



## 0.5T8A\_3UP series

0.5W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

### DC-DC Converter

0.5 Watt

- ⊕ RoHS compliant
- ⊕ 3000VDC isolation
- ⊕ Operating temperature range: -40°C ~ +105°C
- ⊕ Efficiency up to 78%
- ⊕ Lead Frame Technology
- ⊕ Short circuit protection (SCP)
- ⊕ Internal SMD construction
- ⊕ No external component required
- ⊕ Industry standard pinout
- ⊕ CE certification
- ⊕ Power density 1.8W/cm<sup>3</sup>
- ⊕ Foot print over pins 1.37cm<sup>2</sup>

Miniature surface mounted DC/DC converters are a 0.5W low power and high efficiency DC/DC converters in SMD package, are an ideal and economical solution for many applications where noise reduction, voltage isolation, voltage conversion in distributed power systems is required.

The internal SMD construction with lead frame technology makes it possible to offer a product with high performance, these converters are qualified for the higher temperatures requested by lead-free reflow solder processes, especially for automated SMD production lines.



Common specifications	
Short circuit protection:	continuous
Temperature rise at full load:	25°C MAX (Ta = 25°C, 100% load)
Cooling:	Free air convection
Operation temperature range:	-40°C ~ +105°C
Storage temperature range:	-55°C ~ +125°C
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Internal power dissipation:	610mW
Package material:	Epoxy Resin [UL94-V0]
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Weight:	1.21g

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage range	• 3.3VDC input	2.9	3.3	3.6	V
	• 5VDC input	4.5	5.0	5.5	V
	• 12VDC input	11	12.0	13.3	V
Input voltage Vin	• 3.3VDC input			5.5	V
	• 5VDC input			7	V
	• 12VDC input			15	V
Input filter	Capacitor				

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC
Isolation resistance	Test at 100VDC	1000			MΩ

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Line regulation	High Vin to low Vin	1	1.2		%	
Load regulation	10% to 100% load					
		• 3.3V output	10	14	%	
		• 5V output	13	15	%	
		• 9V output	8	9	%	
		• 12V output	6.5	7.5	%	
• 15V output	6	7	%			
Output voltage accuracy	See tolerance envelope graph					
Temperature drift	100% full load			±0.03	%/°C	
Switching frequency	Full load, nominal input		120		KHz	

EMC specifications		
EMI	CE	CISPR22/EN55022 CLASS B (External Circuit Refer to EMC recommended circuit)
EMI	RE	CISPR22/EN55022 CLASS B (External Circuit Refer to EMC recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

#### Example:

**0.5T8A\_3UP\_0505S3UP**

**0.5 = 0.5Watt; T8 = SMT8; A = Pinning; 5Vin; 5Vout; S = Single output; 3 = 3kVDC; U = Unregulated output; P = Short circuit protection**

#### Note:

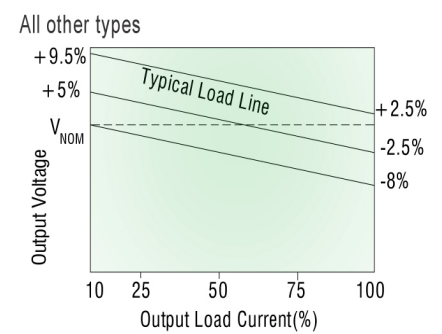
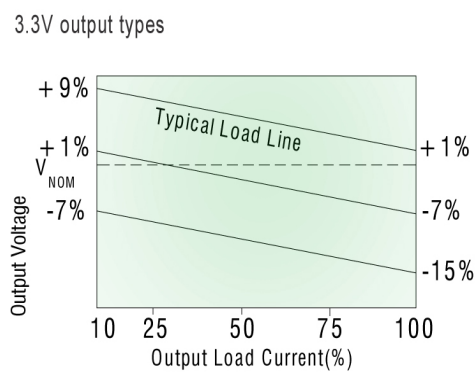
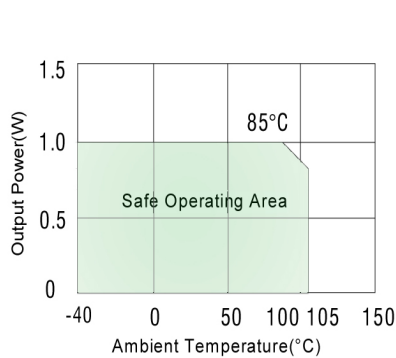
1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.
2. Max. Capacitive Load tested at input voltage range and full load.
3. All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.
5. All characteristics are for listed model only, non-standard models may perform differently, please contact our technical person for more detail.
6. Contact us for your specific requirement.

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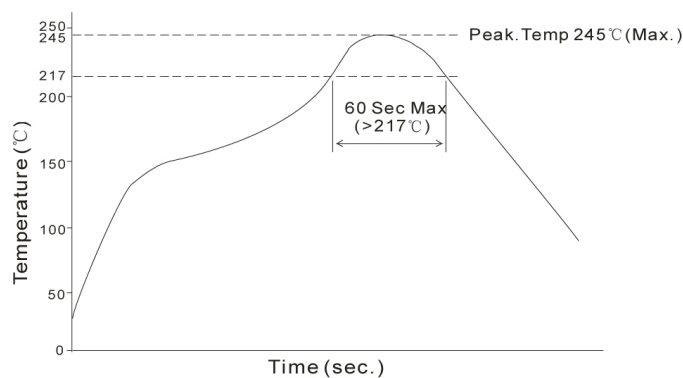
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, max]
0.5T8A_0303S3UP	3.3	3.3	152	68
0.5T8A_0305S3UP	3.3	5	100	70
0.5T8A_0309S3UP	3.3	9	55.5	70
0.5T8A_0312S3UP	3.3	12	41.7	70
0.5T8A_0315S3UP	3.3	15	33.3	72
0.5T8A_0503S3UP	5	3.3	152	68
0.5T8A_0505S3UP	5	5	100	71
0.5T8A_0509S3UP	5	9	55.5	74
0.5T8A_0512S3UP	5	12	41.7	76
0.5T8A_0515S3UP	5	15	33.3	76
0.5T8A_1205S3UP	12	5	100	71
0.5T8A_1209S3UP	12	9	55.5	74
0.5T8A_1212S3UP	12	12	41.7	76
0.5T8A_1215S3UP	12	15	33.3	76

## Typical characteristics



## Recommended reflow soldering profile

Recommended reflow soldering profile refer to IPC/JEDEC J-STD-020D1 standard, our products recommended reflow soldering profile as follows:

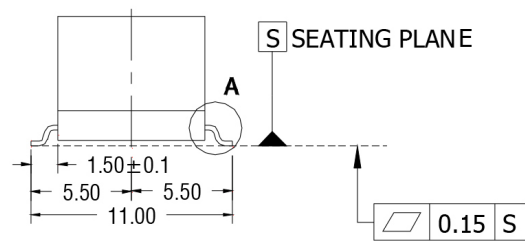
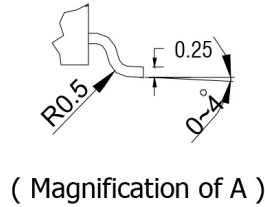
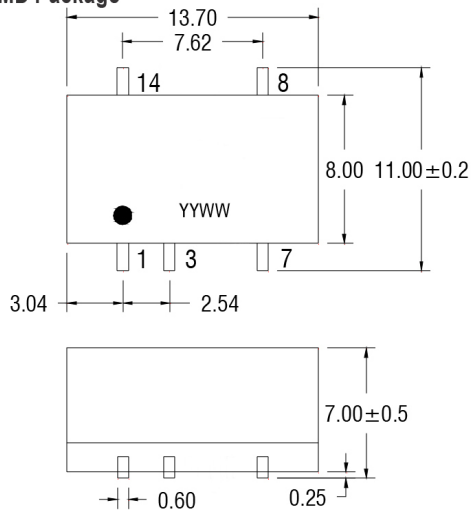


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### Mechanical dimensions

#### SMD Package

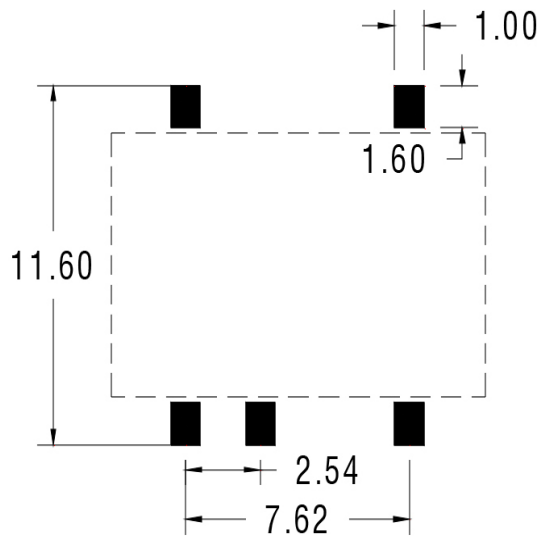


5 PIN SMD	
Pin	Function
1	-Vin
3	+Vin
5	No Pin
7	-Vout
8	+Vout
10	No Pin
12	No Pin
14	NA

NA - Not available for electrical connection.

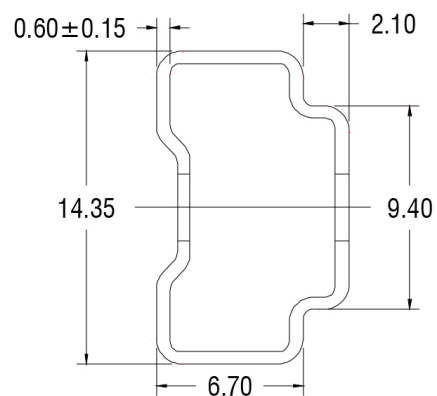
**Note:**  
Unit: mm [inch]  
General tolerances: ±0.25mm [ 0.010inch]

### Recommended footprint



**Note:**  
Unit: mm  
General tolerances: ±0.5mm

### Tube outline dimensions



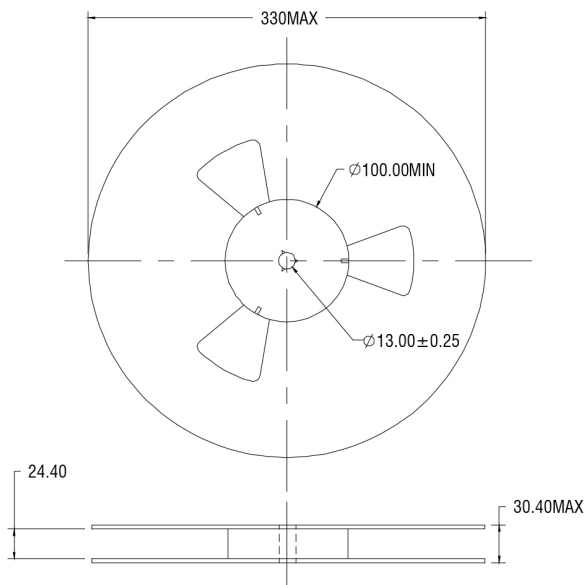
**Note:**  
Unit: mm[inch]  
General tolerances: 0.5mm

L=475mm ±2.0mm  
Devices per tube quantity: 35pcs

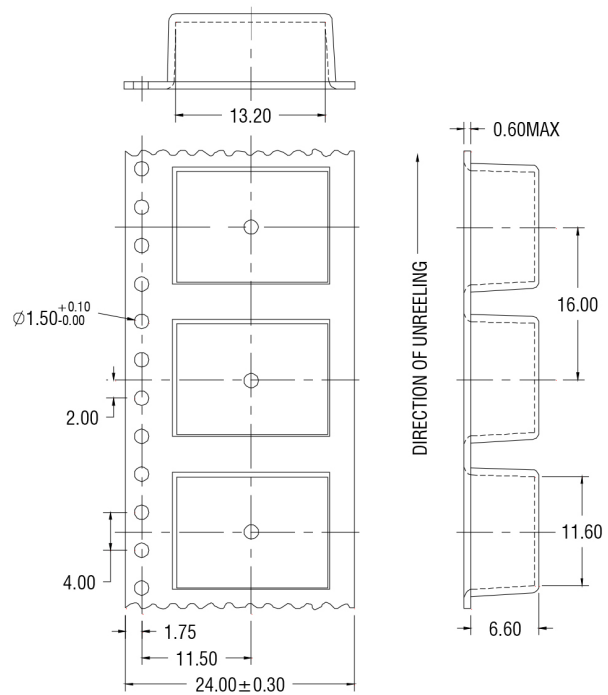
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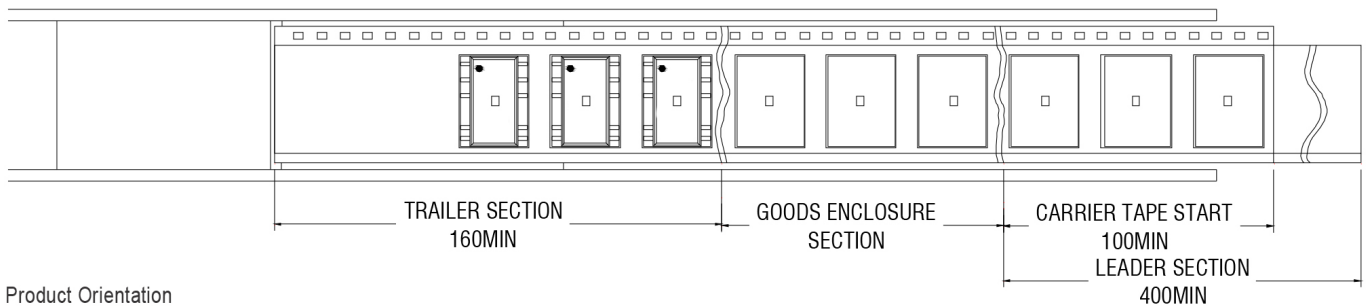
### Reel outline dimensions



### Tape outline dimensions



### Reel packaging



Product Orientation

Pin 1 located nearest to carrier drive sprocket

Reel quantity : 500PCS