

## 1T10A\_3U Series

1W - Single/Dual Output DC-DC Converter - Fixed Input - Isolated & Unregulated

### DC-DC Converter

1 Watt

- ⊕ Small footprint
- ⊕ Miniature SMD package style
- ⊕ High efficiency up to 75%
- ⊕ 3000VDC isolation
- ⊕ Temperature range: -40°C ~ +85°C
- ⊕ Industry standard pinout
- ⊕ Low temperature rise
- ⊕ Internal SMD construction
- ⊕ No external component required
- ⊕ RoHS compliance

The 1T10A\_3U Series is specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ )
- 2) Where isolation is necessary between input and output (isolation voltage  $\leq 3000\text{VDC}$ )
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding

Such as: digit circuit condition; normal low-frequency artificial circuit condition; relay drive circuit condition, etc.



#### Common specifications

Short circuit protection:	Short term, 1 sec. max.
Temperature rise at full load:	25°C TYP (Ta= 25°C)
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-40°C ~+100°C
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Package material:	Epoxy Resin [UL94-V0]
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Weight:	1.36g

#### Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy			±5		%
Line regulation	For Vin change of 1%		±1.2		%
Load regulation	10% to 100% load			±15	%
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth			75	mVp-p
Switching frequency	Full load, nominal input		100		KHz

\* Ripple and noise tested with "parallel cable" method. See detailed operation

#### Input specifications

Item	Test condition	Min	Typ	Max	Units
Input voltage			5		VDC
Input voltage range				±10	%
Filter	Capacitor				

#### Example:

##### 1T10A\_0505S3U

1 = 1Watt; T10 = SMT10; A = Pinning; 5Vin; 5Vout; S = Single output; 3 = 3kVDC; U = Unregulated output

#### Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input to Output (2sec/0.5mA)	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

#### Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.
2. Max. Capacitive Load tested at input voltage range and full load.
3. All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.

Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Capacitive load [μF, Max.]	Efficiency [%, typ]
1T10A_xxyy03S3U	3.3, 5, 9	3.3	303	220	65
1T10A_xxyy05S3U	3.3, 5, 9	5	200	220	70
1T10A_xxyy09S3U	3.3, 5, 9	9	111	220	75
1T10A_xxyy03D3U	3.3, 5, 9	±3.3	±151	220	65
1T10A_xxyy05D3U	3.3, 5, 9	±5	±100	220	70
1T10A_xxyy09D3U	3.3, 5, 9	±9	±56	220	75

"xx" is Input Voltage; „yy" is Output Voltage

03 = 3.3VDC

05 = 5VDC

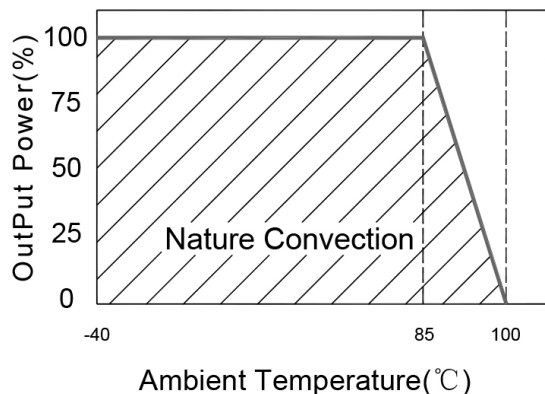
09 = 9VDC

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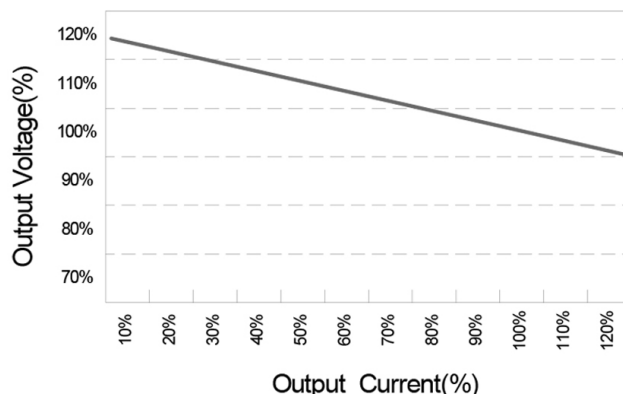
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## Typical characteristics

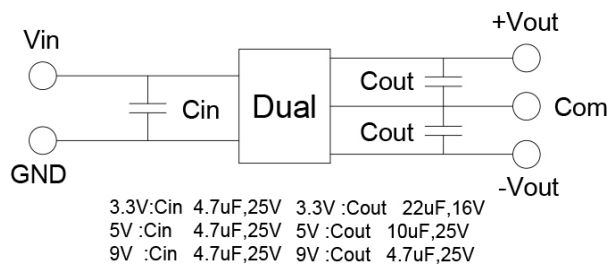
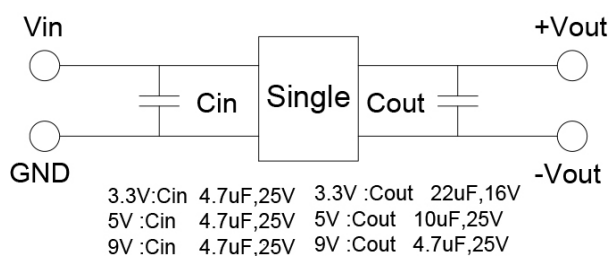
Temperature derating graph



Tolerance envelope graph

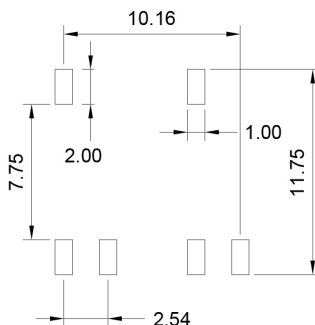
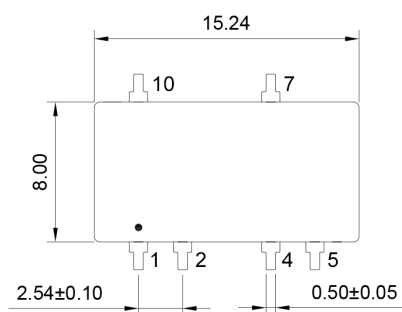


## Recommended test circuit



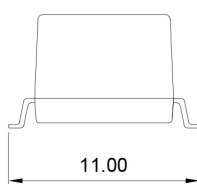
To make sure the product work at perfect operation status with full loading external capacitor is necessary and it is recommended to use high frequency low resistance electrolytic capacitor.

## Mechanical dimensions



PIN	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
4	-Vout	Com
5	-Vout	-Vout
7	+Vout	+Vout
10/11	NC	NC

SUGGESTED PAD LAYOUT



Note:  
Unit: mm[inch]  
General tolerances: ±0.25mm [ ±0.010inch]

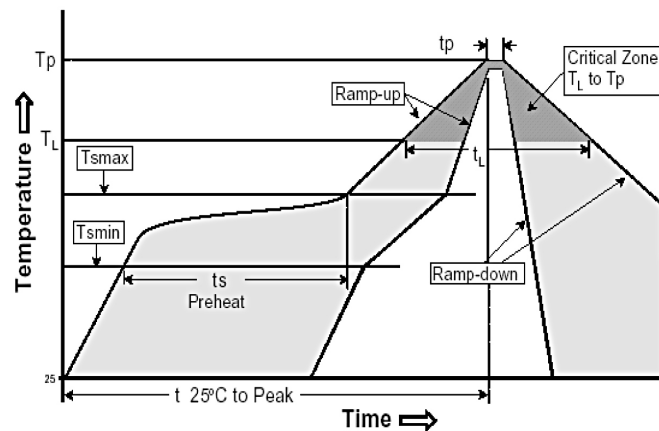
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## RoHS compliant type

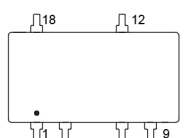
Our RoHS parts just can withstand IR Reflow peak temperature: 240°C MAX as the following profile:

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to Tp)	3°C /second max.
<u>Preheat</u> -Temperature Min (Ts min) -Temperature Max (Ts max) -Time (ts min to ts max)	150°C 200°C 60-180 seconds
<u>Time maintained above</u> -Temperature (TL) -Time (tL)	217°C 60-150 seconds
Peak/Classification Temperature (Tp)	240°C max.
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.

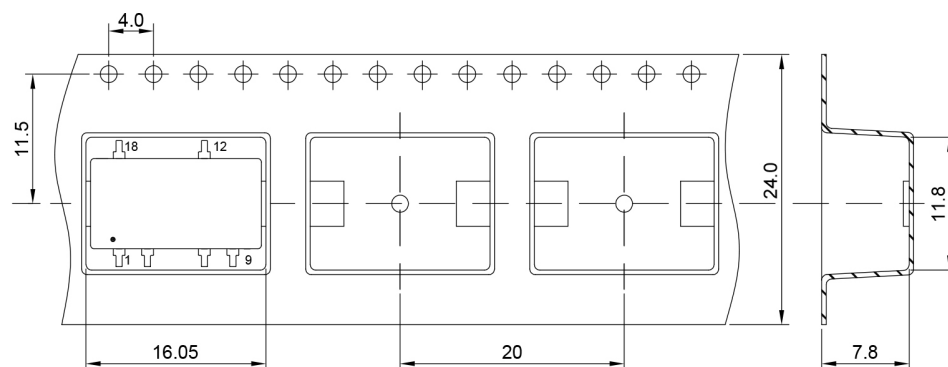


## Packing informations

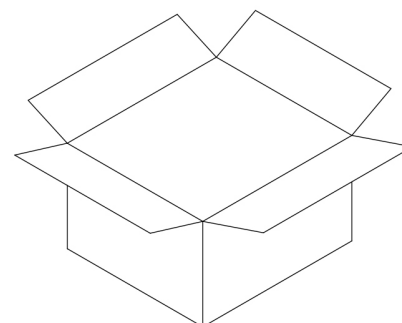
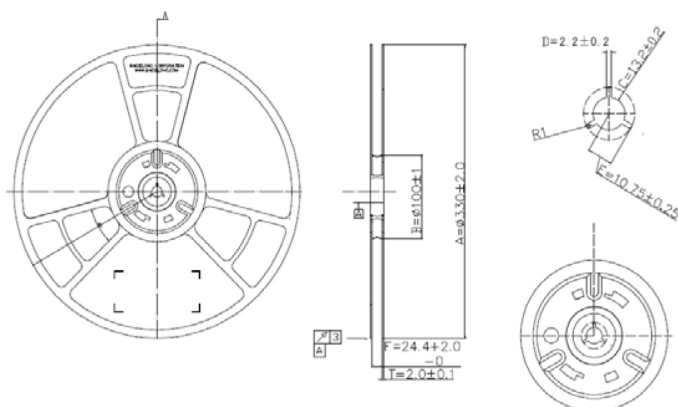
- 1.Weight: 1.36 grams/pcs
- 2.Tape & Reel: 400 pcs
3. outer carton unit 4000pcs/box
4. outer carton unit 10T&R/box
- 5.Weight: 11.4kg per carton



Mechanicals



Tape & Reel



Outer carton: 365x365x350mm