 8.6Vdc/7.9Vdc, typ
48V Modes	Module ON/OFF 17.8Vdc/16Vdc, typ
Remote On/Off (CTRL)	
ON:	3.0...12Vdc or open circuit
OFF:	0...1.2Vdc or Short circuit pin 2and pin 6
OFF idle current:	5mA, typ

Output specifications:

Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	75mV p-p
Short Circuit Protection	Indefinite (hiccup)
Line regulation	±0.5%
Load regulation	single: ±0.5%,load=10~100%
	dual: ±1%max (balanced load)
Temperature coefficient	±0.02%/°C
Transient recovery time:	250µS, typ
Transient response deviation	±3%, max

General Specifications:

Efficiency	89% ~ 91%
Switching Frequency	330 kHz, Typ.
I/O isolation voltage (3 sec)	1600Vdc
Safety standard	IEC/EN 60950-1

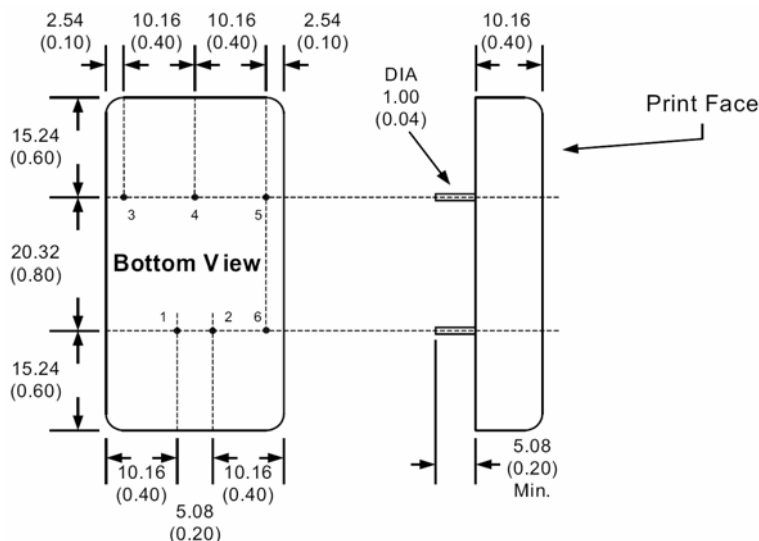
EMC characteristics:

Radiated Emissions	EN55022	CLASS A
Conducted Emissions	EN55022	CLASS A
ESD	EN61000-4-2	Perf. Criteria B
RS	EN61000-4-3	Perf. Criteria A
EFT	EN61000-4-4	Perf. Criteria B
Surge	EN61000-4-5	Perf. Criteria B
CS	EN61000-4-6	Perf. Criteria A
PFMF	EN61000-4-8	Perf. Criteria A

Environmental specifications:

Operating Temperature	-40°C ~ +85°C
	100% load -40°C ~ +66°C
Case temperature	105°C Max.
Storage Temperature	-40°C ~ +125°C
Humidity	95% rel H
Cooling	Nature Convection

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	Trim	Com
5	-Vout	-Vout
6	CTRL	CTRL

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

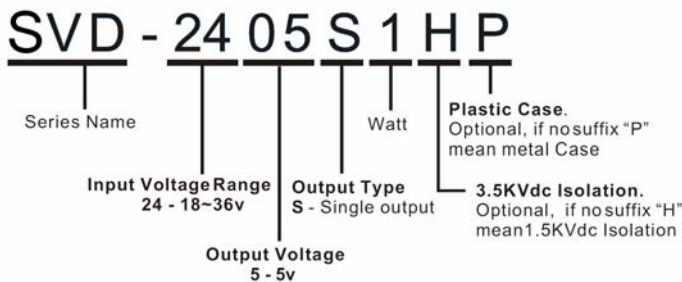
DC/DC Converters – SVD series

1.5 ~ 5 WATT
Regulated Single Output

FEATURES

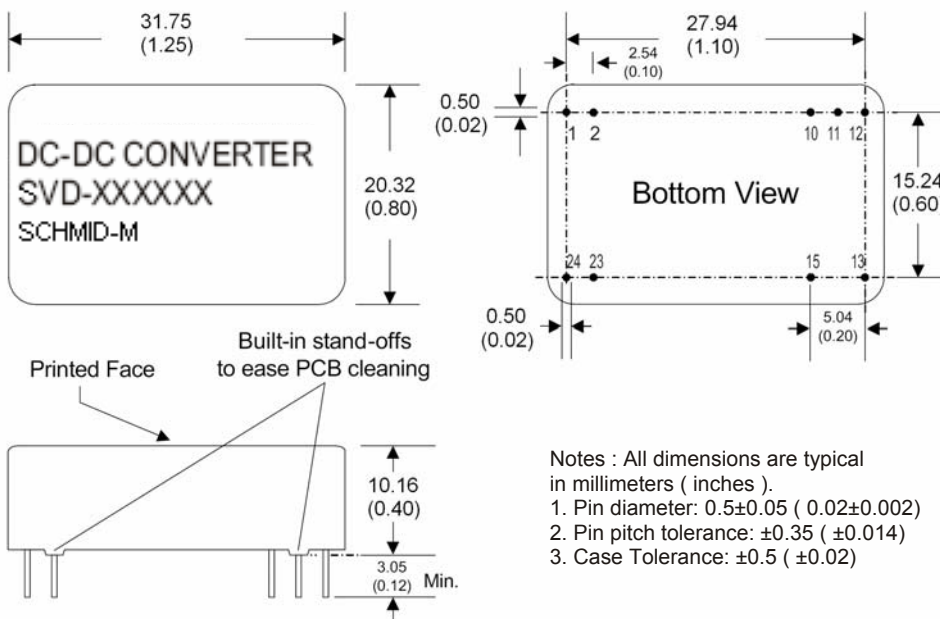
- Wide 2:1 Input Range
- Full SMD Technology
- 1500 Vdc Isolation, Up to 3500Vdc
- Operating Temperature Range - 40°C ~ 85°C
- Continuous Short Circuit Protection
- Efficiency up to 80 %
- Metal Case Standard, optional Plastic Case – suffix „P“

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SVD-2405S1	18-36	5	300	74
SVD-2405S2			400	78
SVD-2405S3			600	78
SVD-2405S4			800	80
SVD-2405S5			1000	80



Input specifications:	
Input Reflected Ripple Current	35mA pk-pk
Filter:	Pi Type
Output specifications:	
Voltage accuracy	±1%
Ripple & noise (at 20MHz BW)	60mV pk-pk, max
Short Circuit Protection	Indefinite
Line regulation	±0.5%
Load regulation	±0.5%
Temperature coefficient	±0.02%/°C
General Specifications:	
Switching Frequency	266 kHz, typ
I/O isolation voltage (3 sec)	1500-3500Vd
Metal Case I/O	1000Vdc
Safety standard	IEC 60950-1
Safety Approvals	UL, cUL
Enviromental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection
Humidity	95% rel H
EMC Characteristics	
Radiated Emissions	FCC 47 CFR Part 15 Subpart A Class A

MECHANICAL DIMENSIONS & PIN CONNECTIONS 24 Pin DIL Package



PIN #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	N.P.	Common
11	N.C.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

DC/DC Converters – SRD-S/D1 series

1.5 WATT (available also 2W series)
Single / Dual Output

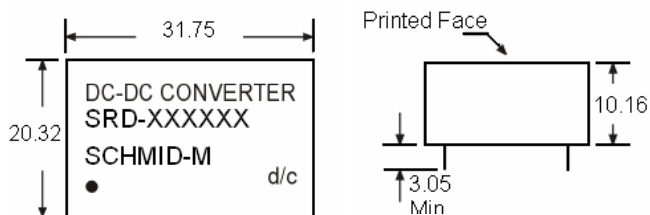
FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Plastic Case Standard, Optional Metal Case

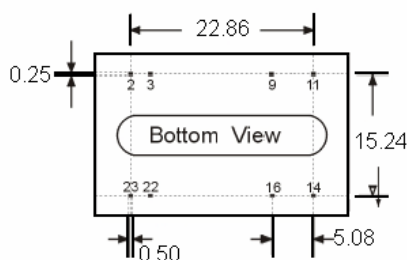
Input specifications:	
Filter:	Capacitors
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Ripple & noise (at 20MHz BW)	60 mVp-p, Max
Short Circuit Protection	Continuous
Line regulation	$\pm 0.5\%$ Max.
Load regulation	$\pm 0.5\%$ Max.
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	Up to 78%
Switching Frequency	100 ~ 400 kHz, Typ.
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100°C Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)	
SRD-0505S1	4.5-9	5	300	65	
SRD0509S1		9	167	67	
SRD-0512S1		12	125	70	
SRD-0515S1		15	100	67	
SRD-0524S1		24	62,5	66	
SRD-0505D1	4.5-9	± 5	± 150	65	
SRD-0509D1		± 9	$\pm 83,3$	67	
SRD-0512D1		± 12	$\pm 62,5$	70	
SRD-0515D1		± 15	± 50	67	
SRD-0524D1		± 24	± 31	66	
SRD-1205S1	9-18	5	300	74	
SRD-1209S1		9	167	77	
SRD-1212S1		12	125	76	
SRD-1215S1		15	100	78	
SRD-1224S1	9-18	24	62,5	78	
SRD-1205D1		± 5	± 150	74	
SRD-1209D1		± 9	$\pm 83,3$	76	
SRD-1212D1		± 12	$\pm 62,5$	75	
SRD-1215D1	9-18	± 15	± 50	78	
SRD-1224D1		± 24	± 31	78	
SRD-2405S1		18-36	5	300	74
SRD-2409S1			9	167	74
SRD-2412S1	12		125	76	
SRD-2415S1	18-36	15	100	76	
SRD-2424S1		24	62,5	77	
SRD-2405D1		± 5	± 150	75	
SRD-2409D1	18-36	± 9	$\pm 83,3$	76	
SRD-2412D1		± 12	$\pm 62,5$	77	
SRD-2415D1		± 15	± 50	78	
SRD-2424D1	18-36	± 24	± 31	78	
SRD-4805S1		36-72	5	300	73
SRD-4809S1			9	167	75
SRD-4812S1	12		125	77	
SRD-4815S1	15		100	77	
SRD-4824S1	36-72	24	62,5	78	
SRD-4805D1		± 5	± 150	74	
SRD-4809D1		± 9	$\pm 83,3$	75	
SRD-4812D1		± 12	$\pm 62,5$	77	
SRD-4815D1	36-72	± 15	± 50	78	
SRD-4824D1		± 24	± 31	78	

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



DC/DC Converters – SRD-S/D3 series

3 WATT

(available also 4, 5 and 6W series)

Single / Dual Output

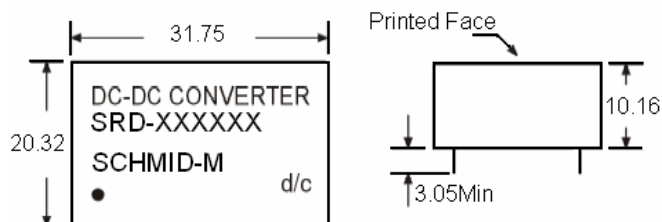
FEATURES

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Plastic Case Standard, Optional Metal Case

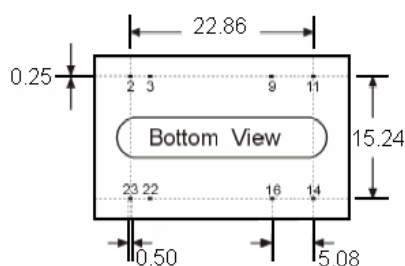
Input specifications:	
Filter:	Capacitors
Voltage Range	12Vdc, 9-18Vdc, 24Vdc, 18-36Vdc, 48Vdc, 36-72Vdc
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Ripple & noise (at 20MHz BW)	60 mVp-p, Max
Short Circuit Protection	Continuous
Line regulation	$\pm 0.5\%$ Max.
Load regulation	$\pm 0.5\%$ Max.
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	Up to 82%
Switching Frequency	100 ~ 400 kHz, Typ.
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100°C Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SRD-0505S3	4.5-9	5	600	70
SRD-0509S3		9	333	72
SRD-0512S3		12	250	74
SRD-0515S3		15	200	74
SRD-0524S3		24	125	70
SRD-0505D3	4.5-9	± 5	± 300	69
SRD-0509D3		± 9	± 167	70
SRD-0512D3		± 12	± 125	72
SRD-0515D3		± 15	± 100	74
SRD-0524D3		± 24	± 63	70
SRD-1205S3	9-18	5	600	76
SRD-1209S3		9	333	77
SRD-1212S3		12	250	79
SRD-1215S3		15	200	79
SRD-1224S3	9-18	24	125	79
SRD-1205D3		± 5	± 300	77
SRD-1209D3		± 9	± 167	78
SRD-1212D3		± 12	± 125	78
SRD-1215D3	18-36	± 15	± 100	78
SRD-1224D3		± 24	± 63	78
SRD-2405S3		5	600	80
SRD-2409S3		9	333	80
SRD-2412S3	18-36	12	250	82
SRD-2415S3		15	200	82
SRD-2424S3		24	125	80
SRD-2405D3	18-36	± 5	± 300	78
SRD-2409D3		± 9	± 167	79
SRD-2412D3		± 12	± 125	80
SRD-2415D3		± 15	± 100	80
SRD-2424D3	36-72	± 24	± 63	80
SRD-4805S3		5	600	77
SRD-4809S3		9	333	78
SRD-4812S3		36-72	12	250
SRD-4815S3	15		200	80
SRD-4824S3	24		125	80
SRD-4805D3	36-72	± 5	± 300	78
SRD-4809D3		± 9	± 167	79
SRD-4812D3		± 12	± 125	80
SRD-4815D3		± 15	± 100	80
SRD-4824D3	36-72	± 24	± 63	80

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



DC/DC Converters – SRK-S/D1 series

1.5 WATT (available also 2, 3, 4, 5, 6 WATT series)
Single / Dual Output

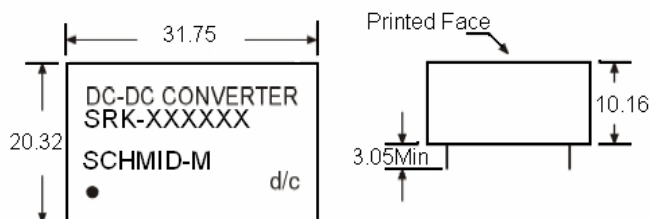
FEATURES

- 1500 Vdc Isolation
- Wide 4:1 Input Range
- 24 Pin DIL Package
- Regulated
- Continuous short Circuit Protection
- Plastic case standard, Optional metal case

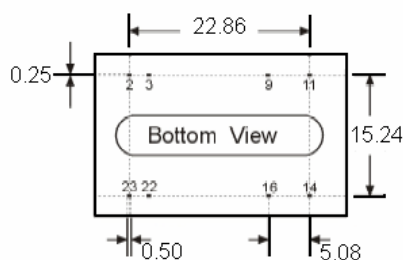
Input specifications:	
Filter:	π (Pi) Network
Voltage Range	24Vdc, 09-36Vdc, 48Vdc, 36-72Vdc
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	60 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	60 mV pk-pk
Short Circuit Protection	Continuous
Line regulation	$\pm 0.5\%$ Max.
Load regulation	$\pm 0.5\%$ Max.
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	Up to 74%
Switching Frequency	100K ~ 400 kHz, Typ.
Environmental specifications:	
Operating Temperature	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Case temperature	100 $^{\circ}\text{C}$ Max.
Storage Temperature	$-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$
Derating	None required
Humidity	95%
Cooling	Nature Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SRK-2405S1	9-36	5	100	68
SRK-2409S1		9	55,7	70
SRK-2412S1		12	41,7	72
SRK-2415S1		15	33,3	72
SRK-2424S1		24	20,8	71
SRK-2405D1	9-36	± 5	± 50	66
SRK-2409D1		± 9	$\pm 27,8$	68
SRK-2412D1		± 12	$\pm 20,8$	70
SRK-2415D1		± 15	$\pm 16,7$	70
SRK-2424D1		± 24	$\pm 10,3$	69
SRK-4805S1	18-72	5	100	70
SRK-4809S1		9	55,7	72
SRK-4812S1		12	41,7	74
SRK-4815S1		15	33,3	74
SRK-4824S1		24	20,8	72
SRK-4805D1	18-72	± 5	± 50	68
SRK-4809D1		± 9	$\pm 27,8$	70
SRK-4812D1		± 12	$\pm 20,8$	72
SRK-4815D1		± 15	$\pm 16,7$	72
SRK-4824D1		± 24	$\pm 10,3$	71

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input



DC/DC Converters – SR6-D/S1 series

1.5 WATT (available also 2, 3, 4, 5, 6 WATT series)
Single / Dual Output

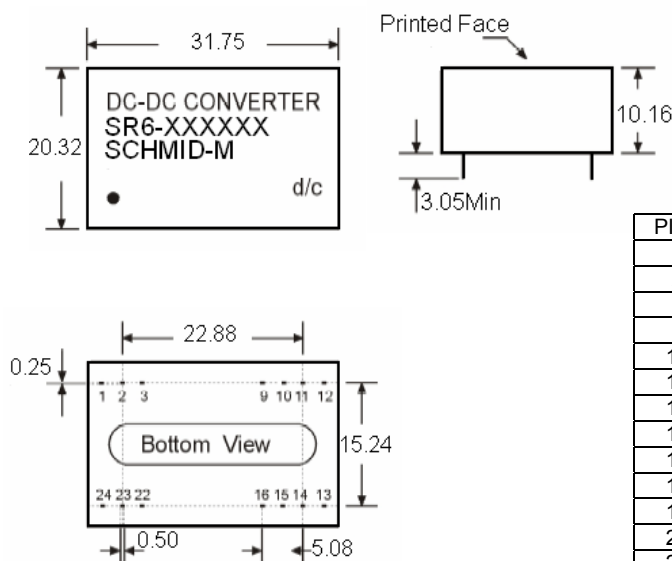
FEATURES

- 24 Pin DIL Package
- 1500 Vdc Isolation
- Wide 2:1 Input Range
- Regulated
- Continuous short Circuit Protection
- Non-Conductive Black Plastic Case

Input specifications:	
Filter:	π (Pi) Network
Voltage Range	5Vdc, 4.5-9Vdc, 12Vdc, 9-18Vdc, 24Vdc, 18-36 Vdc, 48Vdc, 36-72Vdc
Isolation specification:	
Rated Voltage	1500 Vdc, Standard
Resistance	1000M Ω Min.
Capacitance	390 pF, Typ.
Output specifications:	
Voltage accuracy	$\pm 1\%$, Max
Voltage Balance	$\pm 1\%$
Ripple & noise (at 20MHz BW)	(\pm)60 mVp-p, Max
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Line regulation	$\pm 0.5\%$, Max
Load regulation	$\pm 0.5\%$, Max
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
General Specifications:	
Efficiency	73% ~ 78%
Switching Frequency	100K- 400 kHz, Typ.
Enviromental specifications:	
Operating Temperature	-40°C ~ +85°C
Case temperature	100°C Max.
Storage Temperature	-40°C ~ +125°C
Derating	None required
Humidity	Up to 90%, Non-condensing
Cooling	Free-air Convection

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SR6-0505S1	4.5-9	5	300	65
SR6-0509S1		9	167	67
SR6-0512S1		12	125	70
SR6-0515S1		15	100	67
SR6-0524S1		24	62,5	66
SR6-0505D1	4.5-9	± 5	± 150	65
SR6-0509D1		± 9	$\pm 83,3$	67
SR6-0512D1		± 12	$\pm 62,5$	70
SR6-0515D1		± 15	± 50	67
SR6-0524D1		± 24	± 31	66
SR6-1205S1	9-18	5	300	74
SR6-1209S1		9	167	77
SR6-1212S1		12	125	76
SR6-1215S1		15	100	78
SR6-1224S1		24	62,5	78
SR6-1205D1	9-18	± 5	± 150	74
SR6-1209D1		± 9	$\pm 83,3$	76
SR6-1212D1		± 12	$\pm 62,5$	75
SR6-1215D1		± 15	± 50	78
SR6-1224D1		± 24	± 31	78
SR6-2405S1	18-36	5	300	74
SR6-2409S1		9	167	74
SR6-2412S1		12	125	76
SR6-2415S1		15	100	76
SR6-2424S1		24	62,5	77
SR6-2405D1	18-36	± 5	± 150	75
SR6-2409D1		± 9	$\pm 83,3$	76
SR6-2412D1		± 12	$\pm 62,5$	77
SR6-2415D1		± 15	± 50	78
SR6-2424D1		± 24	± 31	78
SR6-4805S1	36-72	5	300	73
SR6-4809S1		9	167	75
SR6-4812S1		12	125	77
SR6-4815S1		15	100	77
SR6-4824S1		24	62,5	78
SR6-4805D1	36-72	± 5	± 150	74
SR6-4809D1		± 9	$\pm 83,3$	75
SR6-4812D1		± 12	$\pm 62,5$	77
SR6-4815D1		± 15	± 50	78
SR6-4824D1		± 24	± 31	78

MECHANICAL DIMENSIONS & PIN CONNECTIONS



PIN#	Single	Dual	Single-H	Dual-H
1	+V Input	+V Input	N.P.	N.P.
2	N.C.	-V Output	-V Input	-V Input
3	N.C.	Common	-V Input	-V Input
9	N.P.	N.P.	N.C.	Common
10	-V Output	Common	N.P.	N.P.
11	+V Output	+V Output	N.C.	-V Output
12	-V Input	-V Input	N.P.	N.P.
13	-V Input	-V Input	N.P.	N.P.
14	+V Output	+V output	+V Output	+V Output
15	-V Output	Common	N.P.	N.P.
16	N.P.	N.P.	-V Output	Common
22	N.C.	Common	+V Input	+V Input
23	N.C.	-V Output	+V Input	+V Input
24	+V Input	+V Input	N.P.	N.P.

SMD DC/DC Converter – SAT-1W Series

FIXED INPUT ISOLATED& UNREGULATED
1W OUTPUT
DUAL OUTPUT
ULTRAMINIATURE SMD PACKAGE

FEATURES

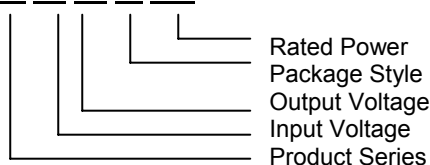
- High Efficiency up to 79%
- Positive& Negative Voltage Output
- Small Footprint
- SMD Package Styles
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- 1KVDC Isolation
- High Power Density
- Temperature Range: -40°C ~+85°C
- No External Component Required
- Low Cost
- Custom Service Available

PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nomin	Range		Max	Min		
SA0505T-1W	5	4.5~5.5	±5	±100	±10	72	SMD
SA0509T-1W	5	4.5~5.5	±9	±56	±6	75	SMD
SA0512T-1W	5	4.5~5.5	±12	±42	±5	78	SMD
SA0515T-1W	5	4.5~5.5	±15	±33	±4	78	SMD
SA1205T-1W	12	10.8~13.2	±5	±100	±10	74	SMD
SA1209T-1W	12	10.8~13.2	±9	±56	±6	76	SMD
SA1212T-1W	12	10.8~13.2	±12	±42	±5	79	SMD
SA1215T-1W	12	10.8~13.2	±15	±33	±4	79	SMD

Note: 3.3V input and output models are also available.

MODEL SELECTION

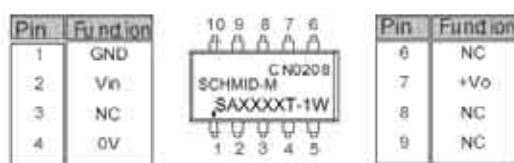
SA 05 05 T- 1W



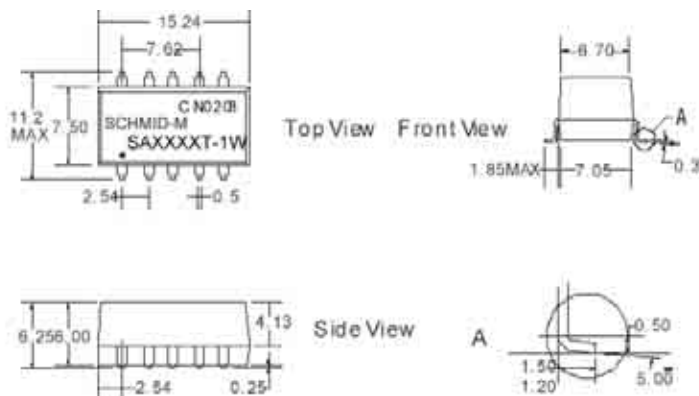
ISOLATION SPECIFICATIONS						
Item	Test conditions	Min	Typ	Max	Units	
Isolation voltage	Tested for 1 minute	1000			VDC	
Isolation resistance	Test at 500VDC	1000			MΩ	

COMMON SPECIFICATIONS	
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C ~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C (1.5mm from case for 10 seconds)
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>1,000,000 hours

PIN CONNECTIONS



OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT DETAILS



Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

SMD DC/DC Converter – SBT-1W Series

FIXED INPUT ISOLATED& UNREGULATED
1W OUTPUT
SINGLE OUTPUT
ULTRAMINIATURE SMD PACKAGE

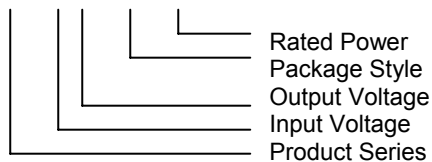
FEATURES

- High Efficiency up to 78%
- Single Voltage Output
- SMD Package Styles
- Industry Standard Pin out
- UL94-V0 Package
- No Heat sink Required
- 1KVDC Isolation
- High Power Density
- Temperature Range: -40°C~+85°C
- No External Component Required
- Low Cost
- Custom Service Available

PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nomin	Range		Max	Min		
SB0505T-1W	5	4.5~5.5	5	200	20	68	SMD
SB0509T-1W	5	4.5~5.5	9	111	23	75	SMD
SB0512T-1W	5	4.5~5.5	12	84	17	77	SMD
SB0515T-1W	5	4.5~5.5	15	67	13	78	SMD
SB1205T-1W	12	10.8~13.2	5	200	20	67	SMD
SB1209T-1W	12	10.8~13.2	9	111	23	73	SMD
SB1212T-1W	12	10.8~13.2	12	84	17	74	SMD
SB1215T-1W	12	10.8~13.2	15	67	13	75	SMD

MODEL SELECTION

SB 05 05 T- 1W



ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

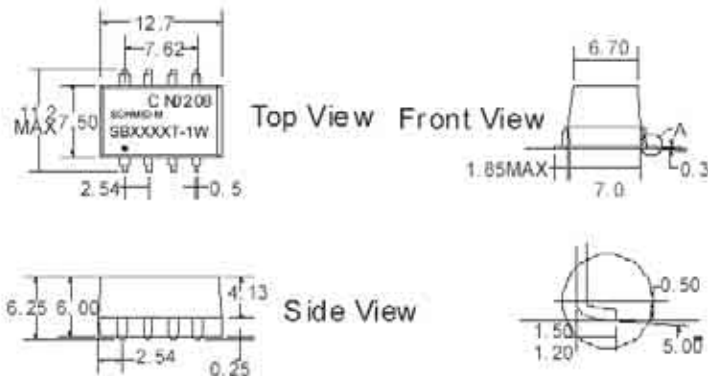
COMMON SPECIFICATIONS

Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>1,000,000 hours

PIN CONNECTIONS



OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT DETAILS



Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

SMD DC/DC Converter – SET-1W Series

FIXED INPUT ISOLATED& UNREGULATED

1W OUTPUT

DUAL OUTPUT

ULTRAMINIATURE SMD PACKAGE

FEATURES

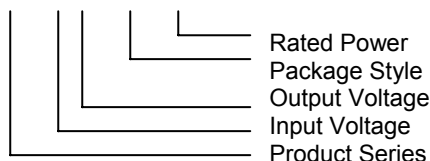
- High Efficiency up to 79%
- Positive& Negative Voltage Output
- Small Footprint
- SMD Package Styles
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- 3KVDC Isolation
- High Power Density
- Temperature Range: -40°C -+85°C
- No External Component Required
- Low Cost
- Custom Service Available

PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nomin	Range		Max	Min		
SE0505T-1W	5	4.5~5.5	±5	±100	±10	72	SMD
SE0509T-1W	5	4.5~5.5	±9	±56	±6	75	SMD
SE0512T-1W	5	4.5~5.5	±12	±42	±5	78	SMD
SE0515T-1W	5	4.5~5.5	±15	±33	±4	78	SMD
SE1205T-1W	12	10.8~13.2	±5	±100	±10	74	SMD
SE1209T-1W	12	10.8~13.2	±9	±56	±6	76	SMD
SE1212T-1W	12	10.8~13.2	±12	±42	±5	79	SMD
SE1215T-1W	12	10.8~13.2	±15	±33	±4	79	SMD

Note: 3.3V input and output models are also available.

MODEL SELECTION

SE 05 05 T- 1W

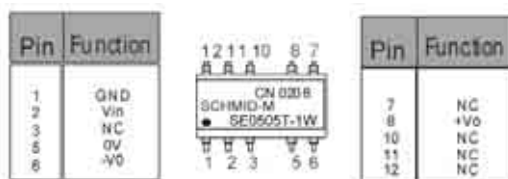


Rated Power
Package Style
Output Voltage
Input Voltage
Product Series

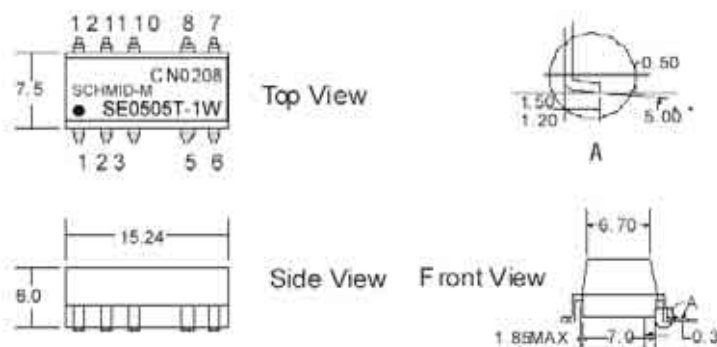
ISOLATION SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

COMMON SPECIFICATIONS	
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C (1.5mm from case for 10 seconds)
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>1,000,000 hours

PIN CONNECTIONS



OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT DETAILS



Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

SMD DC/DC Converter – SFT-1W Series

FIXED INPUT ISOLATED& UNREGULATED
1W OUTPUT
SINGLE OUTPUT
ULTRAMINIATURE SMD PACKAGE

FEATURES

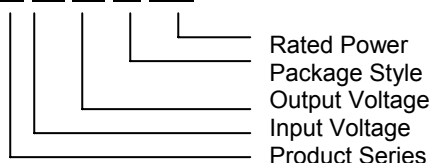
- High Efficiency up to 78%
- Single Voltage Output
- Small Footprint
- SMD Package Styles
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- 3KVDC Isolation
- High Power Density
- Temperature Range: -40°C ~+85°C
- No External Component Required
- Low Cost
- Custom Service Available

PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nomin	Range		Max	Min		
SF0505T-1W	5	4.5~5.5	5	200	20	68	SMD
SF0509T-1W	5	4.5~5.5	9	111	23	75	SMD
SF0512T-1W	5	4.5~5.5	12	84	17	77	SMD
SF0515T-1W	5	4.5~5.5	15	67	13	78	SMD
SF1205T-1W	12	10.8~13.2	5	200	20	67	SMD
SF1209T-1W	12	10.8~13.2	9	111	23	73	SMD
SF1212T-1W	12	10.8~13.2	12	84	17	74	SMD
SF1215T-1W	12	10.8~13.2	15	67	13	75	SMD

Note: 3.3V input and output models are also available.

MODEL SELECTION

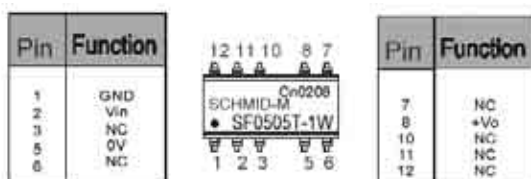
SF 05 05 T- 1W



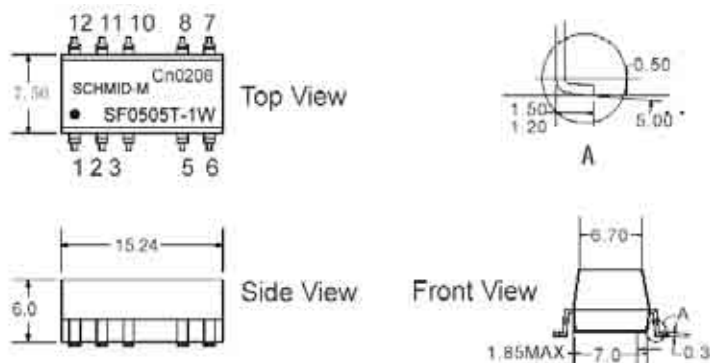
ISOLATION SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

COMMON SPECIFICATIONS	
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C ~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C (1.5mm from case for 10 seconds)
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>1,000,000 hours

PIN CONNECTIONS



OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT DETAILS



Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

DC/DC Converters – SWRA/SWRB- 3W series

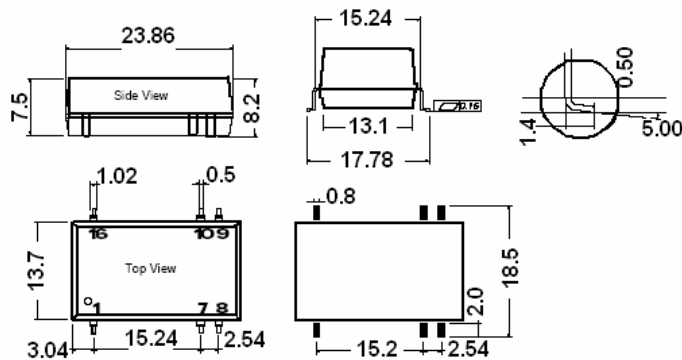
3 WATT

Single / Dual Output

FEATURES

- 1500 Vdc Isolation (3500 Vdc Isolation available)
- Wide 2:1 Input Range
- Continuous Short Circuit Protection
- RoHS Compliance
- MTFB > 1.00 MHours

MECHANICAL DIMENSIONS & PIN CONNECTIONS



Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SWRA1205LT-3W	9-18	±5	±300	78
SWRA1209LT-3W		±9	±167	79
SWRA1212LT-3W		±12	±125	80
SWRA1215LT-3W		±15	±100	81
SWRB1203LT-3W	9-18	3.3	909	76
SWRB1205LT-3W		5	600	78
SWRB1209LT-3W		9	333	79
SWRB1212LT-3W		12	250	80
SWRB1215LT-3W	18-36	15	200	81
SWRA2405LT-3W		±5	±300	78
SWRA2409LT-3W		±9	±167	79
SWRA2412LT-3W		±12	±125	80
SWRA2415LT-3W	18-36	±15	±100	81
SWRB2403LT-3W		3.3	909	76
SWRB2405LT-3W		5	600	78
SWRB2409LT-3W		9	333	79
SWRB2412LT-3W	36-72	12	250	80
SWRB2415LT-3W		15	200	81
SWRA4805LT-3W		±5	±300	78
SWRA4809LT-3W		±9	±167	79
SWRA4812LT-3W	36-72	±12	±125	80
SWRA4815LT-3W		±15	±100	81
SWRB4803LT-3W		3.3	909	76
SWRB4805LT-3W		5	600	78
SWRB4809LT-3W	36-72	9	333	79
SWRB4812LT-3W		12	250	80
SWRB4815LT-3W		15	200	81

Pin	Single	Dual
1	GND	GND
7	N.C.	N.C.
8	N.C.	OV
9	+Vo	+Vo
10	OV	-Vo
16	Vin	Vin

ISOLATION SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA Max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output		85		PF

COMMON SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Storage humidity range				95	%
Operating temp. range		-40		85	°C
Storage temp. range		-55		125	
Short circuit protection		Continuous, automatic recovery			
Cooling		Free air convection			
Temp. rise at full load			15	35	°C
Lead temperature	1.5mm from case for 10 seconds			245	
MTBF		1000			Khour
Weight			5.2		g



DC/DC Converters – SK78XX-1000, 500 series

Regulated Single Output

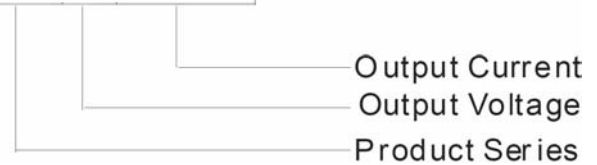
FEATURES

- Efficiency Up to 93%
- Temperature range: -40°C to +85°C
- Pin-out compatible with LM78xx Lineaire
- SIP Package
- Industry standard Pinout

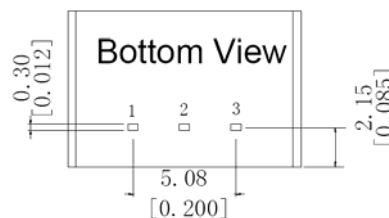
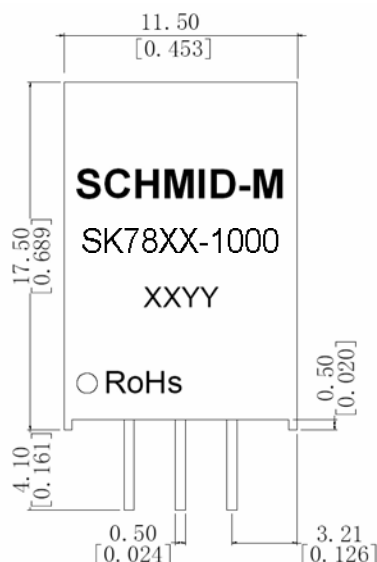
COMMON SPECIFICATION	
Operating temperature range	-40°C ~ +85°C
Operating case temperature	+100°C (max)
Storage temperature range	-55°C to +125°C
Cooling	Free Air Convection
Lead temperature***	300°C (max)
Storage humidity range	95%
Case material	Plastic (UL94-V0)
MTBF (+25°C)	2,000,000 hours
Package weigh	3.7 g
***Lead temperature 1.5mm from case for 10 seconds.	

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
SK7803 - 1000	4.75-28	3.3	1000	83
SK7805 - 1000	6.5-32	5.0	1000	88
SK78X6 - 1000	9.0-32	6.5	1000	90
SK7809 - 1000	12-32	9.0	1000	92
SK7812 - 1000	16-32	12	1000	94
SK7803-500	4.75-28	3.3	500	80
	4.75-25	-3.3	-400	78
SK7805-500	6.5-32	5.0	500	84
	6.0-27	-5.0	-400	83
SK78X6-500	8-32	6.5	500	87
	6.0-25	-6.5	-300	85
SK7809-500	11-32	9.0	500	91
	7.0-23	-9.0	-200	86
SK7812-500	15-32	12	500	92
	7.0-20	-12	-200	87
SK7815-500	18-32	15	500	93
	7.0-17	-15	-200	89

SK7805-1000



OUTPUT SPECIFICATION					
Characteristics	Conditions	Min	Typ	Max	Units
Output Voltage Accuracy	At 100% Load		±2	±3	%
Line regulation	Vin=min. to max. at full load		±0.2	±0.4	
Load regulation	10% to 100% load		±0.4	±0.6	
Ripple Noise	20MHz bandwidth		20	35	mVp-p
Short Circuit Input Power			0.5	1.2	w
Short Circuit Protection	Continuous, automatic recovery				
Output current limit				2000	mA
Switching frequency		280	330	450	KHz
Dynamic load stability	100% <->10% Load			±100	mV
Quiscent current	Vin=min. to max. at 0% load		5	7	mA
Thermal shutdown	Interval IC junction		150		°C
Temperature coefficient	-40°C to +85°C ambient			0.02	%/°C
Max capacitance load				2000	µF



Pin	Conn.
1	+Vin
2	GND
3	+Vout

Active signal amplifier Vin & Vout – ST55/56/65/66_D/S

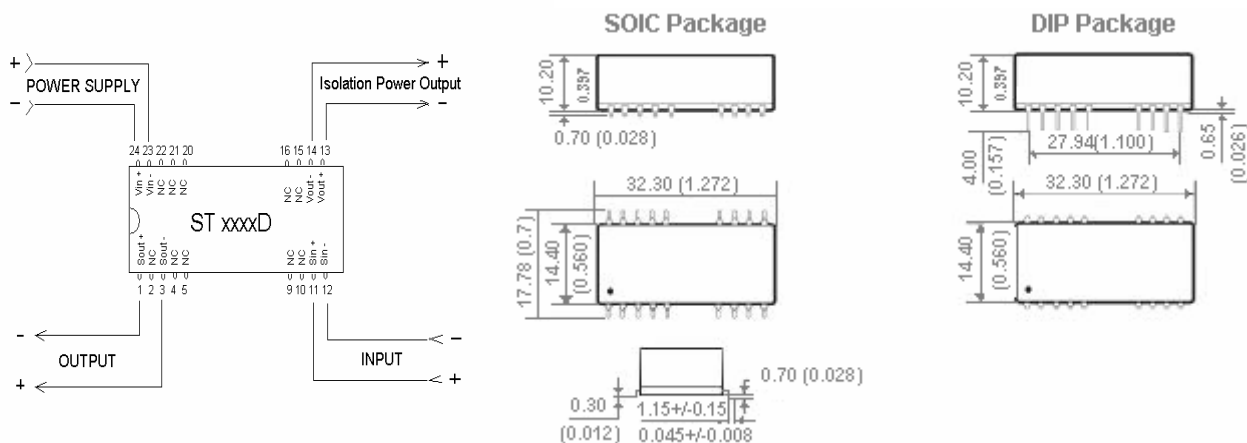
FEATURES

- Three-port isolation
- Among input, output and power supply
- High accuracy(0.1% F.S.)
- High linearity(0.1% F.S.)
- Isolation voltage(2500VDC/60S)
- Extremely low temperature(35PPM/)
- Industry standard(Operating Temperature
- Range:-25°C to 71°C)
- High reliability(MTBF>0.5 Mhours)

Power Supply Data	Power Supply (nominal)	±10%
	Power Dissipation	≤2W
	Power Protection	Reverse protection
Isolation Power Output Data	Voltage	±10%
	Current	≤25mA
Input Data	Signal	See above
	Impedance	≥10MΩ
	Overload	≤30V
Output Data	Load	>1kΩ (at output max)
Offset	0.1% F.S.	
Gain Error	0.1% F.S.	
Temperature Drift	0.0035%F.S./°C(-25°C to +71 °C)	
Galvanic Isolation	Three-port isolation(Among input, output and power supply)	
Isolation Voltage	2.5kVdc (Test for 1minute and 1mA max, humidity < 70%)	
Operation Temperature	-25 to +71°C	
Storage Temperature	-50 to +105°C	
Package	DIP24/SOIC24	

Model Number	Pow Supply	Input (V)	Output (V)	Isolation Power Output	Channels
ST5530D/S	24V	0-10	0-10	NONE	1
ST5533D/S	24V	0-10	0-10	24V	1
ST5630D/S	24V	0-10	0-5	NONE	1
ST6530D/S	24V	0-5	0-10	NONE	1
ST6630D/S	24V	0-5	0-5	NONE	1
ST6650D/S	12V	0-5	0-5	NONE	1

APPLICATION CIRCUIT, MECHANICAL DIMENSIONS, PIN CONNECTIONS



PIN #	Function
1 (Sout-)	Output-
3 (Sout+)	Output+
11 (Sin+)	Input+
12 (Sin-)	Input-
13 (Vout-)	Isolation Power Circuit
14 (Vout+)	Isolation Power Output+
23 (Vin+)	Power Supply+
24 (Vin-)	Power Supply-

AC/DC Converter SLBxx series

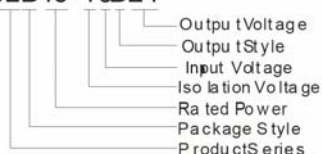
3, 5, 10, 11 and 15 WATT
Single / Dual Output

FEATURES

- Universal Input :100 to 240VAC,50/60Hz
- AC and DC all in one (input from the same terminal)
- Low Ripple and Noise
- Overload protection and short circuit protection
- Low loss, green power
- Multiple models available
- Industrial level specifications

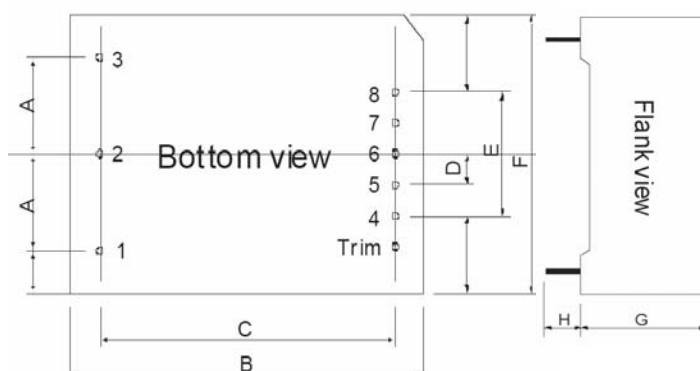
MODEL SELECTION

SLB10-10B24



Temperature Ranges	Operating	-25 to +70°C
	Storage	-25 to +105°C
	Power derating above 50°C	3.75%/°C
EMC compliance	Case temperature	+90°C max.
	ESD	IEC/EN 61000-4-2 level 3 6kV/8kV
	RF	IEC/EN61000-4-3
EMC compliance	Surge	IEC/EN 61000-4-5 level 3 1kV/2kV
	EMI/RFI conducted	EN55022, level B
Switching frequency	150 kHz, max.	
Leakage current	0.3mA RMS, typ. 230VAC/50Hz	
Safety standards	IEC60950, EN60950, UL60950	
Safety approvals	EN60950, IEC60950, UL60950	
Safety Class	CLASS I	
Install	PCB	
MTBF	>200 000h@25°C	
Humidity	85% non condensing	

Model Number	Power (W)	Output (Vo1)	Output (Io1-mA)	Output 2 (Vo2/Io2)	Eff. (%)	Ripple & Noise (typ)	Package (mm)
SLB03 10B03	3	3.3V	1000		70	50mV	48.5x36x20.5
SLB03 10B05		5V	600		73		
SLB03 10B12		12V	250		75		
SLB03 10B15		15V	200		76		
SLB03 10B24		24V	125		78		
SLB05 10B03	5	3.3V	1500		72	50mV	55x45x21.0
SLB05 10B05		5V	1000		75		
SLB05 10B09		9V	600		76		
SLB05 10B12		12V	450		77		
SLB05 10B15		15V	350		79		
SLB05 10B24		24V	230		80		
SLB05 10A05		+5V	500	-5V/500mA	71		
SLB05 10A12		+12V	210	-12V/210mA	75		
SLB05 10A15		+15V	170	-15V/170mA	77		
SLB05 10A24		+24V	100	-24V/100mA	78		
SLB10 10B03	10	3.3V	300		73	50mV	62x45x22.5
SLB10 10B05		5V	2000		75		
SLB10 10B09		9V	1100		78		
SLB10 10B12		12V	900		80		
SLB10 10B15		15V	700		81		
SLB10 10B24		24V	450		82		
SLB10 10A05		+5V	1000	-5V/1000mA	74		
SLB10 10A12		+12V	450	-12V/450mA	79		
SLB10 10A15		+15V	350	-15V/350mA	80		
SLB10 10D0505-02I		11	5V	2000	5V/200mA		
SLB15 10B05	15	5V	3000		78	50mV	70x48x23.5
SLB15 10B12		12V	1250		80		
SLB15 10B15		15V	1000		81		
SLB15 10B24		24V	625		83		



PIN #	LB10B	LB10A	LB10C	LB10DI
1	GND	GND	GND	GND
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	N.P.	N.P.	+Vo1	+Vo1
6	N.P.	Comm	-Vo2	N.P.
7	N.P.	N.P.	Comm	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2
Tr.	Trim	N.P.	N.P.	N.P.

AC/DC Converter SLI24 series

24 WATT

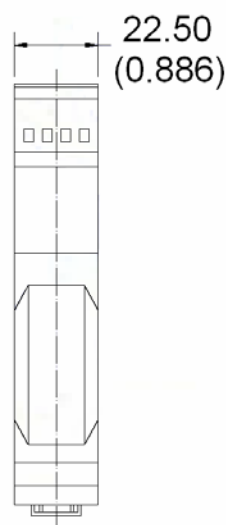
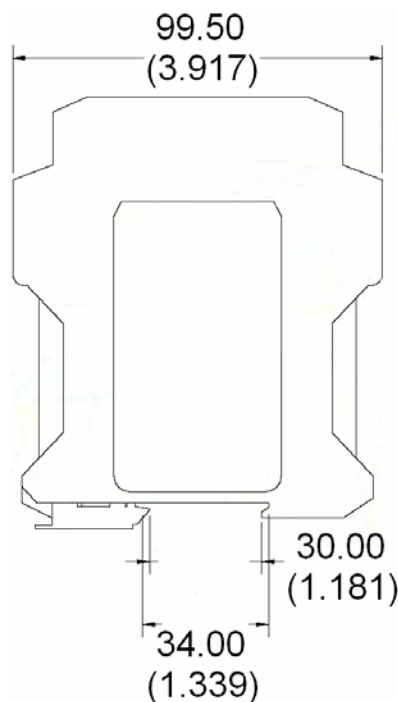
Single Output for DIN rail mounting

FEATURES

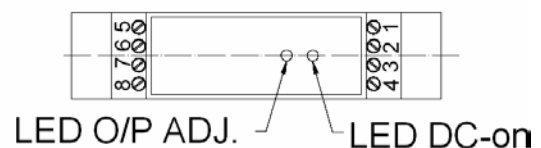
- Standard Din Rail installation
- AC and DC all in one (input from the same terminal)
- Universal input voltage:85VAC to 264VAC
- Output voltage adjustable
- Low ripple & noise
- Input under voltage lockout
- Overload and short-circuit protection
- Meet product standards of industrial class
- Redundancy Module

Model Number	Power	Input Voltage Range	Output Voltage/Current	Ripple & Noise	Eff. (%)
SLI24-10B05	24W	100 - 240VAC	5V / 4000mA	50mV	75
SLI24-10B12		(85 - 264VAC)	12V / 2000mA		85
SLI24-10B24		50-60Hz	24V / 1000mA		87

Temperature Ranges	Operating	-10 to +70°C
	Storage	-25 to +85°C
	Power derating above 50°C	3.75%/°C
EMS	ESD	IEC/EN 61000-4-2 level 3 6kV/8kV
	RF field susceptibility	IEC/EN61000-4-3 3V/m
	Surge	IEC/EN 61000-4-5 level 3 1kV/2kV
EMI	EN55022, level B; FCC Part 15, level B	
Switching frequency	600-100 kHz, max.	
Safety standards	IEC60950, EN60950, UL60950	
Safety approvals	EN60950, IEC60950, UL60950	
Safety Class	CLASS I	
Case protection	IP 20	
Isolation Voltage	I/O 3000VAC	
Install	35 mm DIN rail	
MTBF	>200 000h@25°C	
Humidity	95% max	



NOTE:	
1,2	Vout+
3,4	Vout-
5,6	GND
7	N(-)
8	L(+)



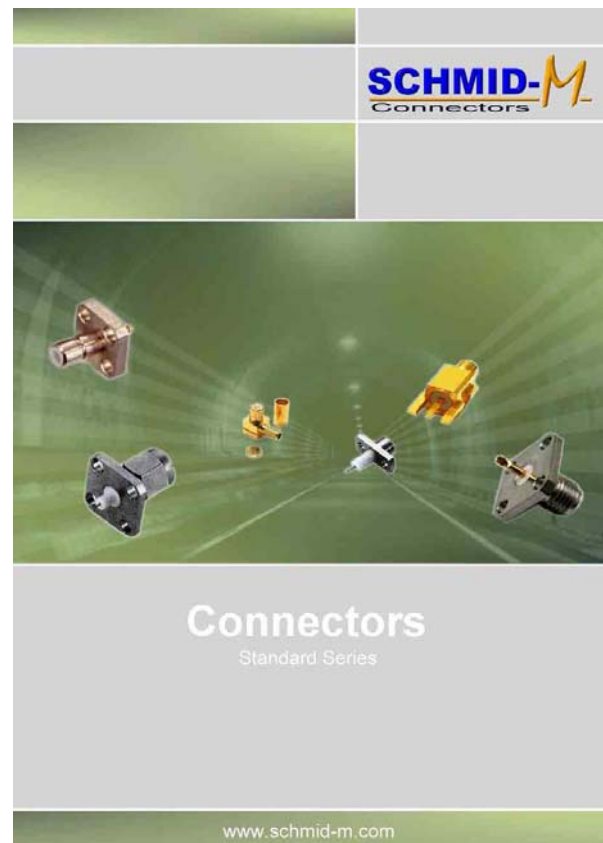
The other SCHMID-M catalogues:



EMC & Inductors

Standard Series

- Round cable snap ferrites
- Flat Ferrite with Clip
- Flat Ferrite Cores
- Toroidal Cores
- Ferrite Beads
- SMD Multilayer chips
- SMD Air Coil
- SMD Wire Wound Inductor
- SMD Power Inductor
- Chip Beads
- And more...



Connectors

Standard Series

- MMCX, MCX
- SMA, SMB, SMC, SSMA
- 75 OHM SMB
- N, TNC, BNC
- MINI-UHF
- MHV
- FME
- Between series adapters
- Reverse polarity Connectors
- Cable Assemblies
- And more...

For more information, please contact us

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