

FEATURES :

- 18PIN&22PIN SMD 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.	
13DS1C-12S05NXP2(H3)	5	400	85	2400	1/2/3
13DS1C-12S09NXP2(H3)	9	223	87	820	1/2/3
13DS1C-12S12NXP2(H3)	12	167	87	470	1/2/3
13DS1C-12S15NXP2(H3)	15	133	88	220	1/2/3
13DS1C-12S24NXP2(H3)	24	84	89	100	1/2/3
13DS1C-12D05NXP2(H3)	±5	±200	82	±1200	1/2/3
13DS1C-12D09NXP2(H3)	±9	±112	85	±330	1/2/3
13DS1C-12D12NXP2(H3)	±12	±84	87	±330	1/2/3
13DS1C-12D15NXP2(H3)	±15	±67	88	±100	1/2/3
13DS1C-12D24NXP2(H3)	±24	±42	89	±47	1/2/3
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Note:

1:No suffix is standard isolation (1.5KVDC) e.g. 13DS1C-12S05NP2,
 *add suffix"H3"for 3KVDC isolation, e.g.13DS1C-12S05NP2H3, 13DS1C-15S12NP2H3.
 X = 1 or 2 or 3 for package, No suffix X package1, When X=2, package2, and so on.
 e.g.13DS1C-24S05N2P2,13DS1C-15S12N3P2H3.

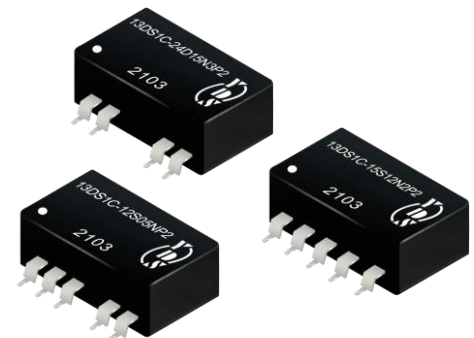
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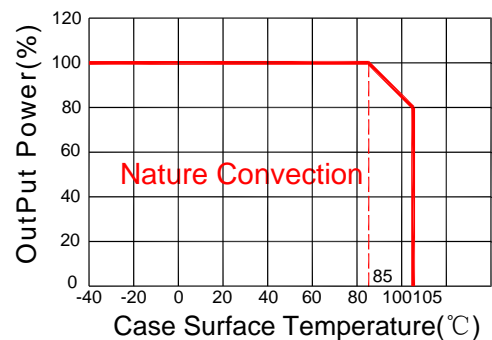
DC-DC Converter
13DS1C-2W SERIES

2Watt

1.5KV ~ 3KV Isolated
 Single & Dual Output
 SMD18 & SMD22



Temperature Derating Graph



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	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

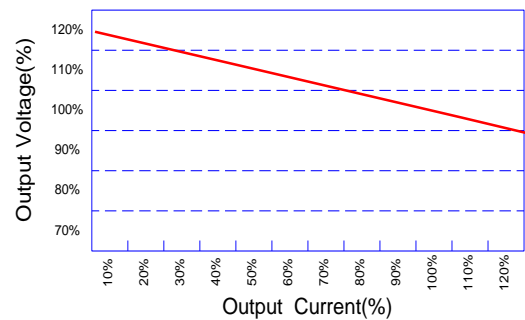
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature		-55		+125	°C
Humidity	Non Condensing		95		%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight	Package 1/2/3		1.36		g
Dimensions	Package 1/2/3	15.24x8.0x7.3			mm

Part Number

13DS1C - 15 S 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:Packge
 G:Protection
 H:Output Power

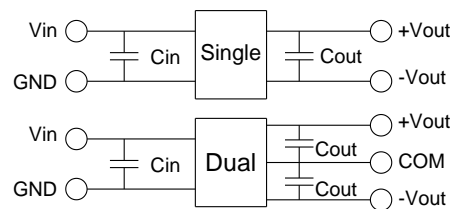
Tolerance Envelope Graph



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 ±4kV perf. Criteria B

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
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
--	--	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) compliance circuit

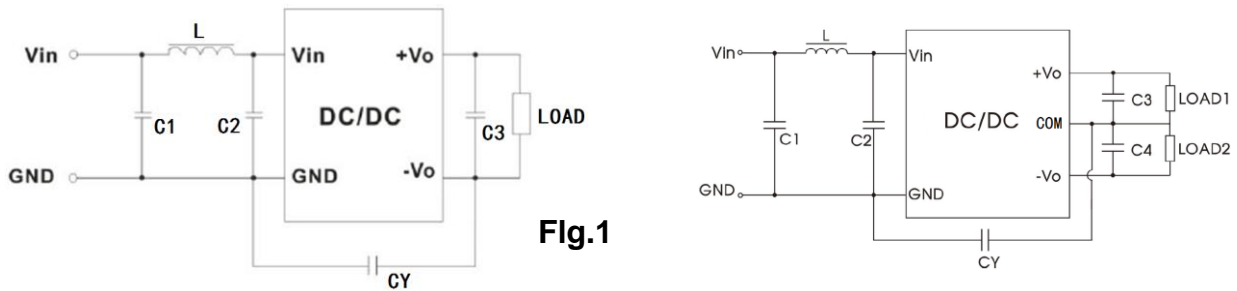
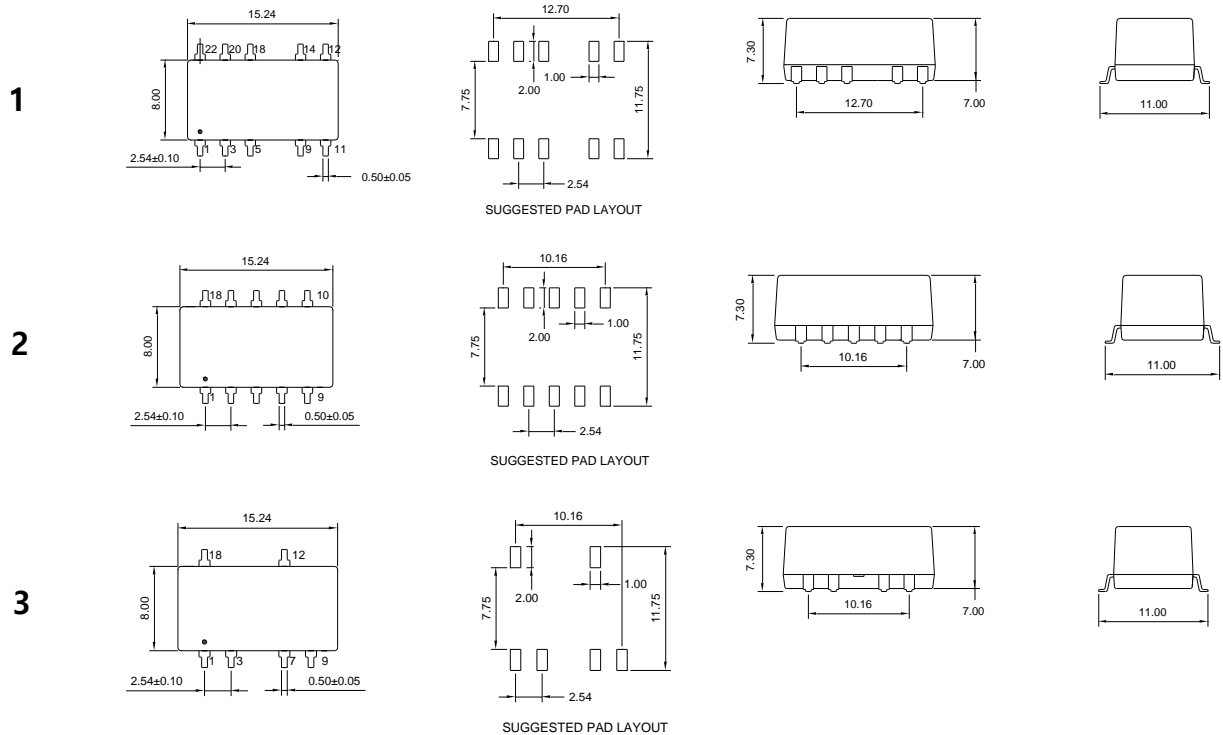


Fig.1

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	5	7	9	10	11	12	14	16	18	20	22
Package1 (Single)	-Vin	+Vin	NC*	--	-Vout	--	NC	NC	+Vout	--	NC	NC	NC
Package1 (Dual)	-Vin	+Vin	NC*	--	Com	--	-Vout	NC	+Vout	--	NC	NC	NC
Package2/3 (Single)	-Vin	+Vin	NC*	-Vout	-Vout	NC*	--	+Vout	NC*	NC*	NC	--	--
Package2/3 (Dual)	-Vin	+Vin	NC*	Com	-Vout	NC*	--	+Vout	NC*	NC*	NC	--	--

NOTE: NC* Means When the Package 2 is NC, When the Package 3 is NO PIN

