


## Features

- 1WATT SMD PACKAGE
- EFFICIENCY TO 85%
- 100% BURNED IN
- No-load Input Current as Low as 5mA
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- UNREGULATED OUTPUT TYPES



**1 Watt DC/DC Converter**

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

## Input Specifications

Input Voltage	:12Vdc
Input Voltage Range	:±20%

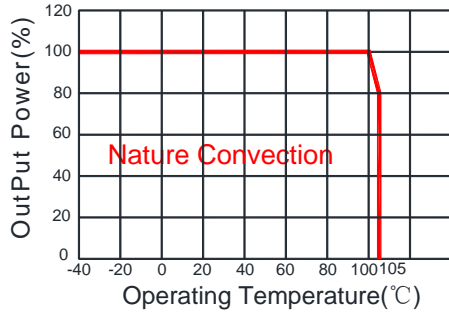
## Output Specifications

Output Voltage	:9Vdc	
Output Voltage Accuracy	:±5%	@Vout=8.55-9.45Vdc@Vin=12Vdc
Output Current	:112mA	
Efficiency	:85% TYP	
Ripple / Noise	:30mVp-p TYP, 75mVp-p MAX	@20MHz Bandwidth
Short Circuit Protection	: Continuous	
Line Regulation	:±1.2% TYP	@For 1.0% OF Vin
Load Regulation	:±8% TYP, ±10% MAX	@10% to 100% full load
Capacitive Load	:1000uF 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	: 1.2g 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

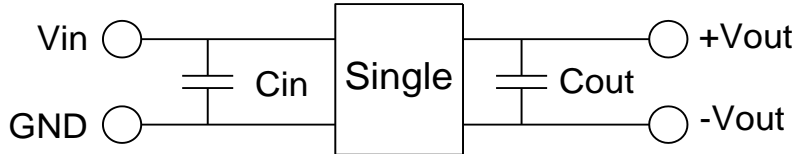


## Part Number

13DSC - 12 S 09 N P  
 A B C D E F

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

## Recommended Test Circuit



Vin	Cin	Single Vout	Cout
12Vdc	2.2μF/25V	9Vdc	2.2μF/16V

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

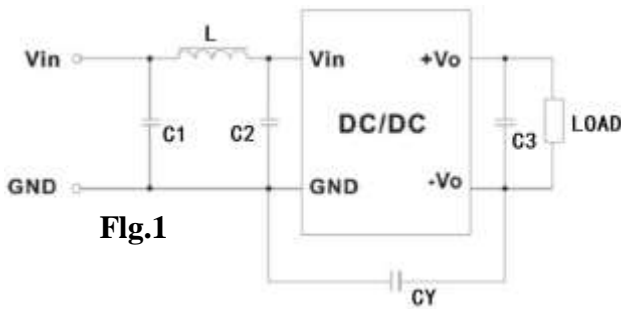
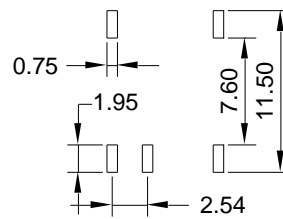
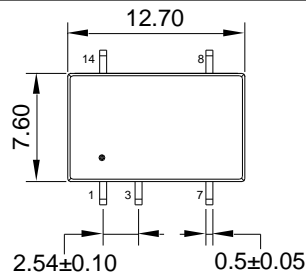


Fig.1

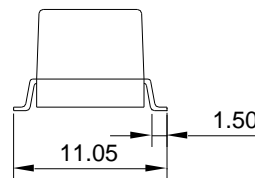
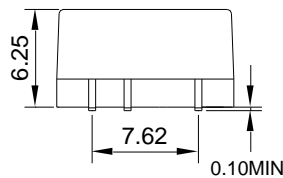
EMC recommended circuit value table

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

## Outline Dimensions



SUGGESTED PAD LAYOUT



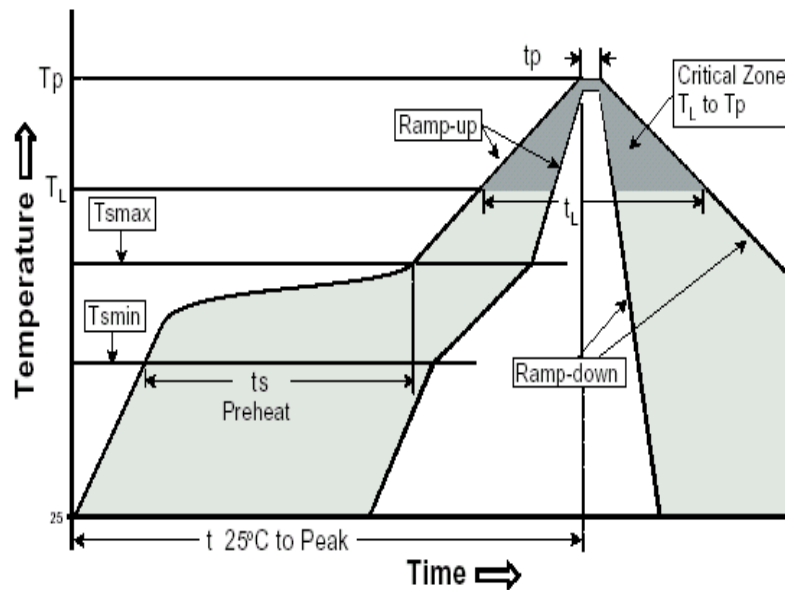
UNIT:mm Unless otherwise specified,all tolerances are ±0.25

PIN	1	3	7	8	14
Single	-Vin	+Vin	-Vout	+Vout	NC

## RoHS compliant type

Our RoHS parts just can withstand IR Reflow peak temperature: 240degC +/-5degC as the following profile:

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts <sub>max</sub> to Tp)	3°C /second max.
Preheat -Temperature Min (Ts <sub>min</sub> ) -Temperature Max (Ts <sub>max</sub> ) -Time (ts <sub>min</sub> to ts <sub>max</sub> )	150°C 200°C 60-180 seconds
<b>Time maintained above:</b> -Temperature (T <sub>L</sub> ) -Time (t <sub>L</sub> )	217°C 60-150 seconds
Peak/Classification Temperature (Tp)	240±5°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	6°C/seconds max
Time 25°C to Peak Temperature	6 minutes max.



**Packing Information:**

- 1.Weight-----1.2 grams/pcs
- 2.Tape & Reel----- 350 pcs
- 3. outer carton unit: 3500pcs/box
- 4. outer carton unit: 10T&R/box
- 5.Weight: 9.5kg per carton

