

**FEATURES :**

- 4PIN SIP and 8PIN DIL Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 89%
- Unregulated Output Types
- 1.5KVDC & 3KVDC 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)	Package Style
	Vdc	mA	%TYP	Max.	
13DC-05S03NYP2 ^(H3)	3.3	600	78	2400	2/3
13DC-05S05NYP2 ^(H3)	5	400	84	2400	2/3
13DC-05S09NYP2 ^(H3)	9	223	85	820	2/3
13DC-05S12NYP2 ^(H3)	12	167	85	470	2/3
13DC-05S15NYP2 ^(H3)	15	133	86	220	2/3
13DC-05S24NYP2 ^(H3)	24	84	87	100	2/3
13DC-05D03N3P2 ^(H3)	±3.3	±300	78	±1200	3
13DC-05D05N3P2 ^(H3)	±5	±200	82	±1200	3
13DC-05D09N3P2 ^(H3)	±9	±112	85	±330	3
13DC-05D12N3P2 ^(H3)	±12	±84	85	±330	3
13DC-05D15N3P2 ^(H3)	±15	±67	87	±220	3
13DC-05D24N3P2 ^(H3)	±24	±42	88	±47	3
13DC-XXS03NYP2 ^(H3)	3.3	600	80	2400	2/3
13DC-XXS05NYP2 ^(H3)	5	400	85	2400	2/3
13DC-XXS09NYP2 ^(H3)	9	223	87	820	2/3
13DC-XXS12NYP2 ^(H3)	12	167	87	470	2/3
13DC-XXS15NYP2 ^(H3)	15	133	88	220	2/3
13DC-XXS24NYP2 ^(H3)	24	84	89	100	2/3
13DC-XXD03N3P2 ^(H3)	±3.3	±300	80	±1200	3
13DC-XXD05N3P2 ^(H3)	±5	±200	82	±1200	3
13DC-XXD09N3P2 ^(H3)	±9	±112	85	±330	3
13DC-XXD12N3P2 ^(H3)	±12	±84	87	±330	3
13DC-XXD15N3P2 ^(H3)	±15	±67	88	±100	3
13DC-XXD24N3P2 ^(H3)	±24	±42	89	±47	3

Note:

- 1.No suffix is standard isolation (1.5KVDC) e.g. 13DC-15S05N2P2, *add suffix "H3" for 3KVDC isolation, e.g. 13DC-12S05N2P2H3, 13DC-15S12N3P2H3,
2. Y = 2 or 3 for package, When Y=2, package2, and so on, e.g. 13DC-24D12N3P2H3
3. "XX" is input voltage: 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g. 13DC-12S05N2P2, 13DC-15S12N2P2H3

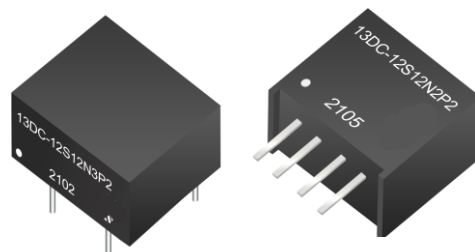
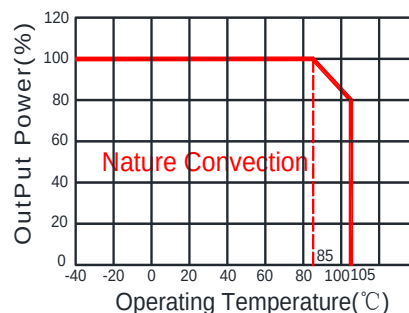
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DC-DC Converter

13DC-2W SERIES

2Watt

1.5KV & 3KV Isolated
Single & Dual Output
SIP4 & DIL8

**Temperature Derating Graph****CONTACT US**

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Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom		±10		%
Filter	Capacitor				

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	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)		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	%
Ripple & Noise	BW=DC To 20MHz		75	150	mVp-p

General Specifications

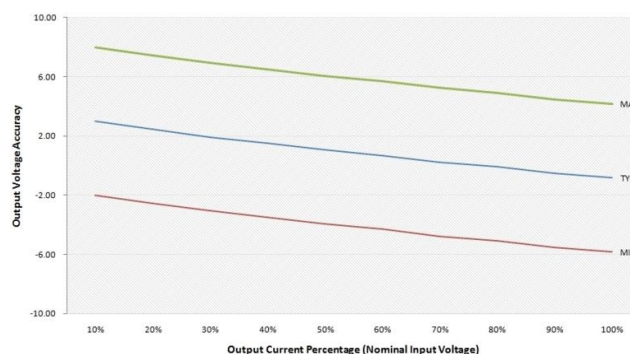
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		215		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-55		+125	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight	Package 2/3		1.5/1.5		g
Dimensions	Package 2		11.5x6.0x10.0		mm
	Package 3		12.7x10.16x6.8		mm

Part Number

13DC - 24 D 12 N 3 P 2
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:Package
G:Protection
H:Output Power

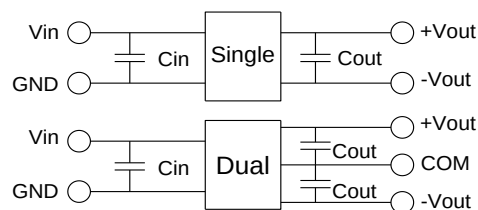
Tolerance Envelope Graph



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 ±6kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
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

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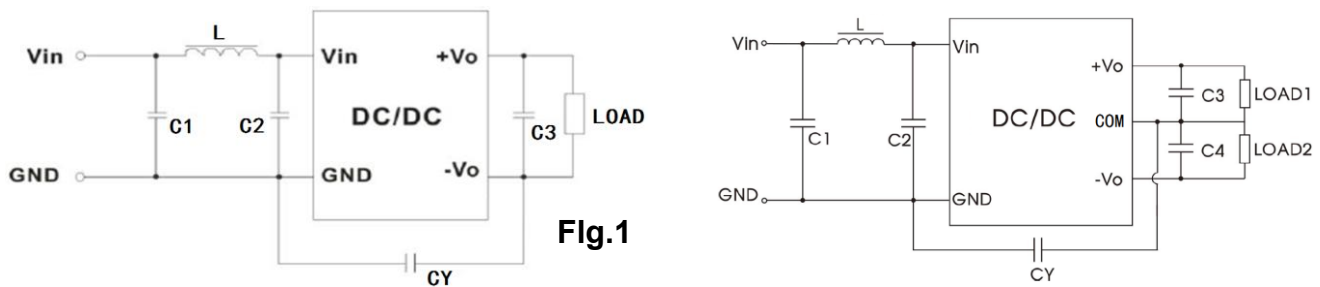
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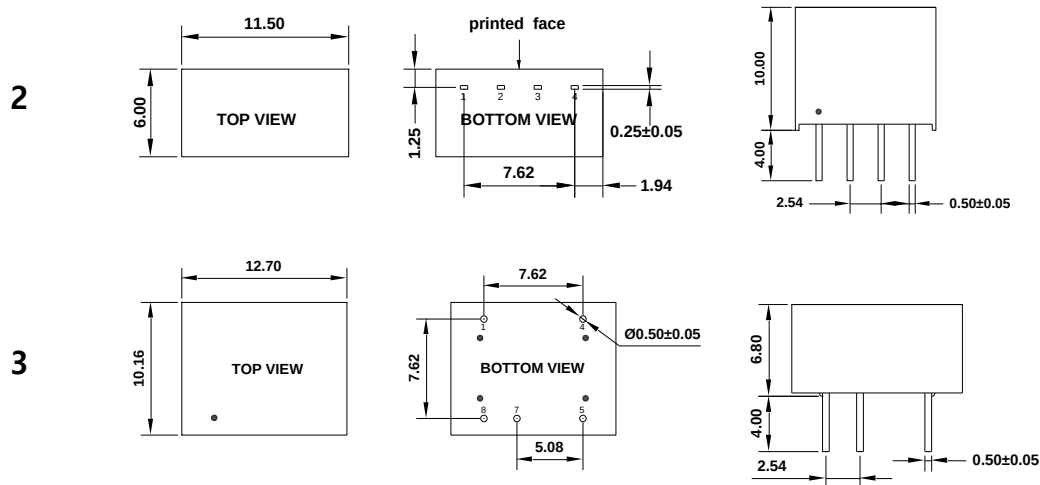
EMC (CLASS B) compliance circuit



EMC recommended circuit value table

EMI	C1	4.7 μ F /50V
	C2	4.7 μ F /50V
	CY	1nF/4kV
	C3, C4	Recommended Test Circuit
	L	6.8 μ H

Markings and Dimensions



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

PIN Connection

PIN	1	2	3	4	5	7	8
4Pin	-Vin	+Vin	-Vout	+Vout			
8Pin-S	-Vin			+Vin	+Vout	-Vout	
8Pin-D	-Vin			+Vin	+Vout	Com	-Vout

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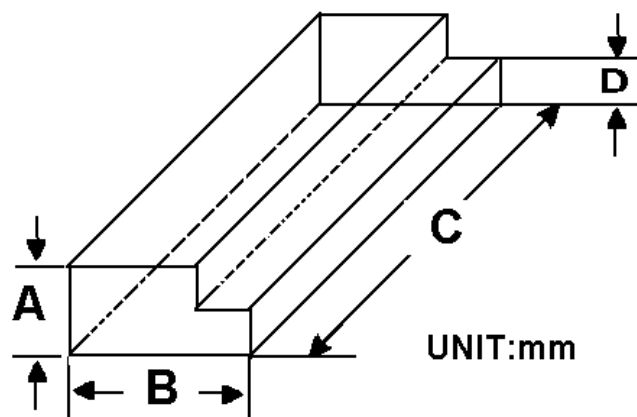
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Packaging

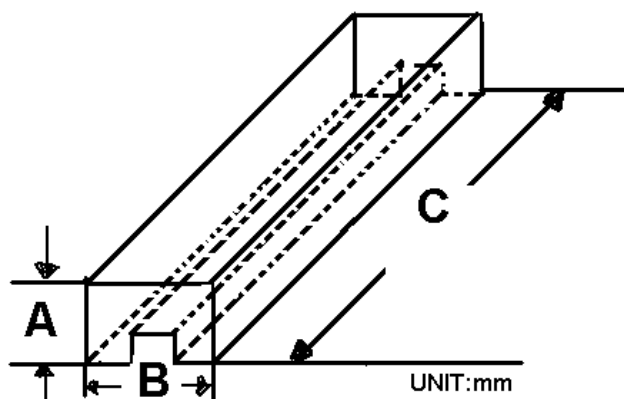
N2 Package



TUBE-----42pcs

Size(mm)			
A	B	C	D
9.50	16.50	522	5.00

N3 Package



TUBE-----40pcs

Size(mm)		
A	B	C
13.7	13.2	530

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