



**DESCRIPTION: 2W 3KVDC Isolated Single And Dual Output SMD DC/DC Converters**

Miniature surface mounted DC/DC Converters are an ideal and economical solution for many applications where noise reduction, voltage isolation, voltage conversion in distributed power systems is required. 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	Efficiency up to 80%	Operating temperature: -40°C to 105°C
UL 94V-0 package material	Input voltage: 3.3V,5V,12V	Plastic encapsulated
Dual isolated output	Output voltage: ±5V,±9V,±12V,±15V / 3.3V,5V,9V,12V,15V	Power density 1.37W/cm <sup>3</sup>
3KVDC isolation (1 minute)	Custom solutions available	/

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency
	V	V	m A	%
TPVT0503-2W	5	±3.3	±303/±30.3	70
TPVT0505-2W	5	±5	±200/±20	70
TPVT0509-2W	5	±9	±111/±11.1	72
TPVT0512-2W	5	±12	±83/±8.3	75
TPVT0515-2W	5	±15	±67/±6.7	80
TPVT1205-2W	12	±5	±200/±20	70
TPVT1209-2W	12	±9	±111/±11.1	72
TPVT1212-2W	12	±12	±83/±8.3	75
TPVT1215-2W	12	±15	±67/±6.7	80
TPVT0303A-2W	3.3	3.3	606/60.6	70
TPVT0305A-2W	3.3	5	400/40	70
TPVT0505A-2W	5	5	400/40	70
TPVT0509A-2W	5	9	222/22.2	72
TPVT0512A-2W	5	12	167/16.7	75
TPVT0515A-2W	5	15	133/13.3	80
TPVT1203A-2W	12	3.3	606/60.6	70
TPVT1205A-2W	12	5	400/40	70
TPVT1209A-2W	12	9	222/22.2	72
TPVT1212A-2W	12	12	167/16.7	75
TPVT1215A-2W	12	15	133/13.3	80

Add suffix "P" for continuous short circuit protection, for example TPVT0505P-2W.

**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	5.5	V
Voltage range	12V input variants	11	12	13.3	V

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40°C to 85°C			2.0	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)	3.3V & 5V output variants		10	12	%
Load Regulation(10% load to rated load)	9V output variants		6.5	8.0	%
Load Regulation(10% load to rated load)	12V output variants		7	9	%
Load Regulation(10% load to rated load)	15V output variants		6.5	7.5	%

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	560mW
Input voltage $V_{in}$ , TPVT03	5.5V
Input voltage $V_{in}$ , TPVT05	7V
Input voltage $V_{in}$ , TPVT12	15V

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

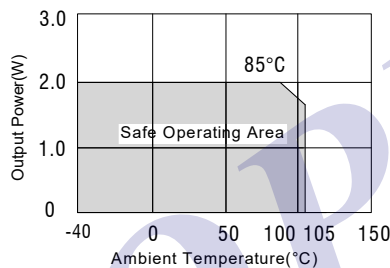
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V, 5V input variants		120		kHz
Switching frequency	12V input variants		130		kHz

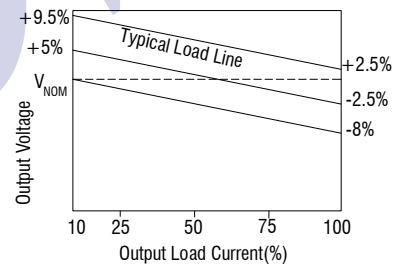
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^\circ\text{C}$	-40		105	°C
Storage		-55		125	°C
Reflow Soldering Temperature		Peak temp. $\leq 245^\circ\text{C}$ , maximum duration time $\leq 60\text{s}$ at $217^\circ\text{C}$ . For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
Cooling	Free air convection				

**TEMPERATURE DERATING GRAPHS**



**TOLERANCE ENVELOPES**

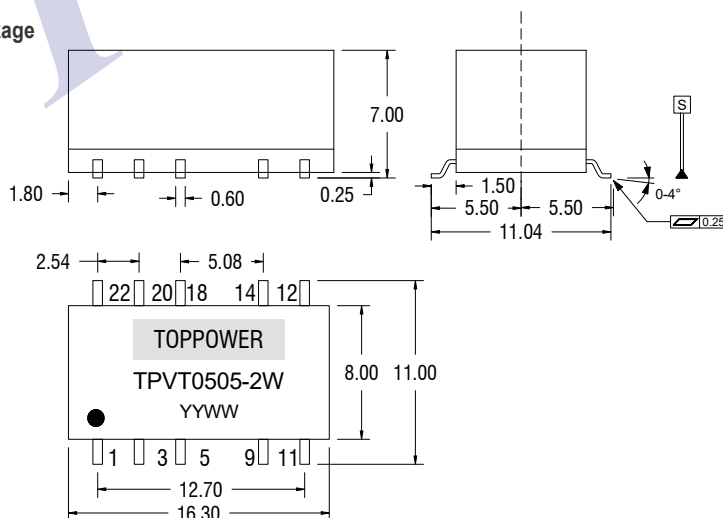


**RoHS COMPLIANCE INFORMATION**

This series is compatible with RoHS soldering systems with a peak reflow solder temperature of  $245^\circ\text{C}$  and time above liquids of  $217^\circ\text{C}$  for 80 seconds. The series is backward compatible with Sn/Pb soldering systems.

**MECHANICAL DIMENSIONS**

**SMD Package**



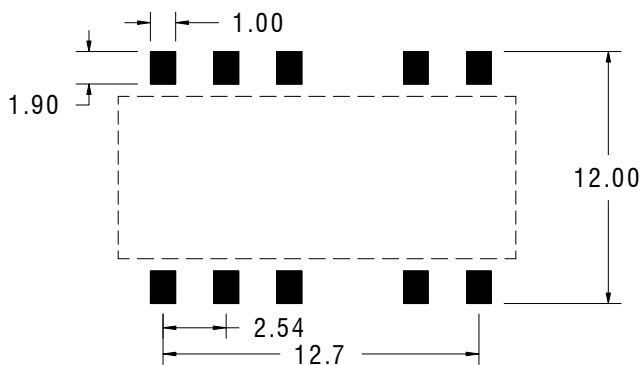
All dimensions in mm  $\pm 0.25\text{mm}$ . All pins on a 2.54mm pitch. Weight: 1.53g

**PIN CONNECTIONS**

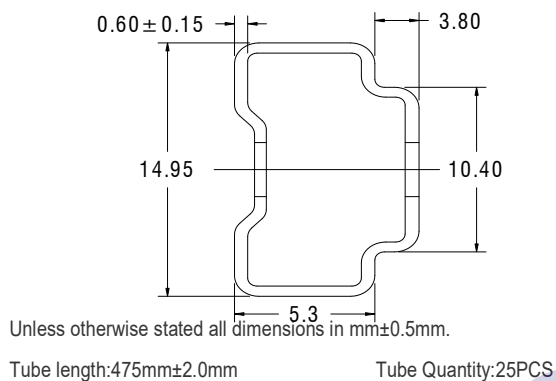
10 PIN SMD		
Pin	Dual Output	Single Output
1	-Vin	-Vin
3	+Vin	+Vin
5	NA	NA
9	OV	OV
11	-Vout	NA
12	NA	NA
14	+Vout	+Vout
18	NA	NA
20	NA	NA
22	NA	NA

NA - Not available for electrical connection.

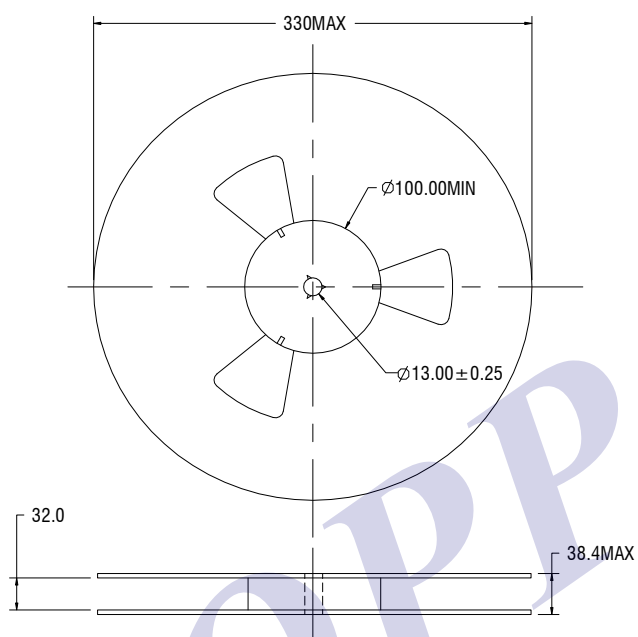
**RECOMMENDED FOOTPRINT DETAILS**



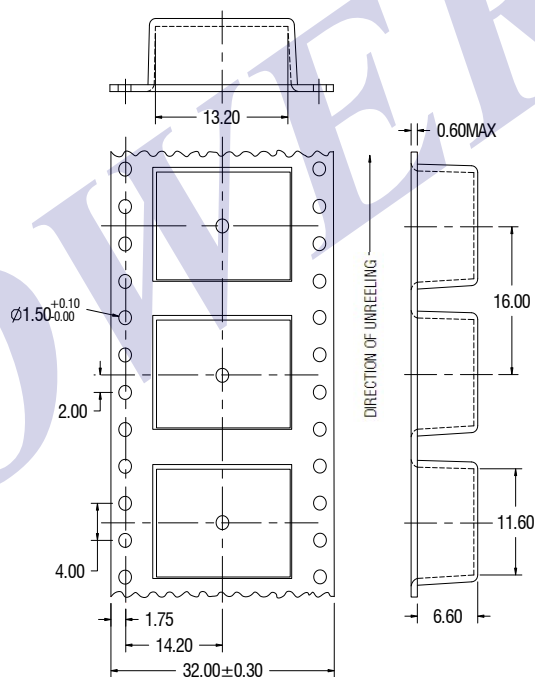
**TUBE OUTLINE DIMENSIONS**



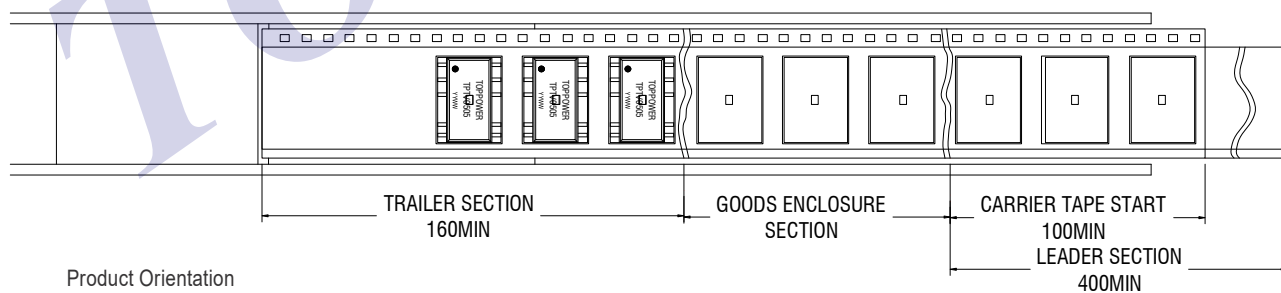
**REEL OUTLINE DIMENSIONS**



**TAPE OUTLINE DIMENSIONS**



**REEL PACKAGING DETAILS**



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Reel Quantity : 500PCS