



**DESCRIPTION: 0.25W 1.5KVDC Isolated Single Output SMD DC/DC Converters**

Miniature surface mounted DC/DC Converters are a 0.25W 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.

**FEATURES**

RoHS compliant, CE certification	Lead frame technology	Single isolated output
UL 94V-0 package material	Efficiency up to 76%	Power density 1.8W/cm <sup>3</sup>
1.5KVDC isolation	Custom solutions available	Footprint over pins 1.37cm <sup>2</sup>
Input voltage: 3.3V, 5V, 12V	Output voltage: 3.3V, 5V, 9V, 12V, 15V	Operating temperature: -40°C to 105°C

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency
	V	V	mA	%
TPTE0303-W2	3.3	3.3	75.7/7.57	68
TPTE0305-W2	3.3	5	50/5.0	70
TPTE0309-W2	3.3	9	28/2.8	70
TPTE0312-W2	3.3	12	21/2.1	70
TPTE0315-W2	3.3	15	17/1.7	72
TPTE0503-W2	5	3.3	75.7/7.57	68
TPTE0505-W2	5	5	51/5.1	71
TPTE0509-W2	5	9	28/2.8	74
TPTE0512-W2	5	12	21/2.1	76
TPTE0515-W2	5	15	17/1.7	76
TPTE1205-W2	12	5	51/5.1	71
TPTE1209-W2	12	9	28/2.8	74
TPTE1212-W2	12	12	21/2.1	76
TPTE1215-W2	12	15	17/1.7	76

Add suffix "P" for continuous short circuit protection, for example TPTE0505P-W2. Add suffix "X" has not 5,10,12 pin, for example TPTE0505X-W2. 3KVDC isolation with /3H at the end of the part number. for example TPTE0505-W2/3H

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input variants	2.9	3.3	3.6	V
Voltage range	5V input variants	4.5	5.0	5.5	V
Voltage range	12V input variants	11	12.0	13.3	V

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Tested for 1 second	1500, 3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	610mW
Input voltage Vin, TPTE03xx	5.5V
Input voltage Vin, TPTE05xx	7V
Input voltage Vin, TPTE12xx	15V

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated power	TA=-40°C to 85°C			0.25	W
Voltage set point accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%/%
Load regulation(10% load to rated load)	03XX, 0503		10	14	
Load regulation(10% load to rated load)	0505 & 1205		13	15	
Load regulation(10% load to rated load)	0509 & 1209		8.0	9.0	
Load regulation(10% load to rated load)	0512 & 1212		6.5	7.5	%
Load regulation(10% load to rated load)	0515 & 1215		6	7.0	%

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

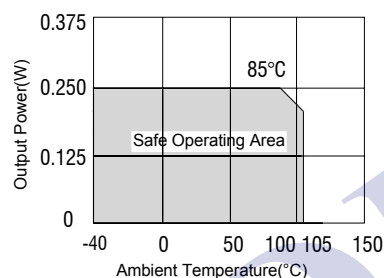
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All output types		120		kHz

**TEMPERATURE CHARACTERISTICS**

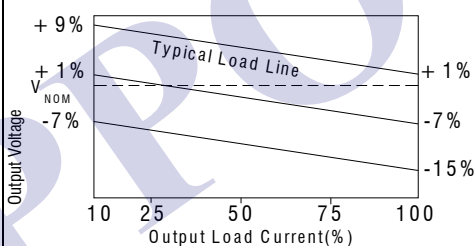
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-55		125	°C
Cooling	Free air convection				

**TEMPERATURE DERATING GRAPHS**

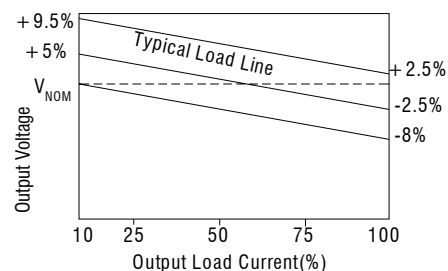


**TOLERANCE ENVELOPES**

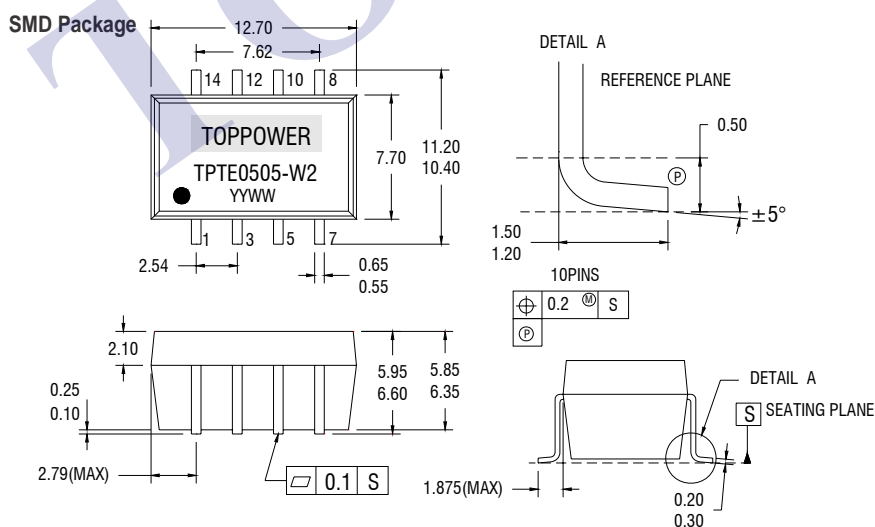
3.3V output types



All other types



**MECHANICAL DIMENSIONS**



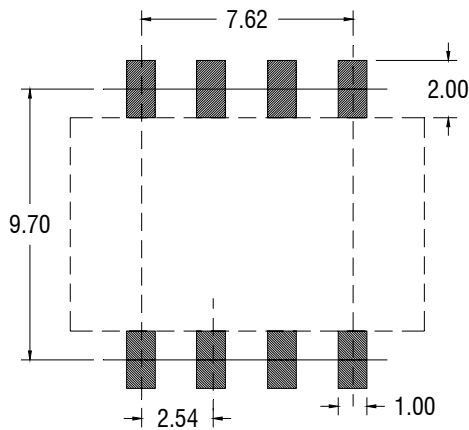
**PIN CONNECTIONS**

8 PIN SMD		
Pin	Function	Add suffix "X" function
1	-Vin	-Vin
3	+Vin	+Vin
5	NA	No Pin
7	-Vout	-Vout
8	+Vout	+Vout
10	NA	No Pin
12	NA	No Pin
14	NA	NA

NA - Not available or electrical connection.

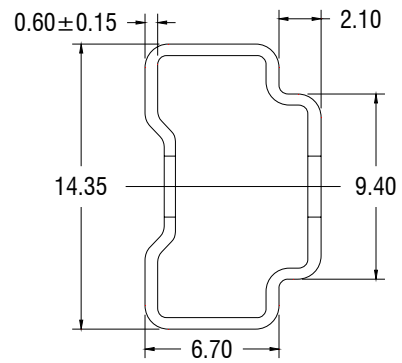
All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position. Weight: 1.21g

**RECOMMENDED FOOTPRINT DETAILS**



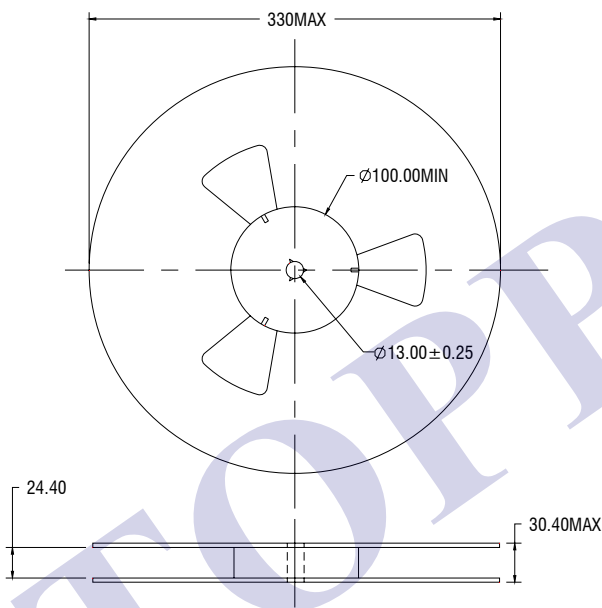
All pins on a 2.54mm pitch.  
Unless otherwise stated all dimensions in mm ±0.5mm.

**TUBE OUTLINE DIMENSIONS**

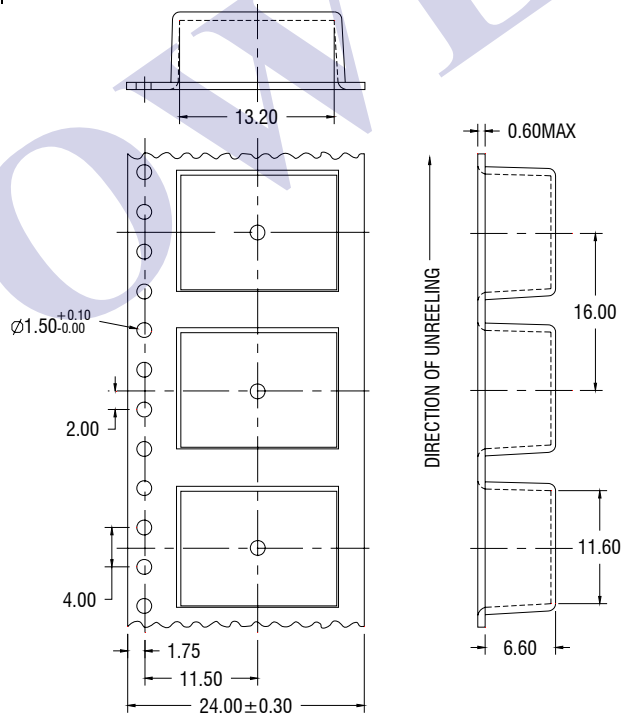


Unless otherwise stated all dimensions in mm±0.5mm.  
Tube length:475mm±2.0mm Tube Quantity:35PCS

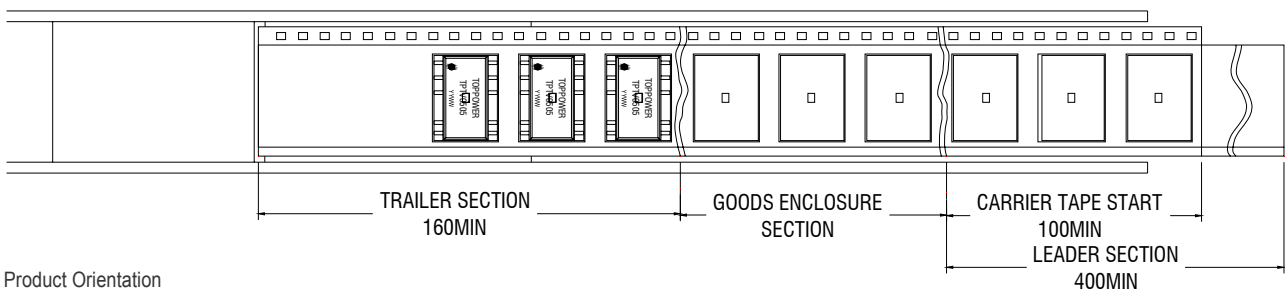
**REEL OUTLINE DIMENSIONS**



**TAPE OUTLINE DIMENSIONS**



**REEL PACKAGING DETAILS**



Product Orientation  
Pin 1 located nearest to carrier drive sprocket  
Reel quantity : 500PCS