

13DSC SERIES

DC/DC 0.25W 1.5KV-3KV Isolation



FEATURES :

- 14PIN SMD Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 85%
- 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.	
13DSC-XXS03NYP0.25 ^(H3)	3.3	76	72	2400	1/2/3
13DSC-XXS05NYP0.25 ^(H3)	5	50	82	2400	1/2/3
13DSC-XXS09NYP0.25 ^(H3)	9	28	84	1000	1/2/3
13DSC-XXS12NYP0.25 ^(H3)	12	21	84	680	1/2/3
13DSC-XXS15NYP0.25 ^(H3)	15	16	84	330	1/2/3
13DSC-XXS24N3P0.25 ^(H3)	24	11	85	220	3

Note:

1. No suffix is standard isolation (1.5KVDC) e.g. 13DSC-15S05NP0.25 , *add suffix "H3" for 3KVDC isolation, e.g. 13DSC-12S09NP0.25H3, 13DSC-12S12NP0.25H3.
2. Y = 1 or 2 or 3 for package, no suffix Y package1, when Y=2 , package2, and so on , e.g.13DSC-24S12N3P0.25H3.
- When the I / O is equal to 24 V, package 1 and 2 disable.
3. "XX" is input voltage : 03=3.3Vdc, 05=5Vdc, 09=9Vdc, 12=12Vdc,15=15Vdc, 24=24Vdc e.g. 13DSC-12S05N3P0.25, 13DSC-15S12NP0.25H3, 13DSC-24S15N3P0.25.

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Range	Vo,Io Nom @Vin:3.3V,5V, 9V		±10		%
	Vo,Io Nom @Vin:,12V,15V,24V		±20		%
Filter	Capacitor				
Surge Voltage (1sec. max.)	3.3VDC input	-0.7		5	VDC
	5VDC input	-0.7		9	VDC
	9VDC input	-0.7		15	VDC
	12VDC input	-0.7		18	VDC
	15VDC input	-0.7		21	VDC
	24VDC input	-0.7		30	VDC
Reflected Ripple Current			15		mA

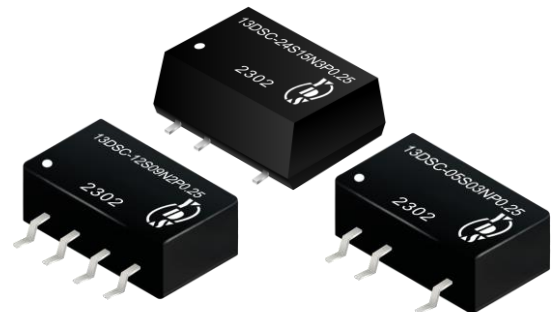
DC-DC Converter 13DSC-0.25W SERIES

0.25Watt

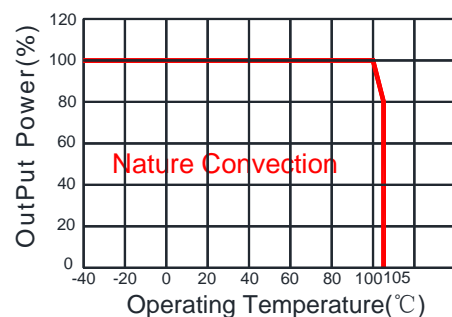
1.5KV ~ 3KV Isolated

Single Output

SMD14



Temperature Derating Graph



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Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Continuous, self-recovery				
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

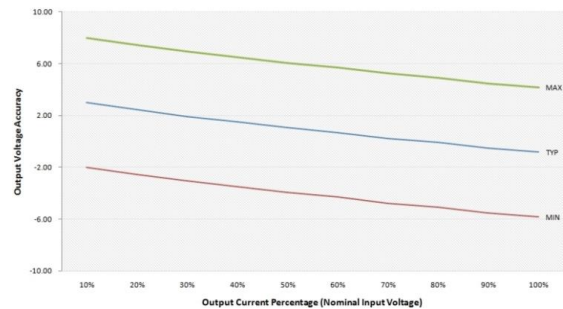
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @3.3V, 5V Vin		215/370		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-55		+125	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight	Package 1/2/3		1.2/1.2/1.28		g
	Package 1		12.7x7.6x6.25		mm
	Package 2		12.7x7.6x6.25		mm
Dimensions	Package 3		12.8x10.8x6.9		mm

Part Number

13DSC - 12 / S / 12 / N / 2 / P / 0.25 / H3
 A B C D E F G H I

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

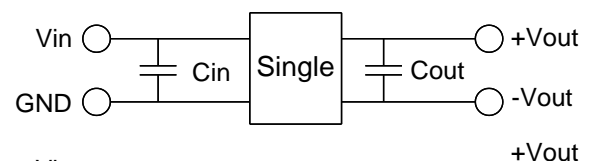
Tolerance Envelope Graph



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 ±6kV perf. Criteria B

Recommended Test Circuit



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

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EMC (CLASS B) compliance circuit

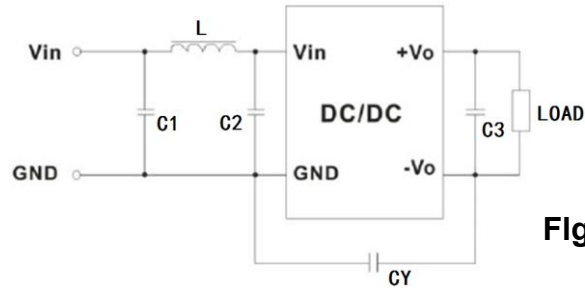
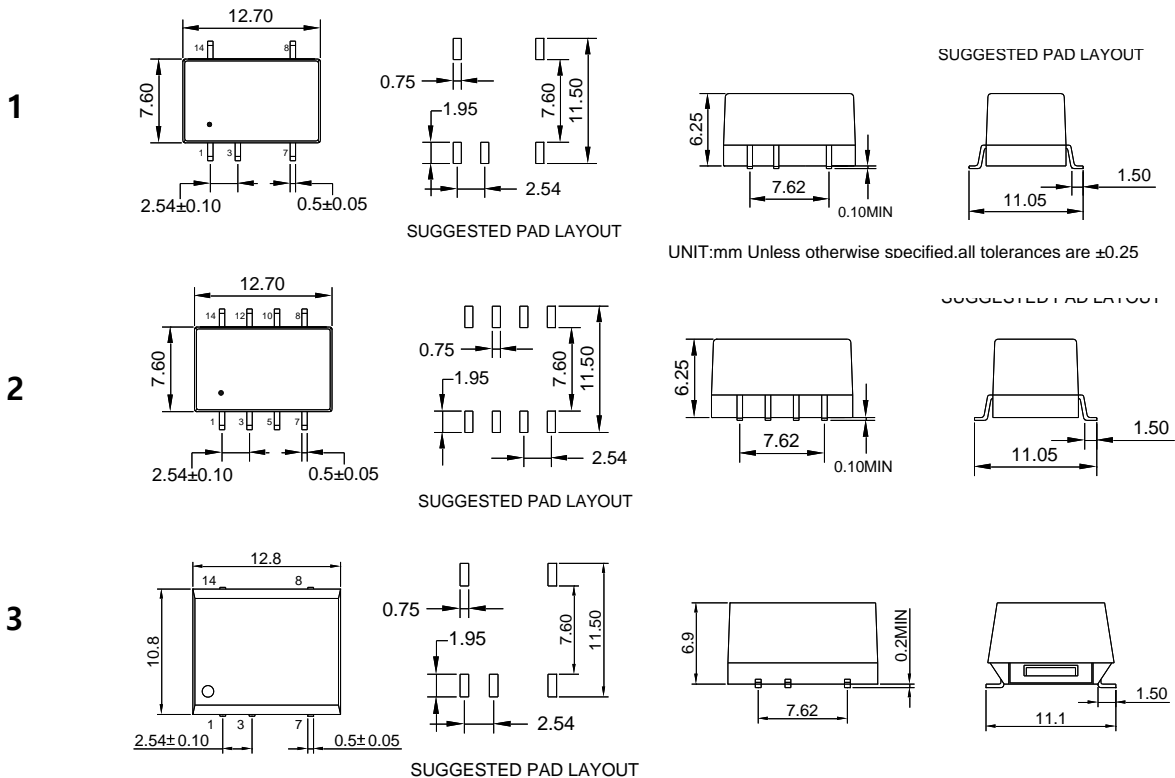


Fig.1

EMC recommended circuit value table

EMC recommended circuit value table		
EMI	C1	4.7 μ F /50V
	C2	4.7 μ F /50V
	CY	1nF/4kV
	C3	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	3	7	8	14	Other
Package 1/3	-Vin	+Vin	-Vout	+Vout	NC	NO PIN
Package 2	-Vin	+Vin	-Vout	+Vout	NC	NC

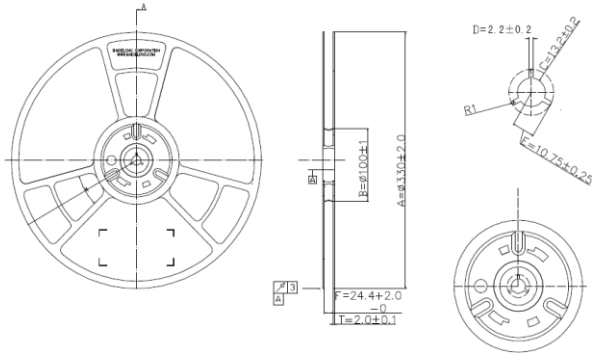
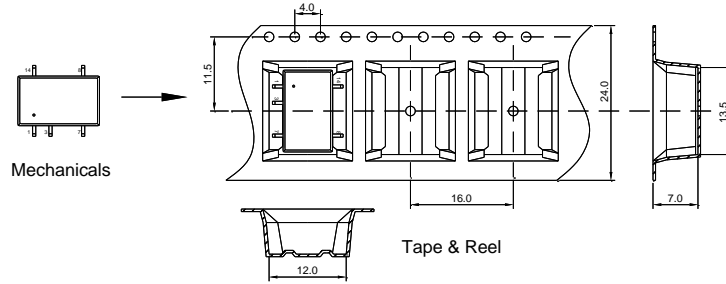
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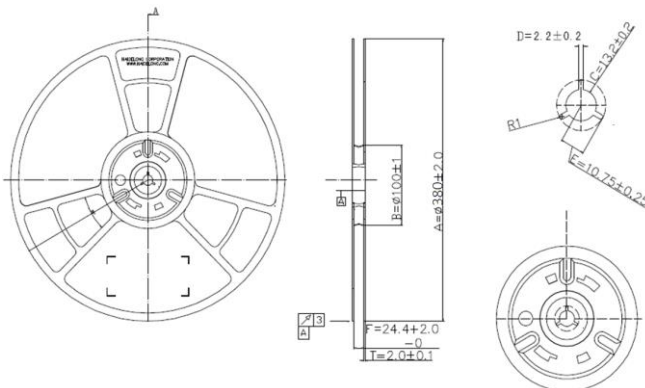
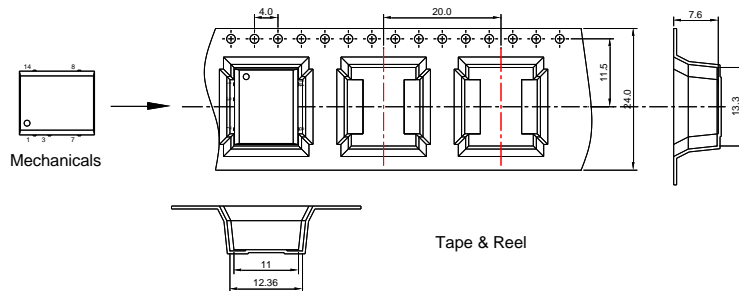
Packaging

N1 / N2 Package



Tape & Reel----- 500 pcs

N3 Package



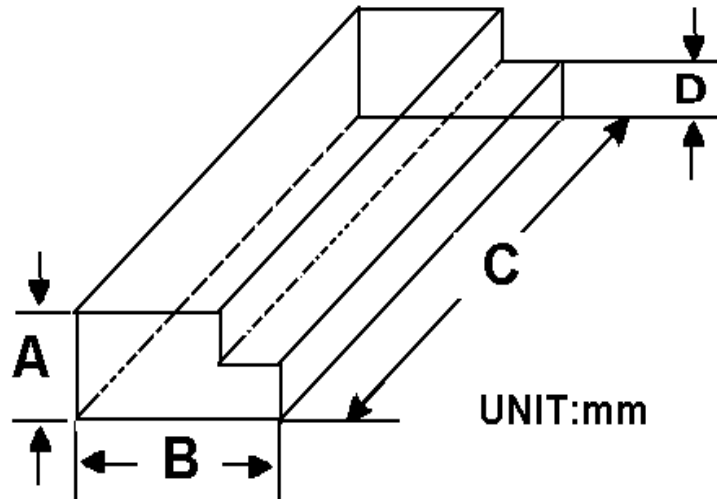
Tape & Reel----- 500 pcs

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Packaging



TUBE-----39pcs

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