


**Features**

- 2WATT SIP PACKAGE
- EFFICIENCY TO 87%
- 100% BURNED IN
- No-load Input Current as Low as 5mA
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- UNREGULATED OUTPUT TYPES



**2 Watt DC/DC Converter**

2 Watt Single O/P  
Isolated DC-DC Converter  <sup>®</sup> US

**Input Specifications**

Input Voltage	:24Vdc
Input Voltage Range	:±10%

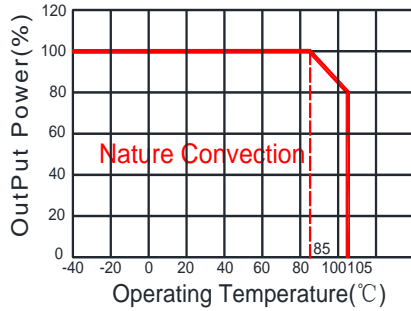
**Output Specifications**

Output Voltage	:12Vdc	
Output Voltage Accuracy	:±5%	@Vout=11.4-12.6Vdc@Vin=24Vdc
Output Current	:167mA	
Efficiency	:87% TYP	
Ripple / Noise	:75mVp-p TYP, 150mVp-p MAX	@20MHz Bandwidth
Short Circuit Protection	: Continuous	
Line Regulation	:±1.2% TYP	@ For 1.0% OF Vin
Load Regulation	:±5% TYP, ±10% MAX	@10% to 100% full load
Capacitive Load	:470uF MAX	

**General Specifications**

Operating Temperature Range	: -40°C ~ +105°C	
Storage Temperature	: -55°C ~ +125°C	
Switching Frequency	: 250KHz TYP	
Humidity	: 95% MAX	
Isolation Voltage	: 1500Vdc	@ Input to Output ( 60sec/0.5mA )
Isolation Resistance	: 1000MΩ MIN	@ 500Vdc
Cooling	: Free air convection	
MTBF	: >3500000 Hours	MIL-HDBK-217F@25°C, Ground Benign.
Case Material	: DAP	
Weight	: 1.5g TYP	
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

## Temperature Derating Graph



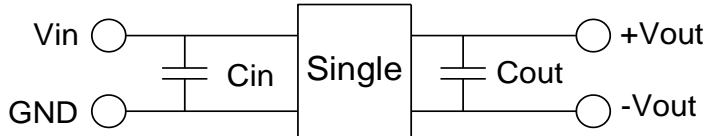
## Part Number

13DC - 24 S 12 N 2 P 2

A B C D E F G H

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

## Recommended Test Circuit



Vin	Cin	Single Vout	Cout
24Vdc	1μF/50V	12Vdc	2.2μF/25V

To make sure the product work at perfect operation status with full loading external capacitor is necessary and it is recommended to use high frequency low resistance electrolytic capacitor.

## EMC (CLASS B) compliance circuit

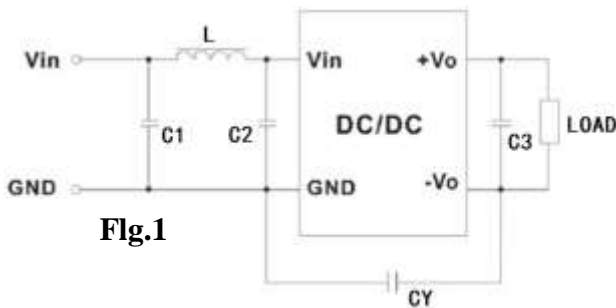
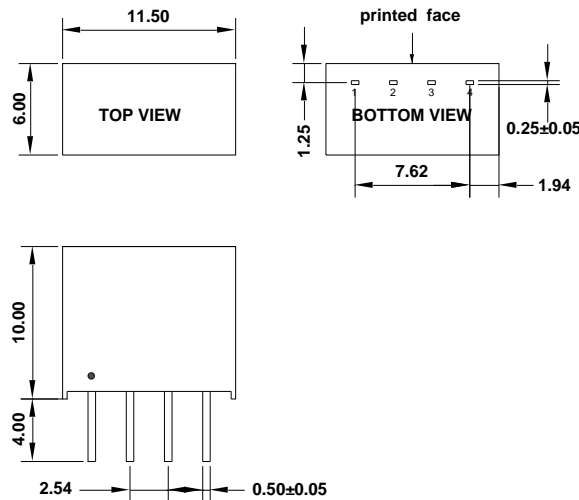


Fig.1

EMC recommended circuit value table

EMI	Component	Value
	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3	Recommended Test Circuit
	L	6.8μH

## Outline Dimensions



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

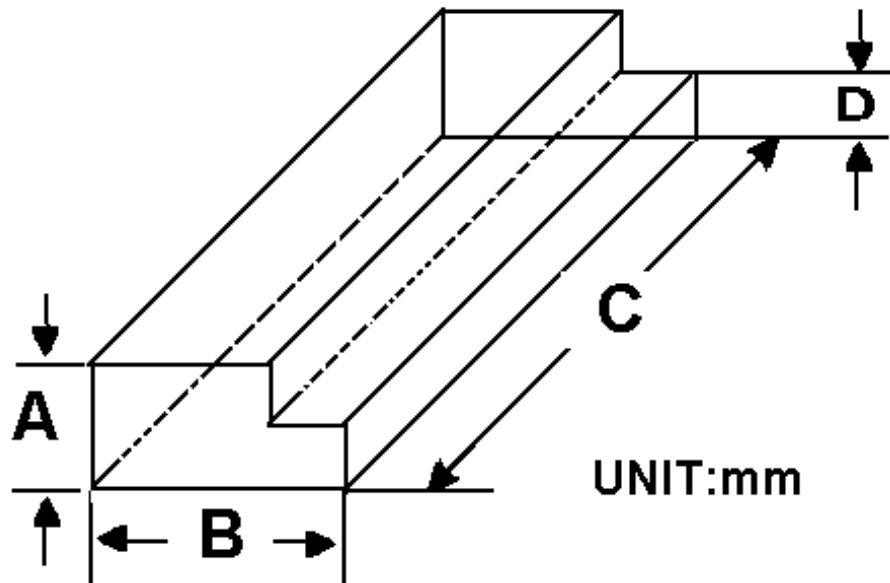
PIN	1	2	3	4
Single	-Vin	+Vin	-Vout	+Vout

**Packing Information:**

Weight----- 1.5grams/pcs

TUBE-----42pcs

Weight: 83.2g per tube



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

Outer carton unit: 4200pcs/100Tube/box

Weight: 9.0kg per carton

