

## FEATURES :

- 7PIN SIP Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 6KVDC Isolation
- Operating Temperature:-40°C TO +105°C
- Industry Standard Pinout
- Design refer to IEC62368, UL62368, EN62368

Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Output Voltage	Output Current	Efficiency	Capacitive Load(μF)
	Vdc	mA	%TYP	Max.
S12DC-05S03N <sup>(P)(H3)</sup>	3.3	303	76	2400
S12DC-05S05N <sup>(P)(H3)</sup>	5	200	82	2400
S12DC-05S09N <sup>(P)(H3)</sup>	9	112	83	1000
S12DC-05S12N <sup>(P)(H3)</sup>	12	84	84	470
S12DC-05S15N <sup>(P)(H3)</sup>	15	67	84	330
S12DC-05S24N <sup>(P)(H3)</sup>	24	42	85	100
S12DC-05D03N <sup>(P)(H3)</sup>	±3.3	±151	76	±1200
S12DC-05D05N <sup>(P)(H3)</sup>	±5	±100	82	±1200
S12DC-05D09N <sup>(P)(H3)</sup>	±9	±56	83	±470
S12DC-05D12N <sup>(P)(H3)</sup>	±12	±42	84	±220
S12DC-05D15N <sup>(P)(H3)</sup>	±15	±34	84	±220
S12DC-05D24N <sup>(P)(H3)</sup>	±24	±21	85	±47
S12DC-XXS03NP <sup>(H3)</sup>	3.3	303	78	2400
S12DC-XXS05NP <sup>(H3)</sup>	5	200	82	2400
S12DC-XXS09NP <sup>(H3)</sup>	9	112	85	1000
S12DC-XXS12NP <sup>(H3)</sup>	12	84	85	680
S12DC-XXS15NP <sup>(H3)</sup>	15	67	87	330
S12DC-XXS24NP <sup>(H3)</sup>	24	42	85	220
S12DC-XXD03NP <sup>(H3)</sup>	±3.3	±151	78	±1200
S12DC-XXD05NP <sup>(H3)</sup>	±5	±100	82	±1200
S12DC-XXD09NP <sup>(H3)</sup>	±9	±56	85	±680
S12DC-XXD12NP <sup>(H3)</sup>	±12	±42	85	±330
S12DC-XXD15NP <sup>(H3)</sup>	±15	±34	87	±220
S12DC-XXD24NP <sup>(H3)</sup>	±24	±21	85	±100

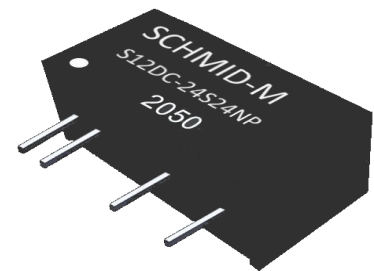
### Note:

1: No suffix is standard isolation (1.5KVDC) e.g, S12DC-05S05N ,  
 \*add suffix "H3" for 3KVDC isolation, \*add suffix "H4" for 4KVDC isolation,  
 \*add suffix "H5" for 5.2KVDC isolation, \*add suffix "H6" for 6KVDC isolation

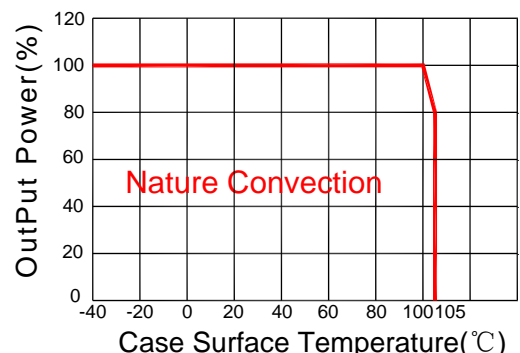
2: No suffix P is No short circuit protection , e.g,S12DC-05S05N ,  
 \*add suffix "P" for short circuit protection  
 e.g, S12DC-05S05NP, S12DC-05S12NPH3

3: "XX" Is Input Voltage : 12=12Vdc,15=15Vdc, 24=24Vdc  
 e.g, S12DC-12S05NP, S12DC-15S12NPH3, S12DC-24S15NP

DC-DC Converter  
**S12DC SERIES**  
 1Watt  
 1.5~6KV Isolated  
 Single & Dual Output  
 SIP7



## Temperature Derating Graph



## Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom@Vin:5V	±10			%
	Vo,Io Nom@ Vin:12V,15V,24V	±20			%
Filter	Capacitor				

## Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	without suffix "P"			1	Sec
	With Suffix "P"		Continuous		
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
Ripple & Noise	BW=DC To 20MHz @Vo:3.3V,5V,9V,12V,15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo:24V		50	100	mVp-p

## General Specifications

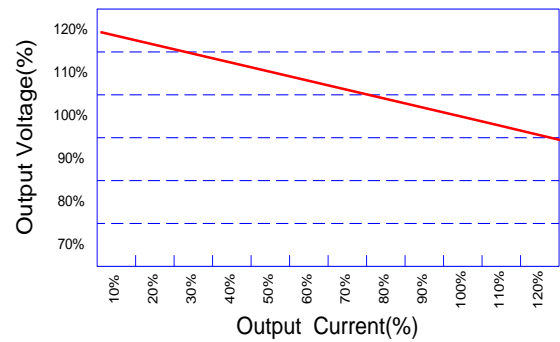
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-55		+125	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight			2.1		g
Dimensions			19.5x6.0x10.0		mm

## Part Number

S12DC - 15 S 05 N P H3  
A B C D E F G

A:Series  
B:Input Voltage  
C:Single(S)/Dual(D)Output  
D:Output Voltage  
E:Unregulated(N)  
F:Protection  
G:Isolation Voltage

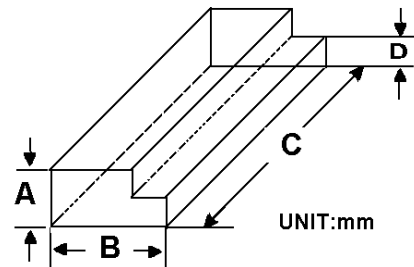
## Tolerance Envelope Graph



## Electromagnetic Compatibility (EMC)

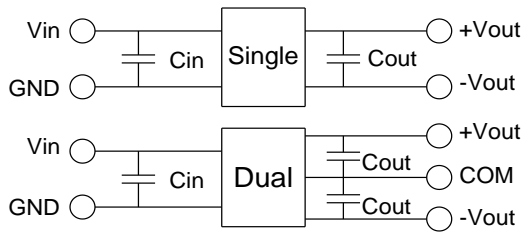
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

## Packaging



Size(mm)			
A	B	C	D
9.5	16.5	522	5.0

## Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
12Vdc	2.2μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
15Vdc	2.2μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
24Vdc	1μF/50V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
--	--	15Vdc	1μF/25V	±15Vdc	±1μF/25V

## EMC (CLASS B) compliance circuit

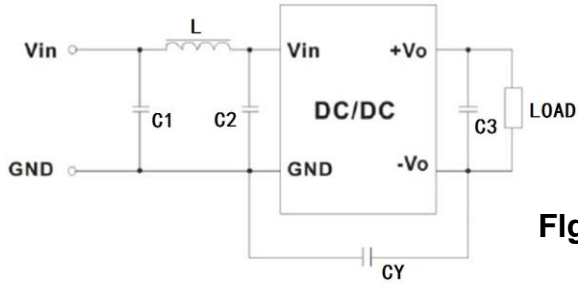
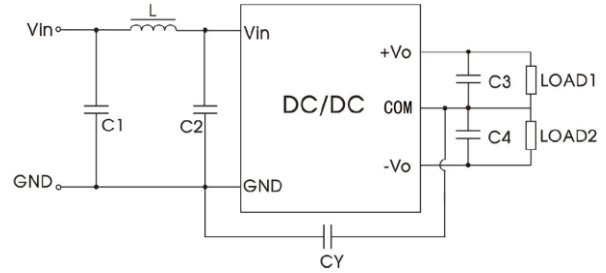
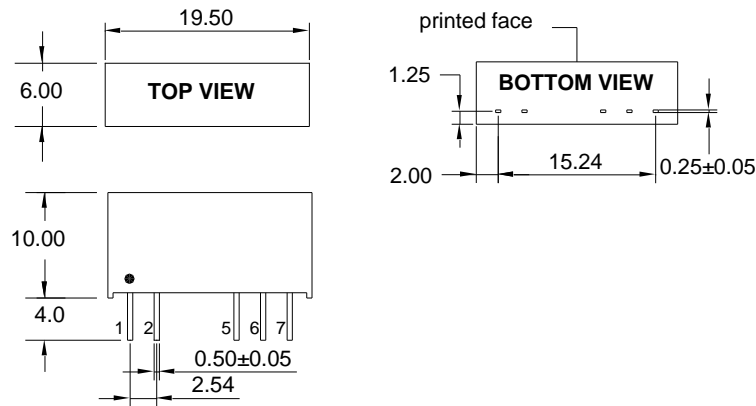


Fig.1



EMC recommended circuit value table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3,C4	Recommended Test Circuit
	L	6.8μH

## Markings and Dimensions



UNIT:mm Unless otherwise specified,all tolerances are ±0.25

## PIN Connection

PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout