

DC/DC Converters – S1-S/D05 series

0.5 WATT

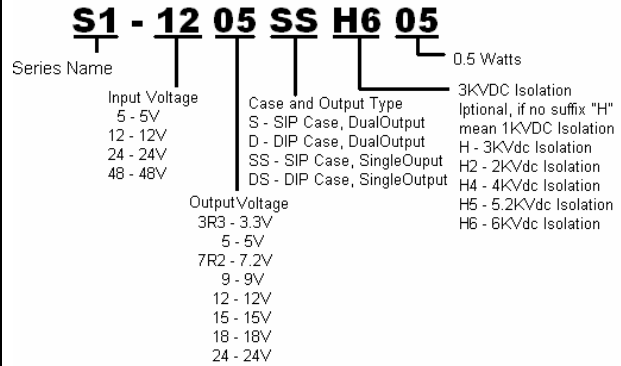
Single / Dual Output

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	20%-100% load ±10%
	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



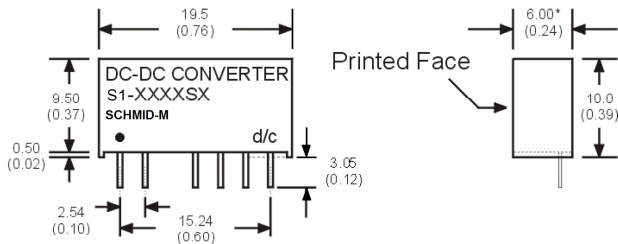
Notes:
 Suffix „H“ means 3KVdc isolation, „H2“ means 2KVdc isolation,
 „H4“ means 4KVdc isolation, „H5“ means 5.2KVdc isolation,
 „H6“ means 6KVdc isolation

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-243R3D05	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
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
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
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

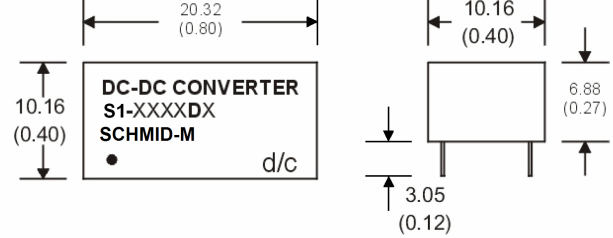
Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-483R3SS05	48	3.3	151.5	70
S1-4805SS05		5	100	72
S1-487R2SS05		7.2	69.4	72
S1-4809SS05		9	55.5	74
S1-4812SS05		12	41.6	74
S1-4815SS05		15	33.3	75
S1-4818SS05		18	27.8	75
S1-4824SS05		24	20.8	77
S1-053R3DS05		5	3.3	151.5
S1-0505DS05	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
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
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

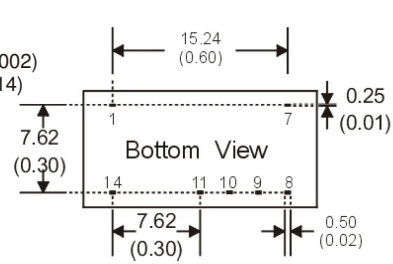
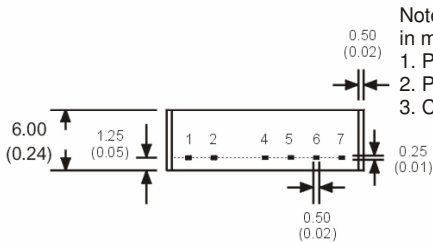


14 Pin DIL Package



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	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

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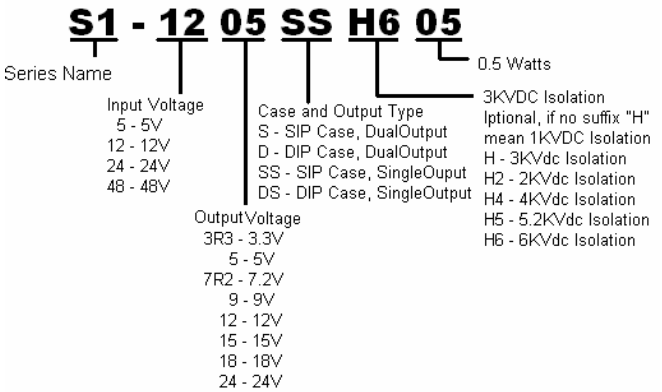
Single / Dual Output

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	20%-100% load ±10%
	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



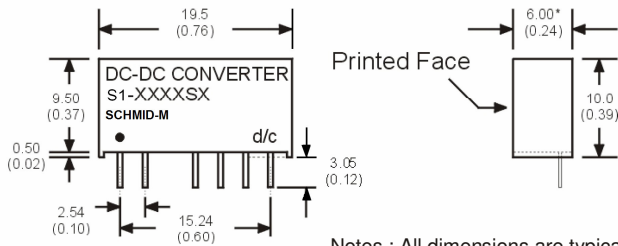
Notes:
Suffix „H“ means 3KVdc isolation, „H2“ means 2KVDC isolation,
„H4“ means 4KVdc isolation, „H5“ means 5.2KVdc isolation,
„H6“ means 6KVdc isolation

Model Number	Input Vdc	Output Vdc	Output Current (mA)	Efficiency @FL (%)
S1-243R3D07	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
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
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
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
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
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
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

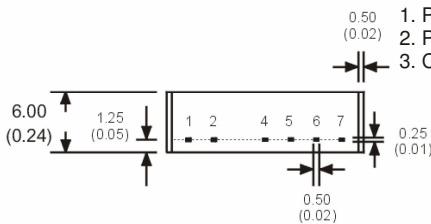
MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package



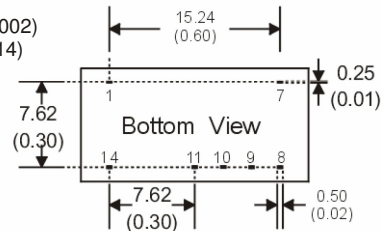
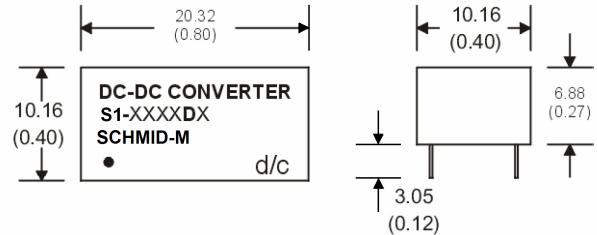
Notes : All dimensions are typical in millimeters (inches).

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	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

14 Pin DIL Package



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

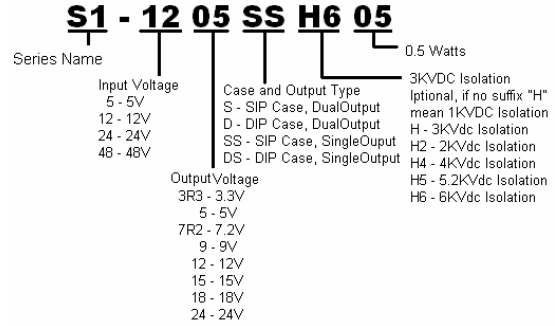
DC/DC Converters – S1-S/D series

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	20%-100% load out 3.3V models	±10%
		±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

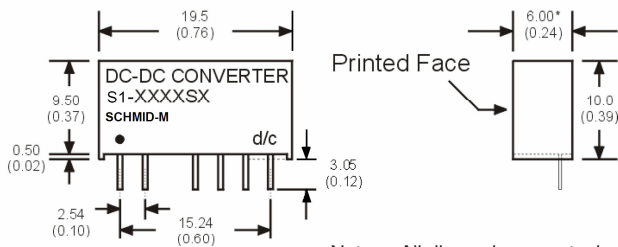
Notes:
 Suffix „H“ means 3KVdc isolation, „H2“ means 2KVDC isolation,
 „H4“ means 4KVdc isolation, „H5“ means 5.2KVdc isolation,
 „H6“ means 6KVdc isolation

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

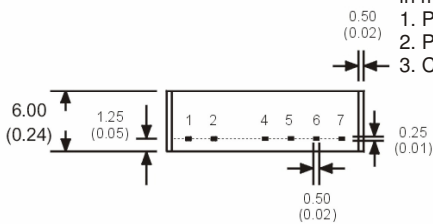
MECHANICAL DIMENSIONS & PIN CONNECTIONS

7 Pin SIL Package

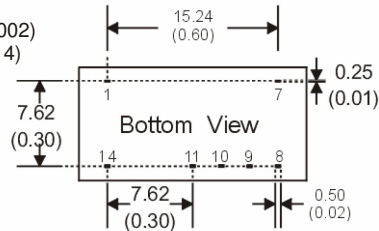
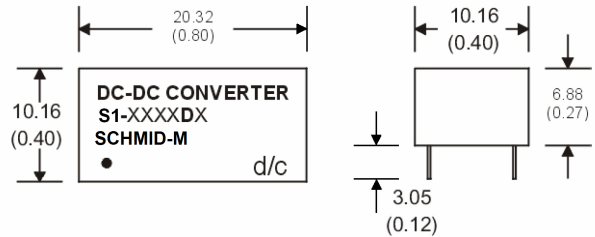


Notes : All dimensions are typical in millimeters (inches).

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)



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

