

FEATURES :

- 7PIN SIP Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 6.4KVDC 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)
	Vdc	mA	%TYP	Max.
12D1C-YY03N	3.3	303	76	2400
12D1C-YY05N	5	200	82	2400
12D1C-YY09N	9	112	83	1000
12D1C-YY12N	12	84	84	470
12D1C-YY15N	15	67	84	330
12D1C-YY24N	24	42	85	100
12D1C-YYD03N	±3.3	±151	76	±1200
12D1C-YYD05N	±5	±100	82	±1200
12D1C-YYD09N	±9	±56	83	±470
12D1C-YYD12N	±12	±42	84	±220
12D1C-YYD15N	±15	±34	84	±220
12D1C-YYD24N	±24	±21	85	±47
12D1C-XXS03N	3.3	303	78	2400
12D1C-XXS05N	5	200	82	2400
12D1C-XXS09N	9	112	85	1000
12D1C-XXS12N	12	84	85	680
12D1C-XXS15N	15	67	87	330
12D1C-XXS24N	24	42	85	220
12D1C-XXD03N	±3.3	±151	78	±1200
12D1C-XXD05N	±5	±100	82	±1200
12D1C-XXD09N	±9	±56	85	±680
12D1C-XXD12N	±12	±42	85	±330
12D1C-XXD15N	±15	±34	87	±220
12D1C-XXD24N	±24	±21	85	±100

Note:

- "YY" is input voltage : 03=3.3Vdc,05=5Vdc, 09=9Vdc
e.g, 12D1C-03S05N, 12D1C-05S12N, 12D1C-09S15N
- "XX" is Input Voltage : 12=12Vdc,15=15Vdc, 24=24Vdc
e.g, 12D1C-12S05N, 12D1C-15S12N, 12D1C-24S15N

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DC-DC Converter

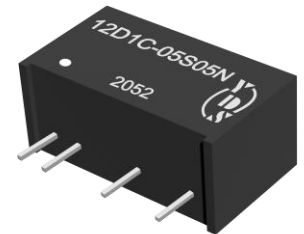
12D1C SERIES

1 Watt

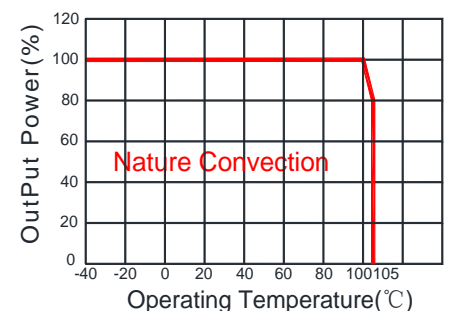
6400Vdc Isolated

Single & Dual Output

SIP7



Temperature Derating



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Rev: 0 2024/05/16

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Vo,lo Nom@ Vin:3.3V,5V,9V		±10		%
	Vo,lo 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	%
	24V (10% To 100% F.L)		5	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

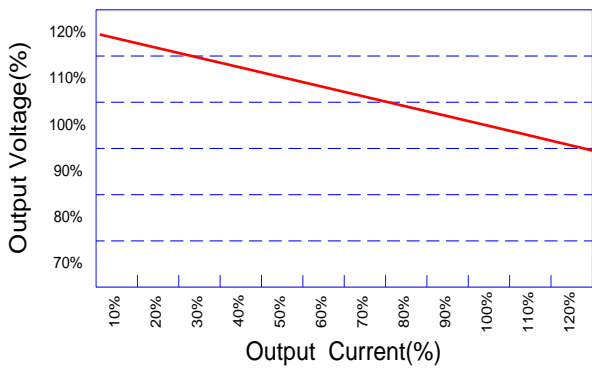
General Specifications

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
Operating 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			4		g
Dimensions			19.5x9.8x12.5		mm

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

Tolerance Envelope Graph

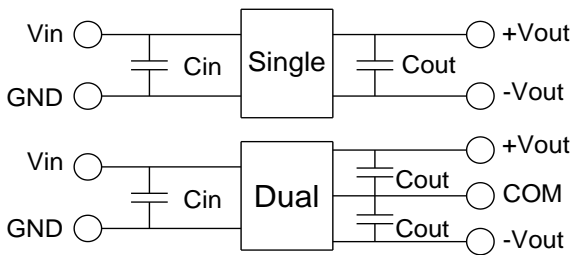


Part Number

12D1C	-	05	S	24	N
A		B	C	D	E

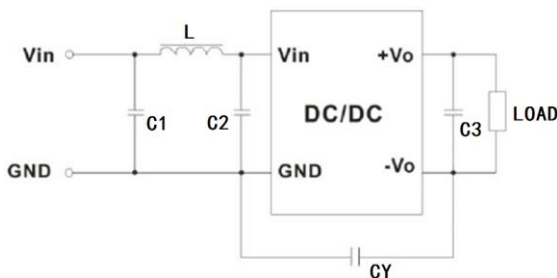
- A : Series
- B : Input Voltage
- C : Single Output
- D : Output Voltage
- E : Unregulated(N)

Recommended Test Circuit

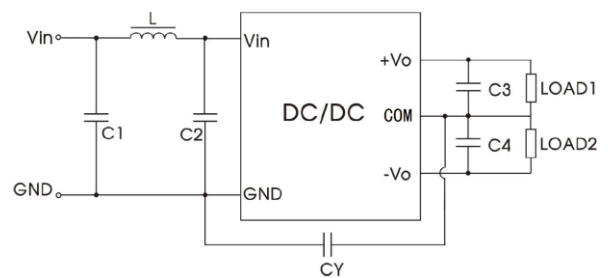


Vin	Cin	Single Vout	Cout	Dual Vout	Cout
3.3Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
5Vdc	4.7μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
9Vdc	4.7μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
12Vdc	2.2μF/25V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
15Vdc	2.2μF/25V	15Vdc	1μF/25V	±15Vdc	±1μF/25V
24Vdc	1μF/50V	24Vdc	1μF/50V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

EMC (CLASS B) Compliance Circuit



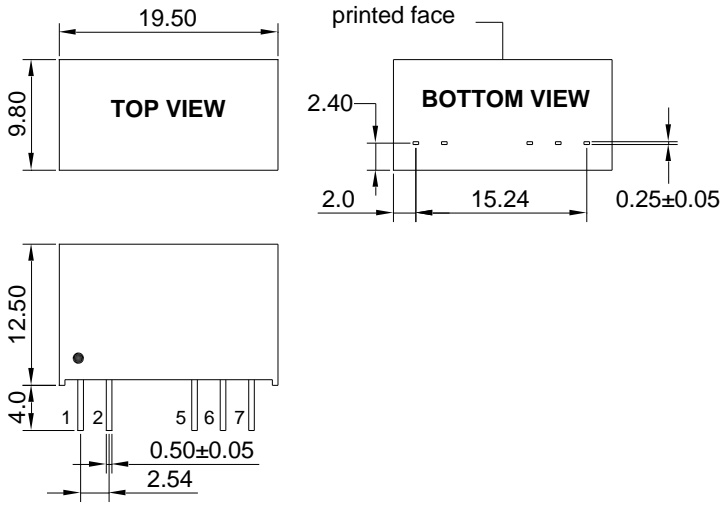
Flg.1



EMC recommended circuit value table

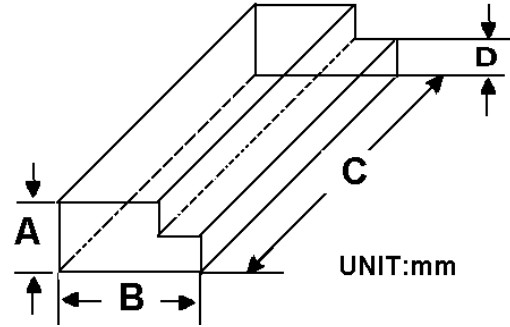
EMI		Value
C1		4.7μF /50V
C2		4.7μF /50V
CY		1nF/6.4kV
C3, C4		Recommended Test Circuit
L		6.8μH

Markings and Dimensions



UNIT: mm Unless otherwise specified, all tolerances are ± 0.25

Packaging



Size(mm)			
A	B	C	D
12.0	28.55	550	6.0

PIN Connection

PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout