

DESCRIPTION :

1W 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℃to 105℃
UL 94V-0 package material	Input voltage：3.3V,5V,12V,24V	Plastic encapsulated
Dual isolated output	Output voltage：±5V,±9V,±12V,±15V / 3.3V,5V,9V,12V,15V	Power density 1.37W/cm^3
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	5	±3.3	±152/±15.2	70
TPVT0505	5	±5	±100/±10	70
TPVT0509	5	±9	±55/±5.5	72
TPVT0512	5	±12	±42/±4.2	75
TPVT0515	5	±15	±33/±3.3	80
TPVT1205	12	±5	±100/±10	70
TPVT1209	12	±9	±55/±5.5	72
TPVT1212	12	±12	±42/±4.2	75
TPVT1215	12	±15	±33/±3.3	80
TPVT0303A	3.3	3.3	304/30.4	70
TPVT0305A	3.3	5	200/20	70
TPVT0505A	5	5	200/20	70
TPVT0509A	5	9	111/11.1	72
TPVT0512A	5	12	84/8.4	75
TPVT0515A	5	15	66/6.6	80
TPVT1203A	12	3.3	303/30.3	70
TPVT1205A	12	5	200/20	70
TPVT1209A	12	9	111/11.1	72
TPVT1212A	12	12	84/8.4	75
TPVT1215A	12	15	66/6.6	80
TPVT2405A	24	5	200/20	70
TPVT2409A	24	9	111/11.1	72

Add suffix “P” for continuous short circuit protection, for example TPVT0505P.

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
Voltage range	24V input variants	21.6	24	26.4	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40℃ to 85℃			1.0	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN (voltage variation +/-5%)		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	%

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OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
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℃
Internal power dissipation	560mW
Input voltage Vin, TPVT03	5.5V
Input voltage Vin, TPVT05	7V
Input voltage Vin, TPVT12	15V
Input voltage Vin, TPVT24	28V

ISOLATION CHARACTERISTICS

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

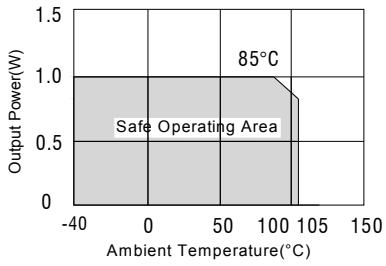
GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V, 5V input variants		120		kHz
Switching frequency	12V 24V input variants		130		kHz

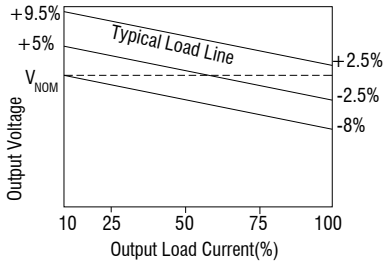
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	℃
Storage		-55		125	℃
Reflow Soldering Temperature		Peak temp.≤260℃, maximum duration time≤90s at 220℃. For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES



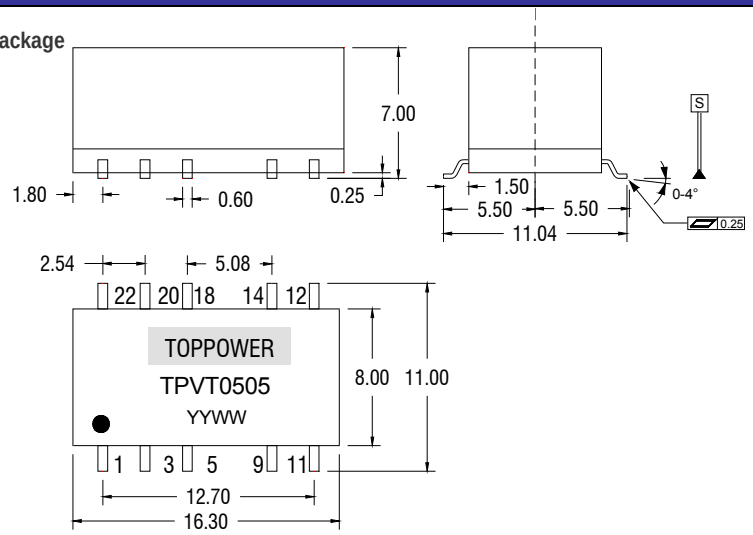
RoHS COMPLIANCE INFORMATION

This series is compatible with RoHS soldering systems with a peak reflow solder temperature of 245ºC and time above liquids of 217ºC for 80 seconds. The series is backward compatible with Sn/Pb soldering systems.

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MECHANICAL DIMENSIONS

SMD Package



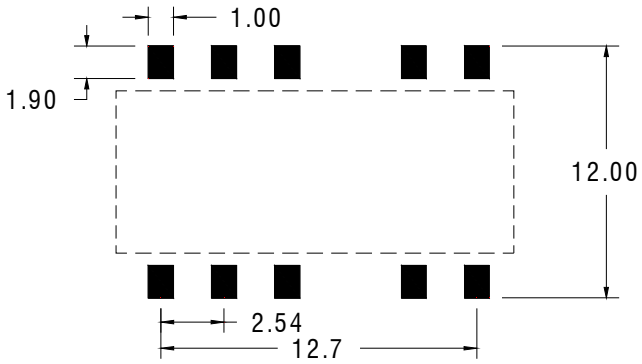
All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch. Weight: 1.53g

PIN CONNECTIONS

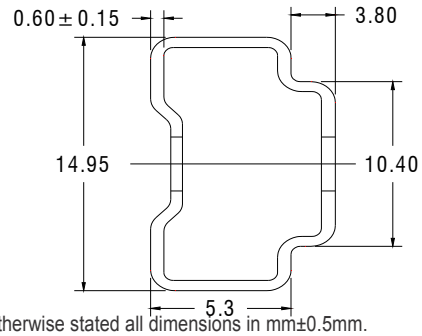
10 PIN SMD		
Pin	Dual Output	Single Output
1	-Vin	-Vin
3	+Vin	+Vin
5	NA	NA
9	OV	OV
11	-Vout	NA
12	NA	NA
14	+Vout	+Vout
18	NA	NA
20	NA	NA
22	NA	NA

NA - Not available for electrical connection.

RECOMMENDED FOOTPRINT DETAILS



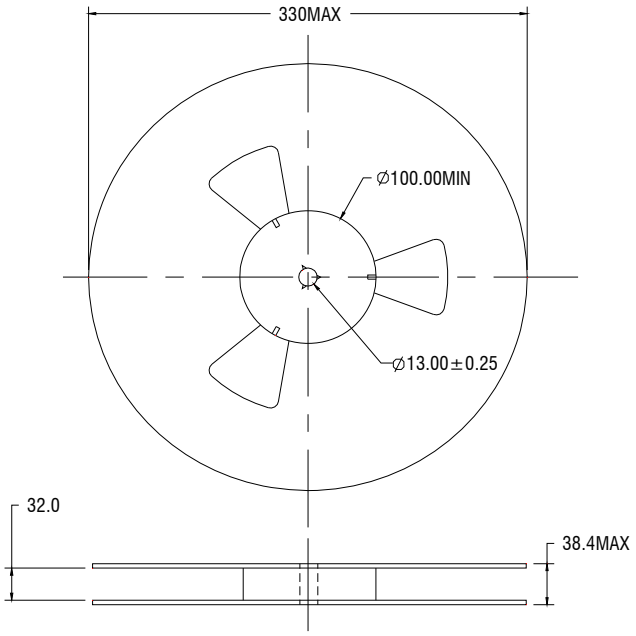
TUBE OUTLINE DIMENSIONS



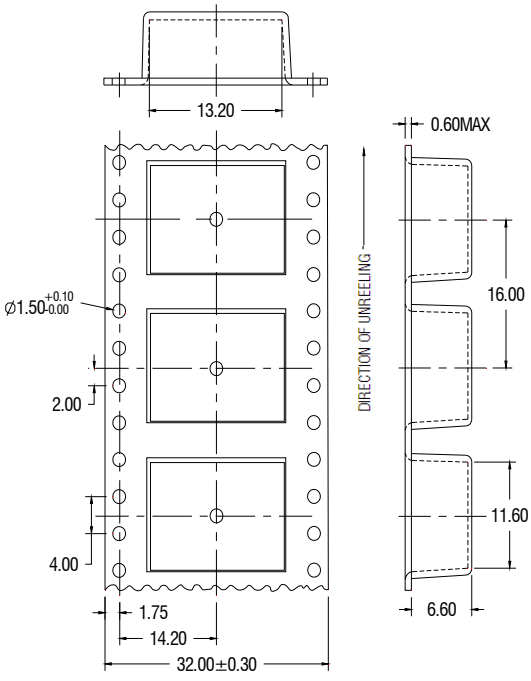
Unless otherwise stated all dimensions in mm±0.5mm.

Tube length:475mm±2.0mm Tube Quantity:25PCS

REEL OUTLINE DIMENSIONS

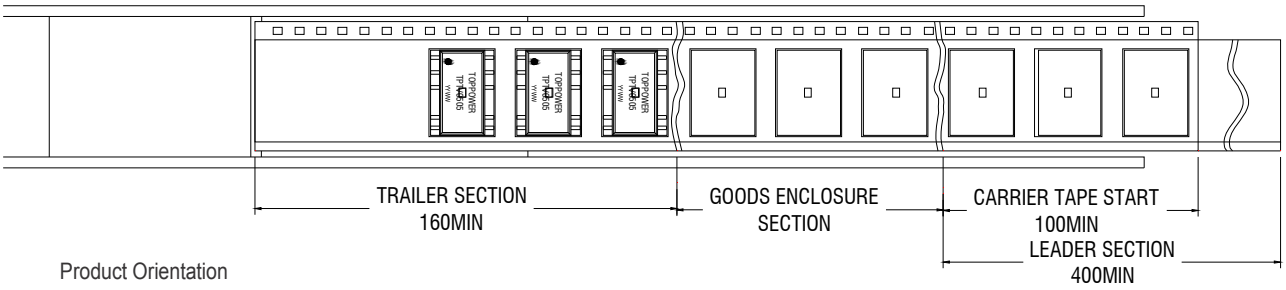


TAPE OUTLINE DIMENSIONS



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REEL PACKAGING DETAILS



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Less than 500pcs will be tube packaging.

Reel Quantity : 500PCS

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