

**Features**

- 10PIN SMD Package
- UL94V-0 Package Material
- Operating Temperature:-40°C TO +85°C
- Efficiency up to 93%
- Non isolated, no need for heatsinks
- Short circuit protection



RoHS  
Compliant



**NON-ISOLATED  
DC/DC Converter**

**Input Specifications**

Input Voltage Range	:8~36Vdc
Input current no load	:3mA TYP
Input Filter	: Capacitor
Remote ON	: 3.2 ~ 5.5VDC or open circuit
Remote OFF	: 0 ~ 0.8VDC or short circuit pin 10 and 3/7
OFF Idle Current	: 0.2mA typ.

**Output Specifications**

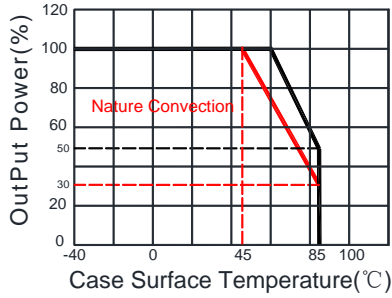
Output Voltage	:5Vdc	
Output Voltage Accuracy	:±2%	@ Vout=4.9~5.1Vdc @ Vin=8~36Vdc
Output Voltage Adjustability (Trim)	:±10% max.	
Output Current	:1000mA	
Efficiency	:93% TYP @Min Vin	
	:85% TYP @Max Vin	
Ripple / Noise	:75mVp-p MAX	@20MHz Bandwidth
Short Circuit Protection	:Continuous	@auto-recovery
Line Regulation	:±0.4% MAX	@ at Full Load
Load Regulation	:±0.6% MAX	@10% to 100% load

**General Specifications**

Operating Temperature Range	:-40°C ~ +85°C (with derating)	
Storage Temperature	:-55°C ~ +125°C	
Switching Frequency	:440KHz TYP	
Humidity	:95% MAX	
Cooling	:Free air convection	@(20 LFM)
MTBF	:>5000x10 <sup>3</sup> Hours	MIL-HDBK-217F@25°C,Ground Benign.
Weight	:1.8g TYP	
Conducted Emission	:EN55022 Class A	
Radiated Emission	:EN55022 Class A	

Temperature Derating Graph

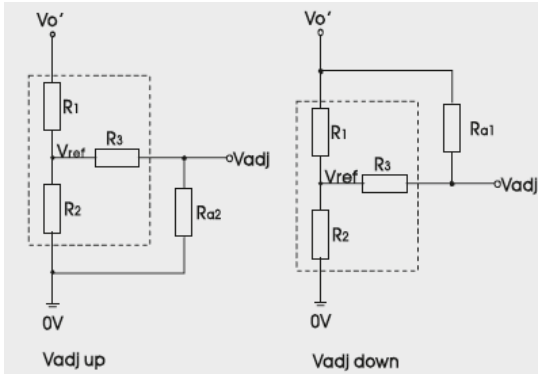
Part Number



13DS - 05 - 1A  
A B C

A: Series  
B: Output Voltage  
C: Output Current

Application of Vadj and calculation of Vadj resistance



Calculation formula of Vadj resistance:

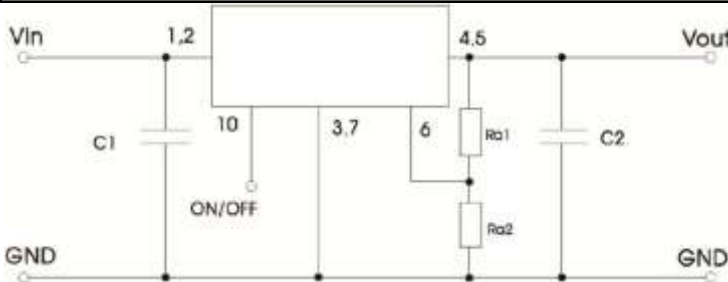
$$\text{up: } Ra2 = \frac{\alpha R2}{R2 - \alpha} - R3 \quad \alpha = \frac{Vref}{Vo' - Vref} \cdot R1$$

$$\text{down: } Ra1 = \frac{\alpha R1}{R1 - \alpha} - R3 \quad \alpha = \frac{Vo' - Vref}{Vref} \cdot R2$$

Ra1, Ra2 is Vadj resistance, a is a self-defined parameter, with no real meaning. Vo' for the actual needs of the up or down regulated voltage

R1/KΩ	R2/KΩ	R3/KΩ	Vref/V
43	8.06	33	0.8

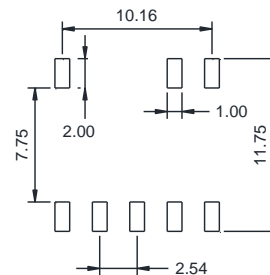
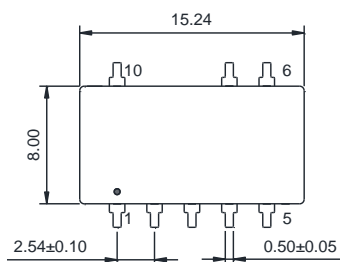
Typical Application Circuit



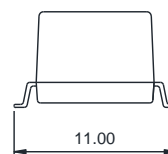
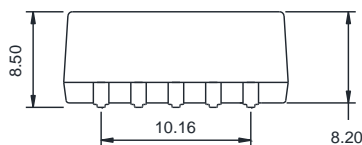
Vin	C1	SingleVout	C2
24Vdc	10μF/50V	5Vdc	22μF/16V

- C1 and C2 are required and should be connected close to the pin terminal of the module.
- For capacitance of C1 and C2 refer to table, it can be increased properly if required, and tantalum or low ESR electrolytic capacitors may also suffice.
- Cannot be used in parallel for output and hot swap.

Outline Dimensions



SUGGESTED PAD LAYOUT



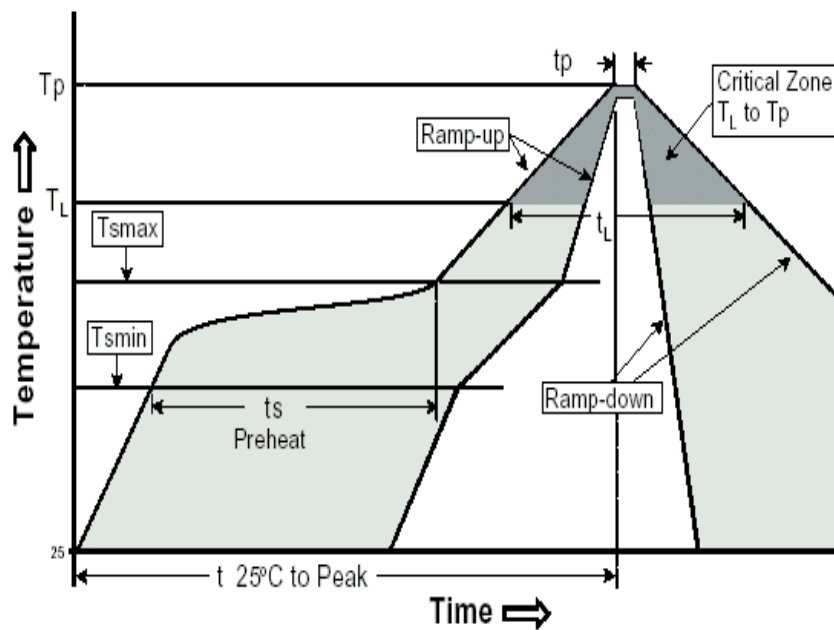
PIN Assignment

PIN	1.2	3.7	4.5	6	10
FUNCTION	+Vin	GND	+Vout	V adj	Remote On/Off

## RoHS compliant type

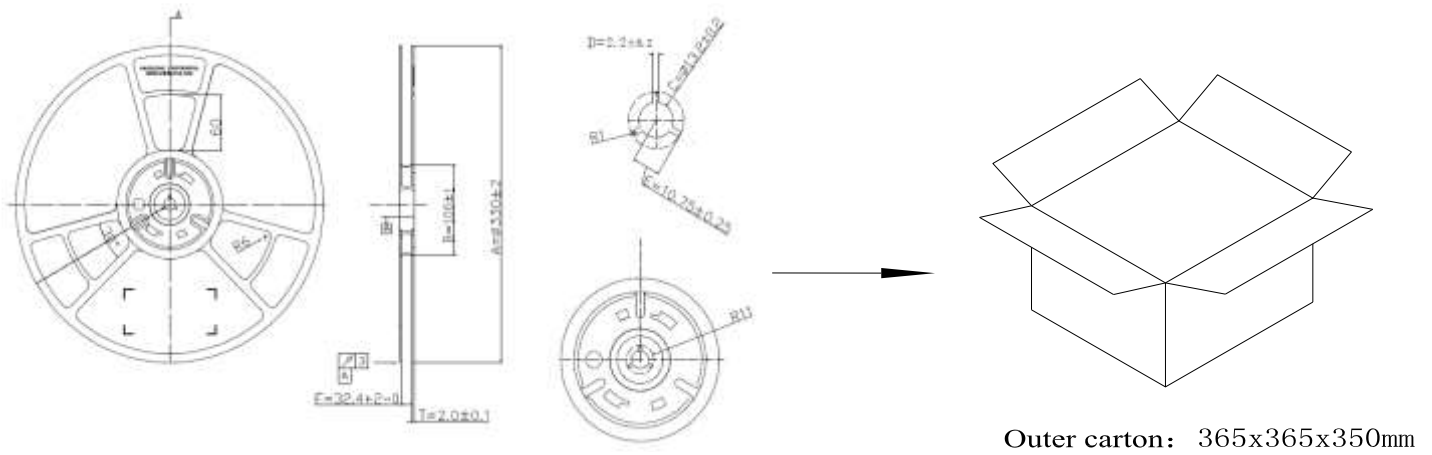
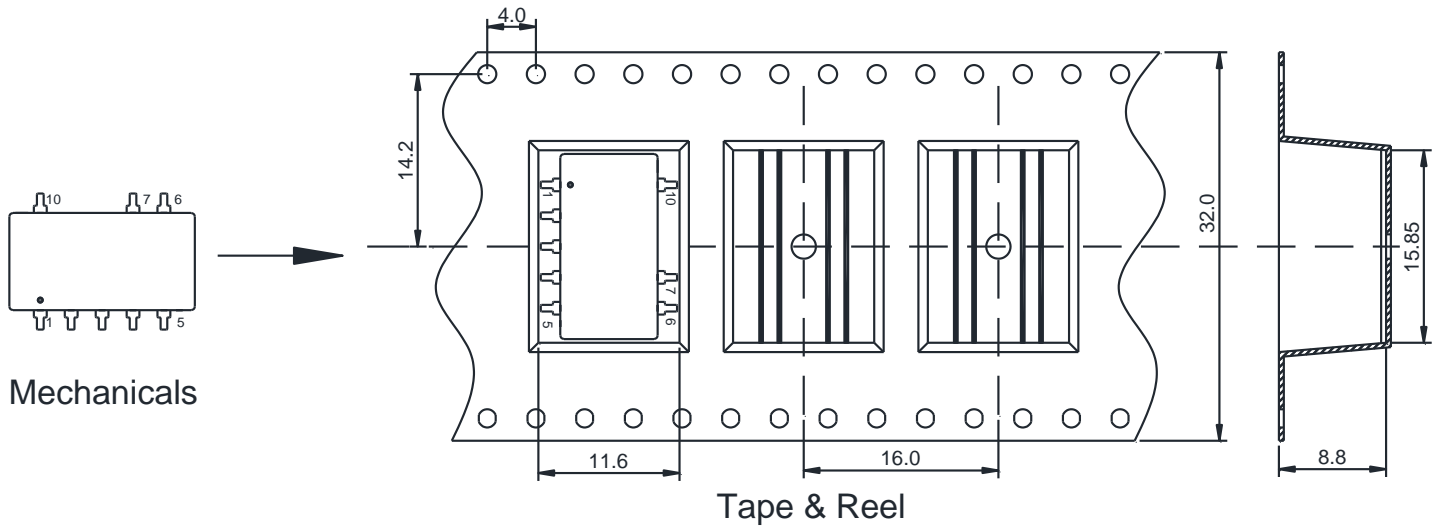
Our RoHS parts just can withstand IR Reflow peak temperature: 240degC +/-5degC as the following profile:

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



**Packing Information:**

- 1. Weight-----1.8 grams/pcs
- 2. Tape & Reel----- 350 pcs
- 3. outer carton unit: 2800pcs/box
- 4. outer carton unit: 8T&R/box
- 5. Weight: 10.0kg per carton



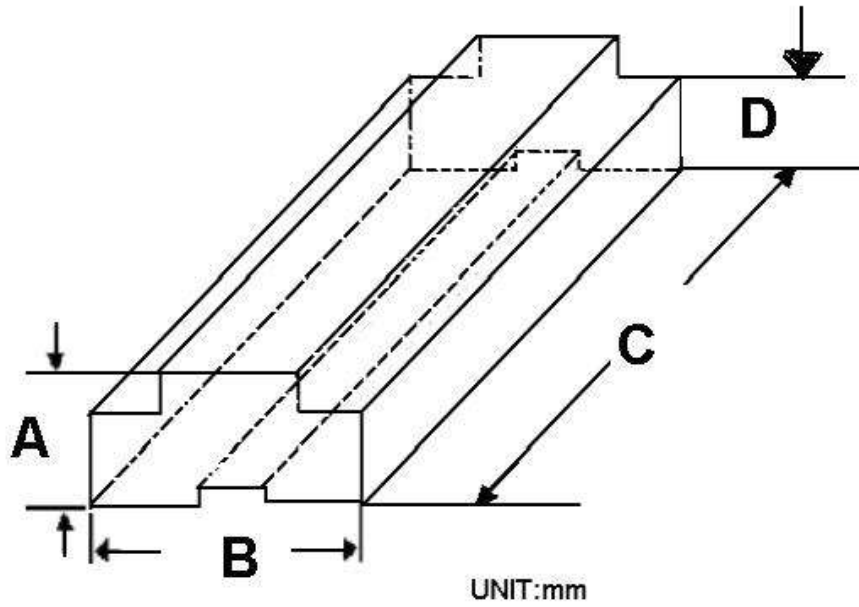
Outer carton: 365x365x350mm

**Packing Information:**

Weight----- 1.5grams/pcs

TUBE-----33pcs

Weight: 83.4g per tube



Size(mm)			
A	B	C	D
12.7	19.2	530	7.2

Outer carton unit: 2640pcs/80Tube/box

Weight: 7.7kg per carton

