

**FEATURES :**

- 14PIN SMD Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC~ 3KVDC Isolation
- Operating Temperature:-40°C to +105°C
- Industry Standard Pinout
- UL/cUL/IEC/EN 62368-1 approved, CB-Report

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-YY03N*P(H3)	3.3	303	76	2400	1/2/3
13DSC-YY05N*P(H3)	5	200	82	2400	1/2/3
13DSC-YY09N*P(H3)	9	112	83	1000	1/2/3
13DSC-YY12N*P(H3)	12	84	84	470	1/2/3
13DSC-YY15N*P(H3)	15	67	84	330	1/2/3
13DSC-YY24N3P(H3)	24	42	85	100	3
13DSC-XX03N*P(H3)	3.3	303	78	2400	1/2/3
13DSC-XX05N*P(H3)	5	200	82	2400	1/2/3
13DSC-XX09N*P(H3)	9	112	85	1000	1/2/3
13DSC-XX12N*P(H3)	12	84	85	680	1/2/3
13DSC-XX15N*P(H3)	15	67	87	330	1/2/3
13DSC-XX24N3P(H3)	24	42	85	220	3

**Note:**

1. No suffix is standard isolation (1.5KVDC) e.g, 13DSC-15S05NP, \*add suffix "H3" for 3KVDC isolation, e.g, 13DSC-12S09NPH3, 13DSC-12S12NPH3.
2. " \* " = 1 or 2 or 3 for package , no suffix \* package1 , When \* =2, package2 , and so on, e.g,13DSC-15S05NP, 13DSC-24S12N3PH3
3. " YY " is input voltage : 03=3.3Vdc,05=05Vdc, 09=9Vdc e.g, 13DSC-03S05N3P, 13DSC-05S12NPH3, 13DSC-09S15N2P
4. " XX " is input voltage : 12=12Vdc,15=15Vdc, 24=24Vdc e.g, 13DSC-12S05N3P, 13DSC-15S12NPH3, 13DSC-24S15N2P

When the I / O is equal to 24 V, package 1 and 2 disable.

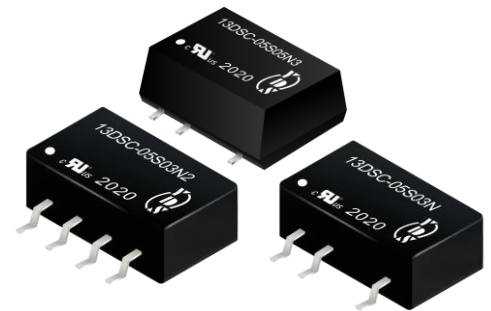
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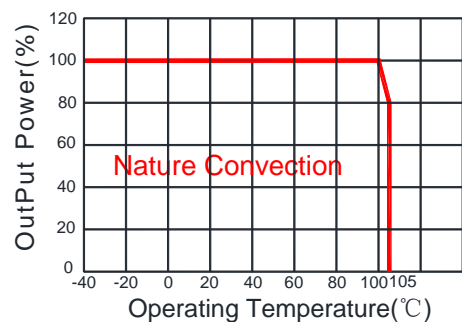
DC-DC Converter  
**13DSC SERIES**

1Watt

1.5KV ~ 3KV Isolated  
Single Output  
SMD14



Temperature Derating Graph



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### 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				

### 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)		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

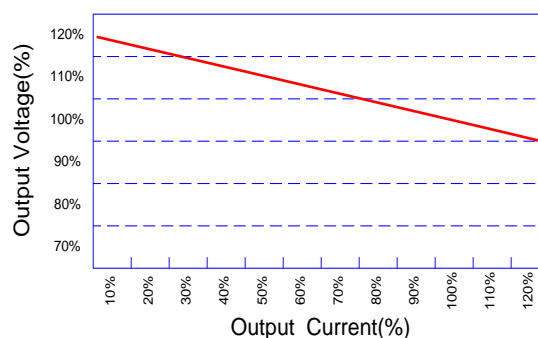
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @3.3V, 5V Vin		215/370		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-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 2		12.7x7.6x6.25		mm
	Package 3		12.8x10.8x6.9		mm

### Part Number

13DSC - 12 S 05 N 3 P H3  
A B C D E F G H

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

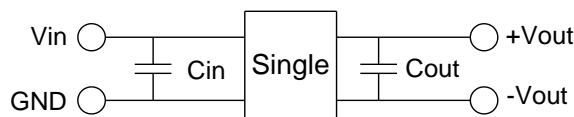
### Tolerance Envelope Graph



### 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

EMC (CLASS B) compliance circuit

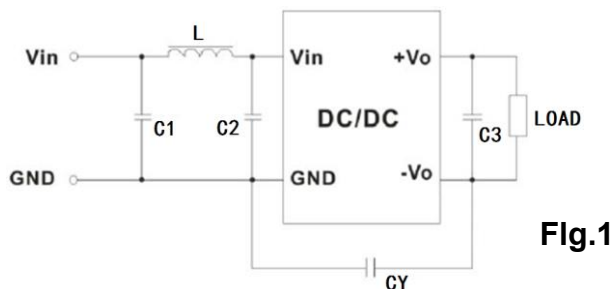
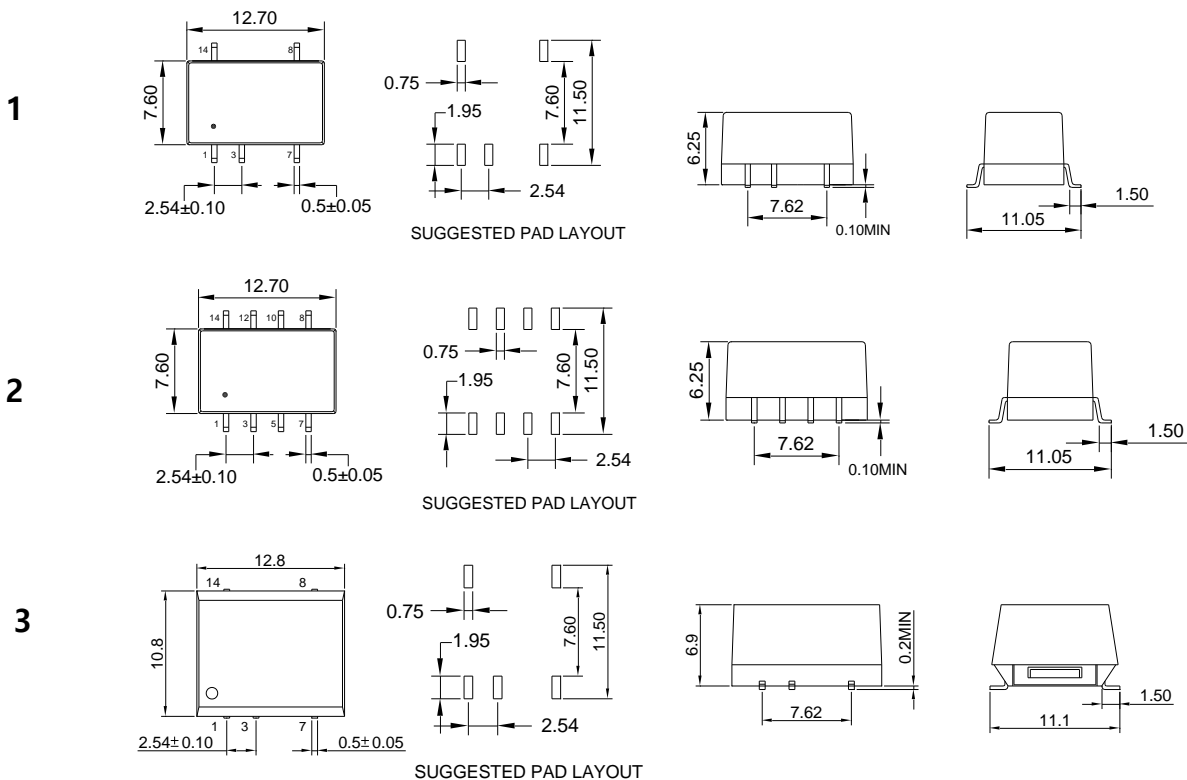


Fig.1

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	3	7	8	14	Other
Package 1/3	-Vin	+Vin	-Vout	+Vout	NC	NO PIN
Package 2	-Vin	+Vin	-Vout	+Vout	NC	NC