

**FEATURES :**

- 7PIN SIP Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 89%
- 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.
12DC-05S05NP2 <sup>(H3)</sup>	5	400	84	2400
12DC-05S09NP2 <sup>(H3)</sup>	9	223	85	820
12DC-05S12NP2 <sup>(H3)</sup>	12	167	85	470
12DC-05S15NP2 <sup>(H3)</sup>	15	133	86	220
12DC-05S24NP2 <sup>(H3)</sup>	24	84	87	100
12DC-05D05NP2 <sup>(H3)</sup>	±5	±200	82	±1200
12DC-05D09NP2 <sup>(H3)</sup>	±9	±112	85	±330
12DC-05D12NP2 <sup>(H3)</sup>	±12	±84	85	±330
12DC-05D15NP2 <sup>(H3)</sup>	±15	±67	87	±220
12DC-05D24NP2 <sup>(H3)</sup>	±24	±42	88	±47
12DC-XXS05NP2 <sup>(H3)</sup>	5	400	85	2400
12DC-XXS09NP2 <sup>(H3)</sup>	9	223	87	820
12DC-XXS12NP2 <sup>(H3)</sup>	12	167	87	470
12DC-XXS15NP2 <sup>(H3)</sup>	15	133	88	220
12DC-XXS24NP2 <sup>(H3)</sup>	24	84	89	100
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12DC-XXD15NP2 <sup>(H3)</sup>	±15	±67	88	±100
12DC-XXD24NP2 <sup>(H3)</sup>	±24	±42	89	±47

**Note:**

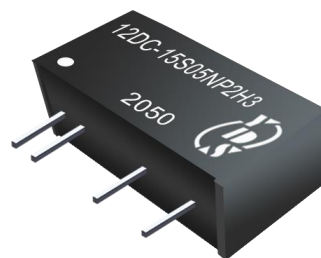
1:No suffix is standard isolation (1.5KVDC) e.g, 12DC-05S05NP2 ,  
 \*add suffix "H3" for 3KVDC isolation, \*add suffix "H4" for 4KVDC isolation,  
 \*add suffix "H5" for 5.2KVDC isolation, \*add suffix "H6" for 6KVDC isolation,  
 2:"XX" is input Voltage : 12=12Vdc,15=15Vdc, 24=24Vdc  
 e.g, 12DC-12S05NP2, 12DC-15S12NP2H3, 12DC-24S15N2PH6

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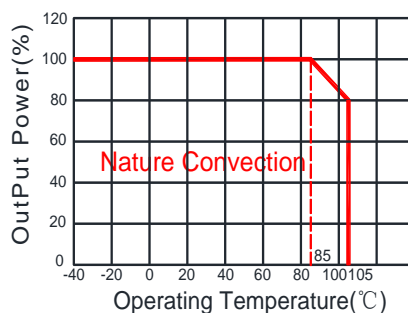


DC-DC Converter  
**12DC-2W SERIES**

2Watt  
 1.5~6KV Isolated  
 Single & Dual Output  
 SIP7



Temperature Derating Graph



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Rev: 2 2024/03/28

**Input Specifications**

Parameters	Conditions	Min	Typ	Max	Units
<b>Voltage Range</b>	Vo,lo Nom		±10		%
<b>Filter</b>	Capacitor				

**Output Specifications**

Parameters	Conditions	Min	Typ	Max	Units
<b>Voltage Tolerance</b>	100% full load			±5	%
<b>Short Circuit Protection</b>	Continuous				
<b>Line Regulation</b>	For 1.0% OF Vin		1.2		%
<b>Load Regulation</b>	5V (10% To 100% F.L)		8	15	%
	9V (10% To 100% F.L)		6	10	%
	12V (10% To 100% F.L)		5	10	%
	15V (10% To 100% F.L)		4	10	%
	24V (10% To 100% F.L)		3	10	%
<b>Ripple &amp; Noise</b>	BW=DC To 20MHz		75	150	mVp-p

**General Specifications**

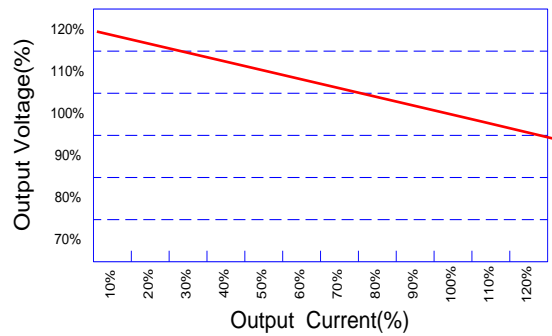
Parameters	Conditions	Min	Typ	Max	Units
<b>Isolation Resistance</b>	500Vdc	1000			MΩ
<b>Isolation Capacitance</b>	Input-output, 100KHz/0.1V		20		pF
<b>Switching Frequency</b>	Full load, nominal input @5V Vin		215		KHz
	Full load, nominal input @other Vin		250		KHz
<b>Operation Temperature</b>		-40		+105	°C
<b>Storage Temperature</b>		-55		+125	°C
<b>Humidity</b>	Non Condensing			95	%
<b>Cooling</b>	Free air Convection				
<b>Case material</b>	DAP				
<b>MTBF</b>	MIL-HDBK-217F@25°C	3500000			Hours
<b>Weight</b>			2.1		g
<b>Dimensions</b>		19.5x6.0x10.0			mm

**Part Number**

12DC - 15 S 05 N P 2 H3  
 A B C D E F G H

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

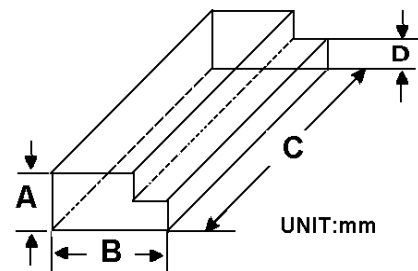
**Tolerance Envelope Graph**



**Electromagnetic Compatibility (EMC)**

<b>EMI</b>	<b>CE</b>	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	<b>RE</b>	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
<b>EMS</b>	<b>ESD</b>	IEC/EN61000-4-2 Air ±8kV , Contact ±6kV perf. Criteria B

**Packaging**



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

Recommended Test Circuit

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

EMC (CLASS B) compliance circuit

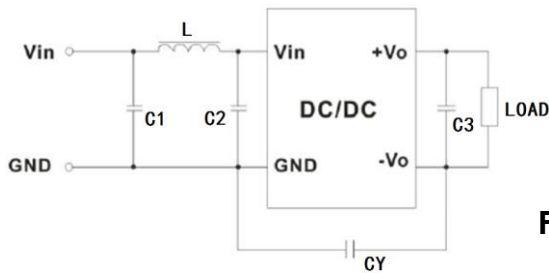
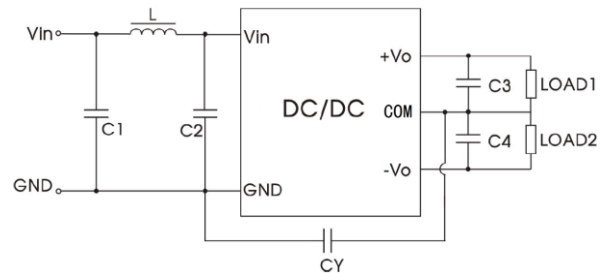
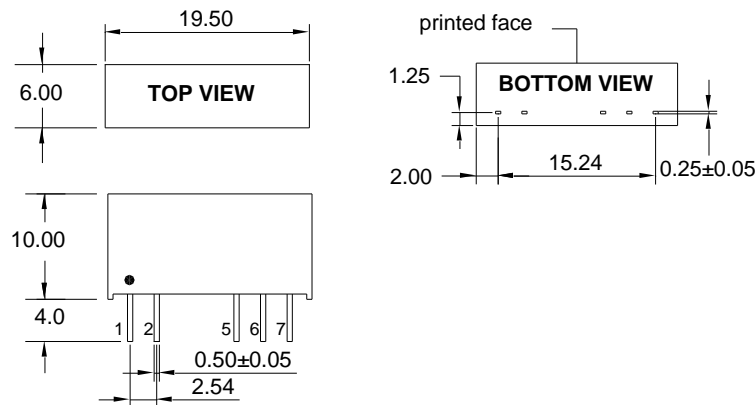


Fig.1



EMC recommended circuit value table		
EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	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