

**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-05S03NYP2(H3)	3.3	400	80	2400	1/2/3
13DS1C-05S05NYP2(H3)	5	400	84	2400	1/2/3
13DS1C-05S09NYP2(H3)	9	223	85	820	1/2/3
13DS1C-05S12NYP2(H3)	12	167	85	470	1/2/3
13DS1C-05S15NYP2(H3)	15	133	86	220	1/2/3
13DS1C-05S24NYP2(H3)	24	84	87	100	1/2/3
13DS1C-05D03NYP2(H3)	±3.3	±303	80	±1200	1/2/3
13DS1C-05D05NYP2(H3)	±5	±200	82	±1200	1/2/3
13DS1C-05D09NYP2(H3)	±9	±112	85	±330	1/2/3
13DS1C-05D12NYP2(H3)	±12	±84	85	±330	1/2/3
13DS1C-05D15NYP2(H3)	±15	±67	87	±100	1/2/3
13DS1C-05D24NYP2(H3)	±24	±42	88	±47	1/2/3
13DS1C-XXS03NYP2(H3)	3.3	400	80	2400	1/2/3
13DS1C-XXS05NYP2(H3)	5	400	85	2400	1/2/3
13DS1C-XXS09NYP2(H3)	9	223	87	820	1/2/3
13DS1C-XXS12NYP2(H3)	12	167	87	470	1/2/3
13DS1C-XXS15NYP2(H3)	15	133	88	220	1/2/3
13DS1C-XXS24NYP2(H3)	24	84	89	100	1/2/3
13DS1C-XXD03NYP2(H3)	±3.3	±303	80	±1200	1/2/3
13DS1C-XXD05NYP2(H3)	±5	±200	82	±1200	1/2/3
13DS1C-XXD09NYP2(H3)	±9	±112	85	±330	1/2/3
13DS1C-XXD12NYP2(H3)	±12	±84	87	±330	1/2/3
13DS1C-XXD15NYP2(H3)	±15	±67	88	±100	1/2/3
13DS1C-XXD24NYP2(H3)	±24	±42	89	±47	1/2/3

**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.  
 2. Y = 1 or 2 or 3 for package, no suffix X package1, when Y=2 , package2 , and so on, e.g,13DS1C-24S05N2P2,13DS1C-15S12N3P2H3.  
 3. "XX" is input voltage : 12=12Vdc,15=15Vdc, 24=24Vdc. e.g, 13DS1C-12S05N2P2, 13DS1C-15S12N2P2H3.

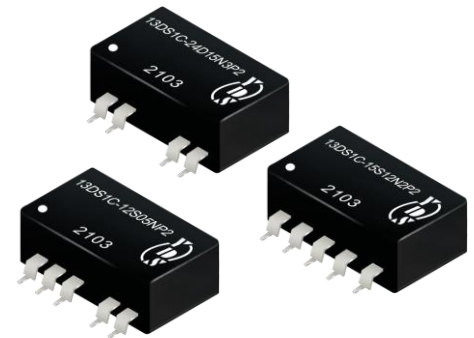
YUAN DEAN SCIENTIFIC



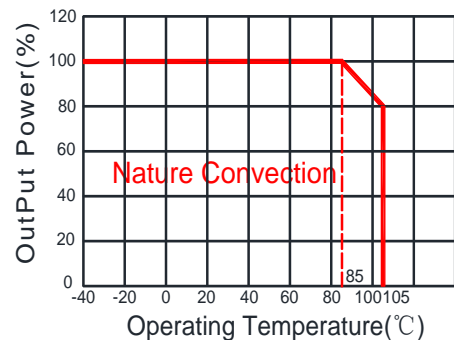
DC-DC Converter  
**13DS1C-2W SERIES**

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	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**

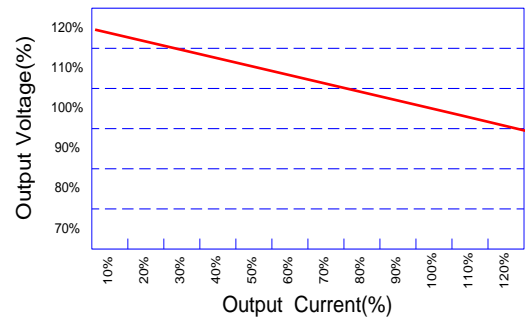
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF
Switching Frequency	Full load, nominal input @5V Vin		215		KHz
	Full load, nominal input @other Vin		250		KHz
Operation Temperature		-40		+105	°C
Storage Temperature	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

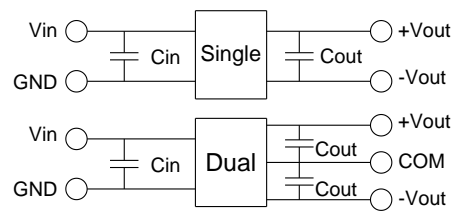
**Tolerance Envelope Graph**



**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 ±6kV perf. Criteria B

**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
--	--	24Vdc	1µF/50V	±24Vdc	±1µF/50V



EMC (CLASS B) compliance circuit

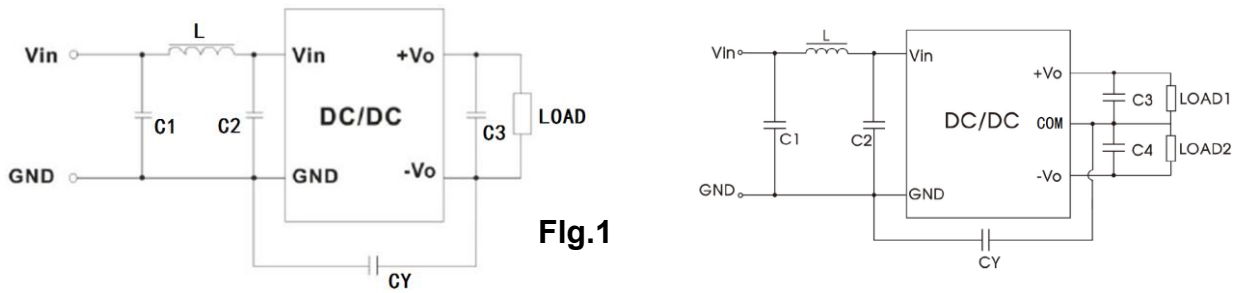
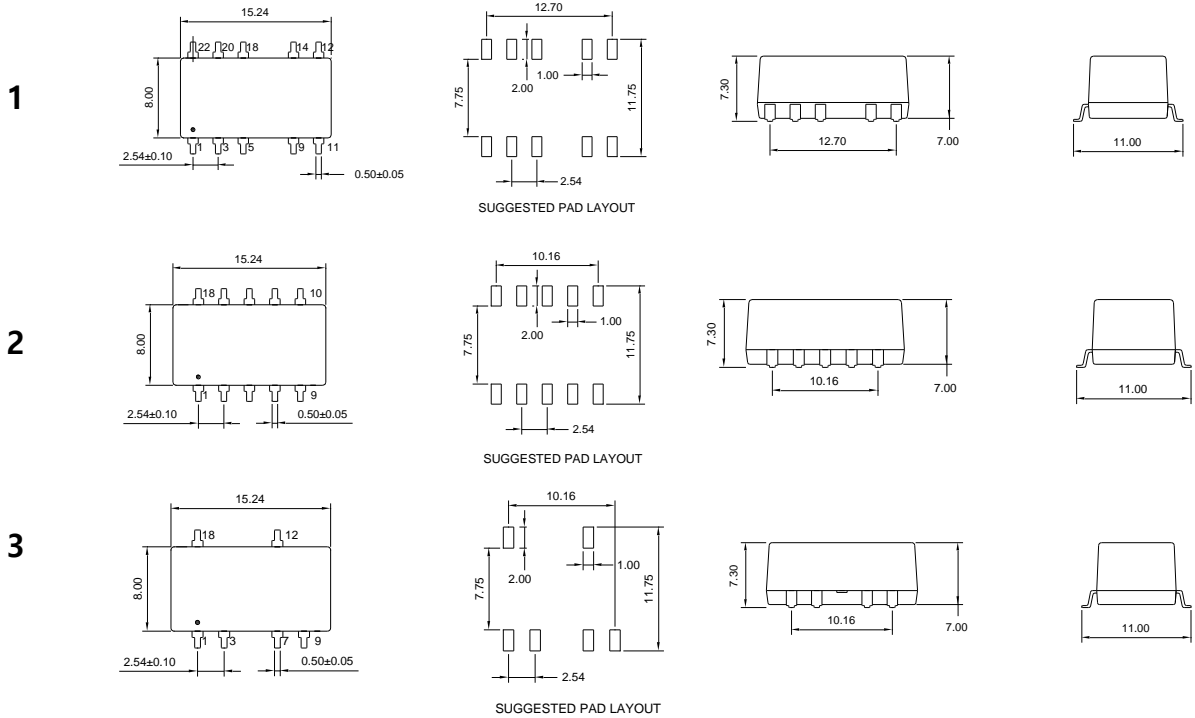


Fig.1

EMC recommended circuit value table

EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3, C4	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