

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
- UL/cUL/IEC/EN 62368-1 approved, CB-Report

YUAN DEAN SCIENTIFIC



DC-DC Converter
12DC SERIES

1Watt

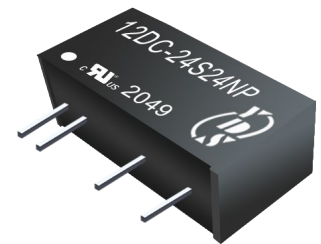
1.5~6KV Isolated

Single & Dual Output

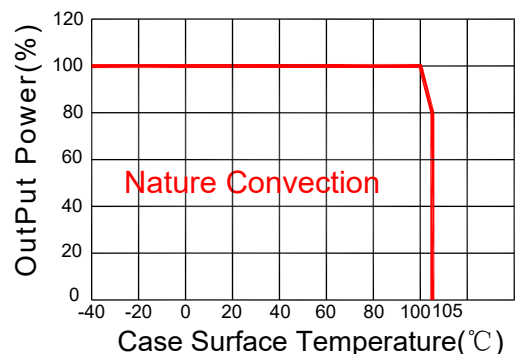
SIP7

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-05S03NP(H3)	3.3	303	76	2400
12DC-05S05NP(H3)	5	200	82	2400
12DC-05S09NP(H3)	9	112	83	1000
12DC-05S12NP(H3)	12	84	84	470
12DC-05S15NP(H3)	15	67	84	330
12DC-05S24NP(H3)	24	42	85	100
12DC-05D03NP(H3)	±3.3	±151	76	±1200
12DC-05D05NP(H3)	±5	±100	82	±1200
12DC-05D09NP(H3)	±9	±56	83	±470
12DC-05D12NP(H3)	±12	±42	84	±220
12DC-05D15NP(H3)	±15	±34	84	±220
12DC-05D24NP(H3)	±24	±21	85	±47
12DC-XXS03NP(H3)	3.3	303	78	2400
12DC-XXS05NP(H3)	5	200	82	2400
12DC-XXS09NP(H3)	9	112	85	1000
12DC-XXS12NP(H3)	12	84	85	680
12DC-XXS15NP(H3)	15	67	87	330
12DC-XXS24NP(H3)	24	42	85	220
12DC-XXD03NP(H3)	±3.3	±151	78	±1200
12DC-XXD05NP(H3)	±5	±100	82	±1200
12DC-XXD09NP(H3)	±9	±56	85	±680
12DC-XXD12NP(H3)	±12	±42	85	±330
12DC-XXD15NP(H3)	±15	±34	87	±220
12DC-XXD24NP(H3)	±24	±21	85	±100



Temperature Derating Graph



Note:

1: No suffix is standard isolation (1.5KVDC) e.g, 12DC-05S05NP, *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-12S05NP, 12DC-15S12NPH3, 12DC-24S15NP

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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

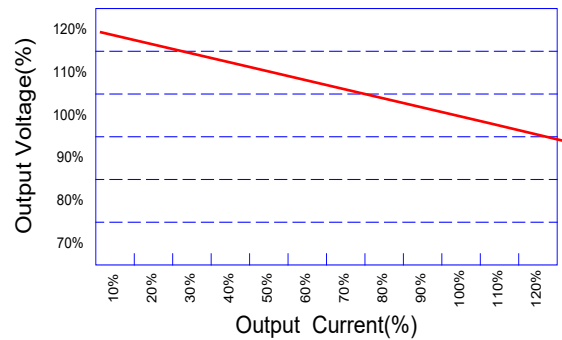
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		370		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-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

12DC - 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

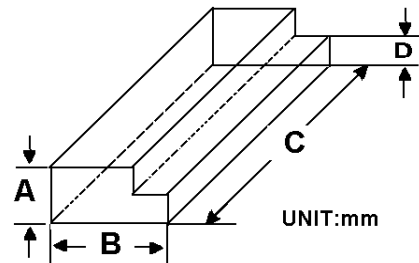
Tolerance Envelope Graph



Electromagnetic Compatibility (EMC)

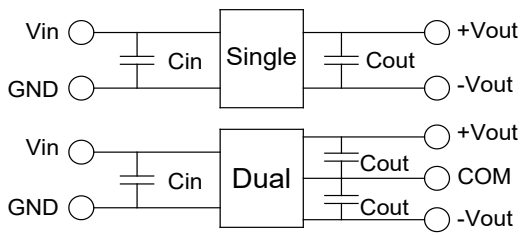
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±4kV perf. Criteria B

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

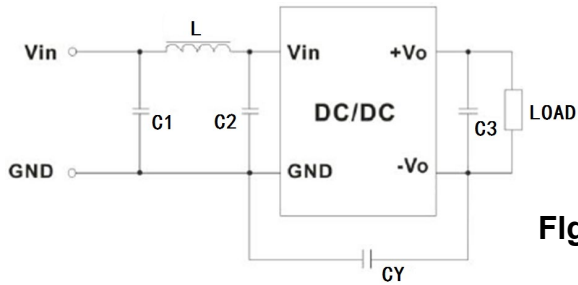
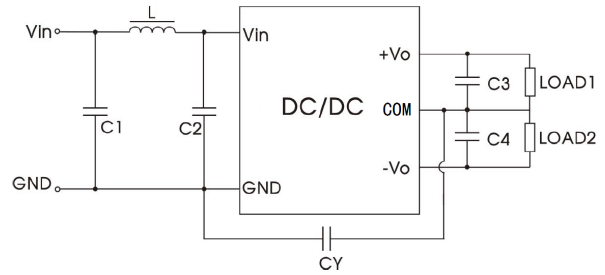


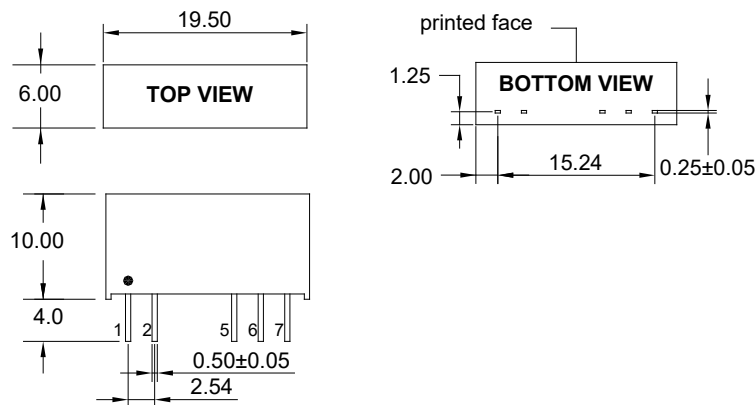
Fig.1



EMC recommended circuit value table

EMI		Value
	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