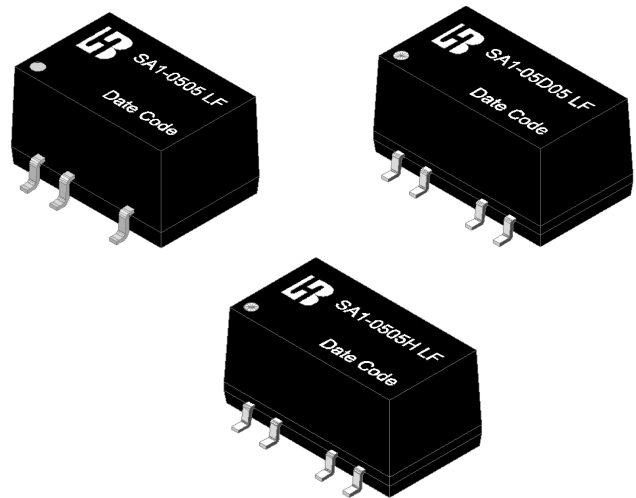


1 . Features

- Low Ripple and Noise
- High Efficiency Up To 83%
- Input / Output Isolation : 1K Vdc or 3K Vdc
- 100% Burn-In
- Input Filter With Internal Capacitor
- Custom Design Available
- Net Weight :1.5g or 1.7g Typical
- RoHS Converter Certified By SGS



2 . Model Selection Guide

(Specifications typical at Ta= +25°C, Nominal input voltage, Rated output current unless otherwise noted)

Model No.	Input Voltage (Vdc)	Output Voltage (Vdc)	Output Current (mA) Max	Input Current @No Load (mA) Typ.	Input Current @Max. Load (mA) Typ.	Output Ripple (mV) Max.	Load Regulation (%) Max.	Efficiency (%)Typ.
Single Output Series (1 KVdc)								
SA1-3R33R3 LF	3.3	3.3	300	47	446	50	15	68
SA1-3R305 LF		5	200	47	421	60	12	72
SA1-3R309 LF		9	110	47	400	80	12	76
SA1-3R312 LF		12	84	45	410	100	8	74
SA1-3R315 LF		15	67	45	410	120	8	74
SA1-053R3 LF	5	3.3	300	25	274	50	12	77
SA1-0505 LF		5	200	25	260	60	10	81
SA1-0509 LF		9	110	23	270	80	10	78
SA1-0512 LF		12	84	25	263	100	8	80
SA1-0515 LF		15	67	28	260	120	8	81
SA1-123R3 LF	12	3.3	300	14	117	50	10	75
SA1-1205 LF		5	200	15	108	60	8	81
SA1-1209 LF		9	110	15	113	80	8	78
SA1-1212 LF		12	84	15	108	100	5	81
SA1-1215 LF		15	67	14	105	120	5	83



SA1-153R3 LF	15	3.3	300	11	88	50	10	76
SA1-1505 LF		5	200	11	85	60	8	79
SA1-1509 LF		9	110	10	88	80	8	76
SA1-1512 LF		12	84	10	85	100	5	79
SA1-1515 LF		15	67	10	84	120	5	80
SA1-243R3 LF	24	3.3	300	6	66	50	8	67
SA1-2405 LF		5	200	7	62	60	5	71
SA1-2409 LF		9	110	6	60	80	5	73
SA1-2412 LF		12	84	8	58	100	5	76
SA1-2415 LF		15	67	8	58	120	5	77

Dual Output Series (1 KVdc)

SA1-3R3D3R3 LF	3.3	±3.3	±150	48	446	50	15	68
SA1-3R3D05 LF		±5	±100	48	433	60	12	70
SA1-3R3D09 LF		±9	±56	47	410	80	12	74
SA1-3R3D12 LF		±12	±42	46	400	100	8	76
SA1-3R3D15 LF		±15	±34	46	410	120	8	74
SA1-05D3R3 LF	5	±3.3	±150	35	270	50	12	74
SA1-05D05 LF		±5	±100	35	257	60	10	78
SA1-05D09 LF		±9	±56	33	267	80	10	75
SA1-05D12 LF		±12	±42	33	259	100	8	77
SA1-05D15 LF		±15	±34	33	257	120	8	78
SA1-12D3R3 LF	12	±3.3	±150	16	117	50	10	72
SA1-12D05 LF		±5	±100	15	108	60	8	78
SA1-12D09 LF		±9	±56	15	113	80	8	75
SA1-12D12 LF		±12	±42	15	108	100	5	78
SA1-12D15 LF		±15	±34	14	105	120	5	80
SA1-15D3R3 LF	15	±3.3	±150	12	93	50	10	72
SA1-15D05 LF		±5	±100	11	88	60	8	76
SA1-15D09 LF		±9	±56	11	88	80	8	76
SA1-15D12 LF		±12	±42	11	86	100	5	78
SA1-15D15 LF		±15	±34	10	86	120	5	78
SA1-24D3R3 LF	24	±3.3	±150	8	58	50	8	72
SA1-24D05 LF		±5	±100	8	58	60	5	72
SA1-24D09 LF		±9	±56	7	58	80	5	73
SA1-24D12 LF		±12	±42	7	55	100	5	76
SA1-24D15 LF		±15	±34	7	56	120	5	75



Single Output Series (3 KVdc)								
SA1-3R33R3H LF	3.3	3.3	300	47	446	50	15	68
SA1-3R305H LF		5	200	47	421	60	12	72
SA1-3R309H LF		9	110	47	400	80	12	76
SA1-3R312H LF		12	84	45	410	100	8	74
SA1-3R315H LF		15	67	45	410	120	8	74
SA1-053R3H LF	5	3.3	300	25	274	50	12	77
SA1-0505H LF		5	200	25	260	60	10	81
SA1-0509H LF		9	110	23	270	80	10	78
SA1-0512H LF		12	84	25	263	100	8	80
SA1-0515H LF		15	67	28	260	120	8	81
SA1-123R3H LF	12	3.3	300	14	117	50	10	75
SA1-1205H LF		5	200	15	108	60	8	81
SA1-1209H LF		9	110	15	113	80	8	78
SA1-1212H LF		12	84	15	108	100	5	81
SA1-1215H LF		15	67	14	105	120	5	83
SA1-153R3H LF	15	3.3	300	11	88	50	10	76
SA1-1505H LF		5	200	11	85	60	8	79
SA1-1509H LF		9	110	10	88	80	8	76
SA1-1512H LF		12	84	10	85	100	5	79
SA1-1515H LF		15	67	10	84	120	5	80
SA1-243R3H LF	24	3.3	300	6	66	50	8	67
SA1-2405H LF		5	200	7	62	60	5	71
SA1-2409H LF		9	110	6	60	80	5	73
SA1-2412H LF		12	84	8	58	100	5	76
SA1-2415H LF		15	67	8	58	120	5	77

Dual Output Series (3 KVdc)								
SA1-3R3D3R3H LF	3.3	±3.3	±150	48	446	50	15	68
SA1-3R3D05H LF		±5	±100	48	433	60	12	70
SA1-3R3D09H LF		±9	±56	47	410	80	12	74
SA1-3R3D12H LF		±12	±42	46	400	100	8	76
SA1-3R3D15H LF		±15	±34	46	410	120	8	74
SA1-05D3R3H LF	5	±3.3	±150	35	270	50	12	74
SA1-05D05H LF		±5	±100	35	257	60	10	78
SA1-05D09H LF		±9	±56	33	267	80	10	75
SA1-05D12H LF		±12	±42	33	259	100	8	77



SA1-05D15H LF	12	±15	±34	33	257	120	8	78
SA1-12D3R3H LF		±3.3	±150	16	117	50	10	72
SA1-12D05H LF		±5	±100	15	108	60	8	78
SA1-12D09H LF		±9	±56	15	113	80	8	75
SA1-12D12H LF		±12	±42	15	108	100	5	78
SA1-12D15H LF		±15	±34	14	105	120	5	80
SA1-15D3R3H LF	15	±3.3	±150	12	93	50	10	72
SA1-15D05H LF		±5	±100	11	88	60	8	76
SA1-15D09H LF		±9	±56	11	88	80	8	76
SA1-15D12H LF		±12	±42	11	86	100	5	78
SA1-15D15H LF		±15	±34	10	86	120	5	78
SA1-24D3R3H LF	24	±3.3	±150	8	58	50	8	72
SA1-24D05H LF		±5	±100	8	58	60	5	72
SA1-24D09H LF		±9	±56	7	58	80	5	73
SA1-24D12H LF		±12	±42	7	55	100	5	76
SA1-24D15H LF		±15	±34	7	56	120	5	75

Notes :

1. Load regulation is for output current change from 10% to 100% Max .Load.

3 . Absolute Maximum Ratings

(Exceeding these values may damage the module. These are not continuous operating ratings)

Parameter	Condition	Min.	Typ.	Max.	Unit
Input Absolute Voltage Range	5V Input Model	-0.7	5	7.5	Vdc
	12V Input Model	-0.7	12	15	
	24V Input Model	-0.7	24	30	
Max. Output Power		---	---	1.0	W
Output Short Circuit Duration		---	---	1.0	Second
Operation Temperature (Ambient Temperature)	Output Full Load	-40	---	+85	°C
Storage Temperature		-55	---	+125	
Lead Temperature 1.5 mm From Case For 10 Seconds		---	---	+300	
Peak Airflow Temperature With CECC 00802 Profile		---	---	+280	

4 . Nominal Input/Output Electrical Specifications

(Specifications typical at Ta= +25°C , Nominal input voltage, Rated output current unless otherwise noted)

Parameter	Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	5V Input Model	4.5	5	5.5	Vdc
	12V Input Model	10.8	12	13.2	
	24V Input Model	21.6	24	26.4	
Output Voltage Accuracy	Nominal Input	---	1.0	3.0	%
Output Voltage Balance		---	---	±1.0	---
Switching Frequency		70	100	150	KHz
Temperature Coefficient		---	±0.01	±0.02	%/ °C
Isolation Voltage	60 Second	1000	---	---	Vdc
	60 Second	3000	---	---	Vdc
Isolation Resistance	500Vdc	1000	---	---	MΩ
Isolation Capacitance	5V Input Model	8	14 / 15	20	pF
	12V Input Model	6 / 7	18	24	
	24V Input Model	8	20	28	
Max. Line Regulation (Per1.0% change in input change)	---	---	---	1.2	%

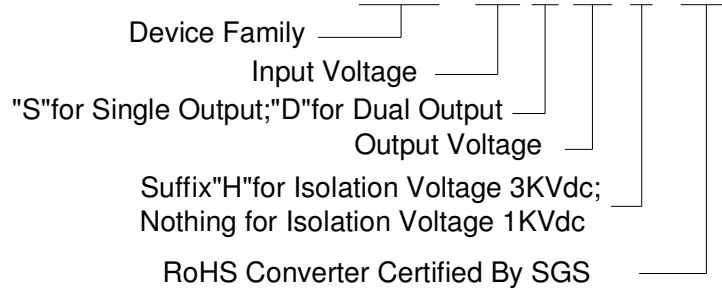
5 . General Specification

Parameter	Specification	Condition
Isolation Voltage	1000 Vdc	Test Duration 60 Seconds / 0.5 mA
Isolation Resistance	1000 MΩ Min.	@ 500 Vdc
Operating Temperature (1)	-40°C ~ +85°C	@ Ambient Temperature With Natural Convention
Operating Temperature (2)	-40°C ~ +95°C	@ Case Surface Temperature
Storage Temperature	-55°C ~ +125°C	---
Humidity	Up To 90 %	---
Cooling	Free Air Convection	---



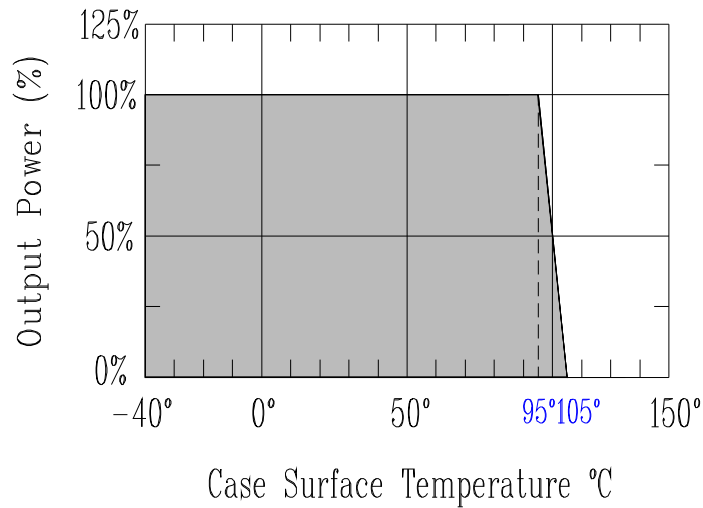
6 . Ordering Information

SA1-xxSyyH LF



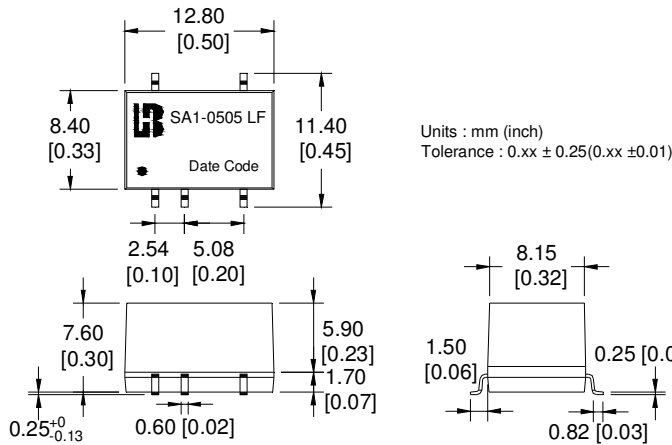
7 . Performance Characteristics

Temperature derating graph



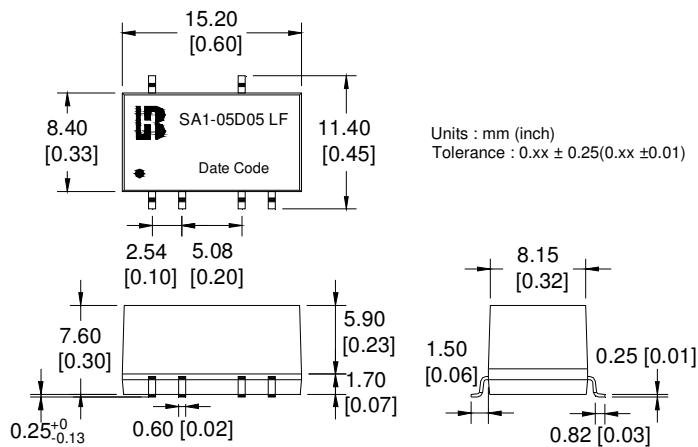
8 . Mechanical & Pin Connections

Single Output Series (For Isolation Voltage 1KVdc)



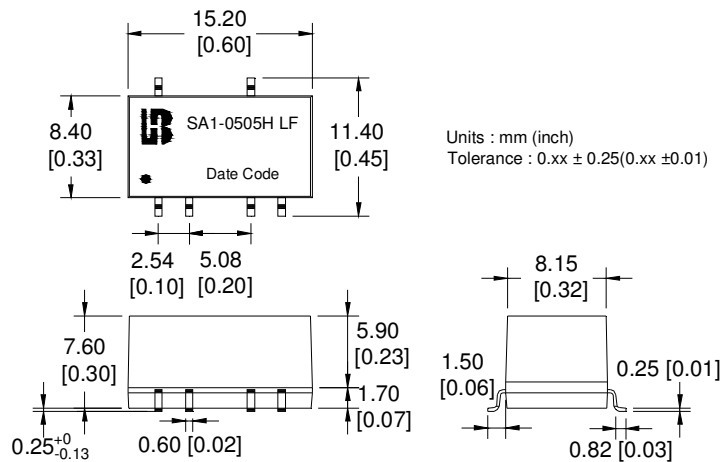
Pin	1K Vdc - Single		Pin
1	-Vin	NC	14
3	+Vin	No Pin	12
5	No Pin		10
7	-Vo	+Vo	8

Dual Output Series (For Isolation Voltage 1KVdc)



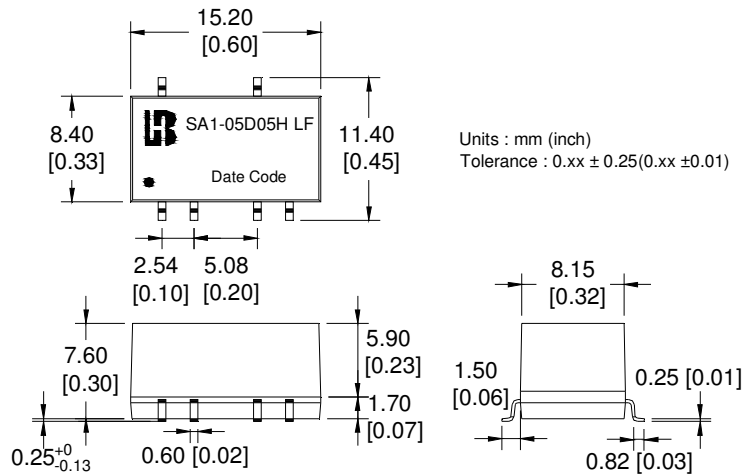
Pin	1K Vdc - Dual		Pin
1	-Vin	NC	18
3	+Vin	No Pin	16
5	No Pin		14
7	com	+Vo	12
9	-Vo	No Pin	10

Single Output Series (For Isolation Voltage 3KVdc)



Pin	3K Vdc - Single		Pin
1	-Vin	NC	18
3	+Vin	No Pin	16
5	No Pin		14
7	-Vo	+Vo	12
9	NC	No Pin	10

Dual Output Series (For Isolation Voltage 3KVdc)

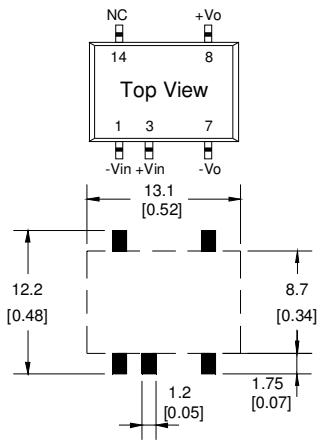


Pin	3K Vdc - Dual		Pin
1	-Vin	NC	18
3	+Vin	No Pin	16
5	No Pin		14
7	com	+Vo	12
9	-Vo	No Pin	10

9. Recommended Footprint Details

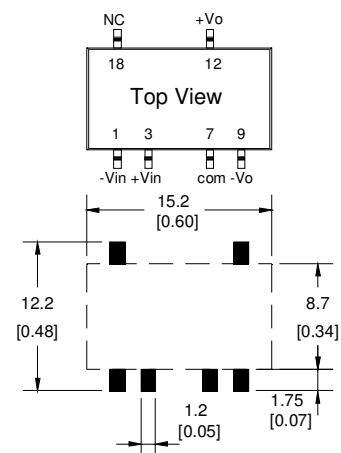
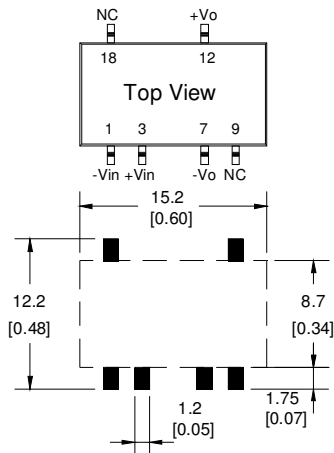
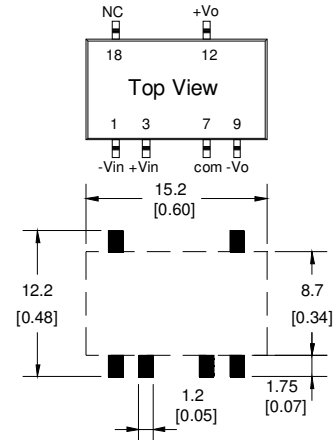
Single Output Series

For Isolation Voltage 1KVdc



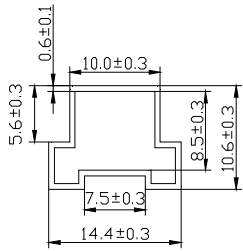
Dual Output Series

For Isolation Voltage 3KVdc

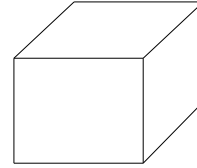
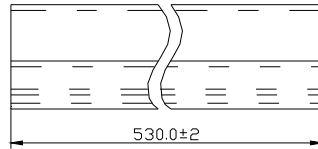


10. Package

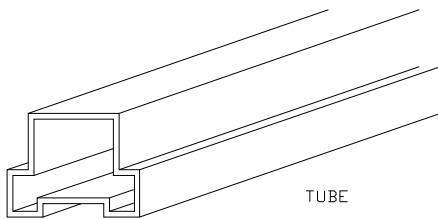
Single Output Series For Isolation 1KVdc



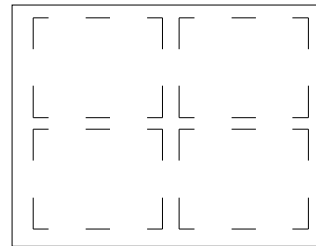
TUBE MECHANICAL DIMENSION



INNER CARTON:565*115*117



TUBE

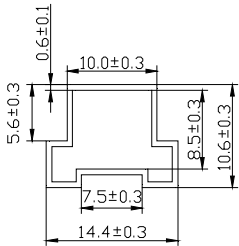


EXPORT CARTON:580*255*265

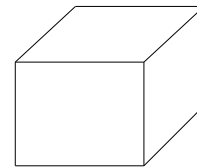
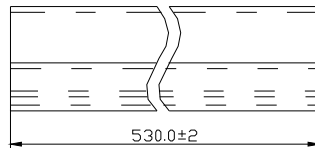
1. TUBE=39PCS
2. INNER CARTON=63 TUBE=63*39=2457PCS
3. EXPORT CARTON=4 INNER CARTON=4*2457=9828PCS

Single Output Series For Isolation 1KVdc

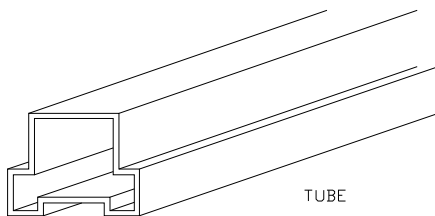
Dual Output Series For Isolation 1KVdc and 3KVdc



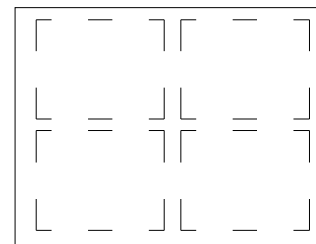
TUBE MECHANICAL DIMENSION



INNER CARTON:565*115*117



TUBE



EXPORT CARTON:580*255*265

1. TUBE=33PCS
2. INNER CARTON=63 TUBE=63*33=2079PCS
3. EXPORT CARTON=4 INNER CARTON=4*2079=8316PCS

