



DESCRIPTION: 1W 1.5KVDC Isolated Single 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. 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
1.5KVDC isolation	Efficiency up to 78%	Power density 1.8W/cm ³
UL 94V-0 package material	Custom solutions available	Footprint over pins 1.37cm ²
Input voltage: 3.3V, 5V, 12V, 15V, 24V	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	3.3	3.3	303/30.3	72
TPTE0305	3.3	5	201/20.1	77
TPTE0309	3.3	9	111/11.1	77
TPTE0312	3.3	12	83/8.3	77
TPTE0315	3.3	15	67/6.7	77
TPTE0503	5	3.3	303/30.3	74
TPTE0505	5	5	200/20	69
TPTE0509	5	9	111/11.1	75
TPTE0512	5	12	84/8.4	78
TPTE0515	5	15	66/6.6	78
TPTE1203	12	3.3	303/30.3	74
TPTE1205	12	5	200/20	67
TPTE1209	12	9	111/11.1	73
TPTE1212	12	12	83/8.3	74
TPTE1215	12	15	66/6.6	75
TPTE1505	15	5	201/20.1	77
TPTE1515	15	15	66/6.6	75
TPTE2403	24	3.3	303/30.3	74
TPTE2405	24	5	200/20	67
TPTE2409	24	9	111/11.1	73
TPTE2412	24	12	83/8.3	74
TPTE2415	24	15	66/6.6	75

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

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
Voltage range	15V input variants	13.4	15	16.4	V
Voltage range	24V input variants	22	24	26.5	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
Input voltage Vin, TPTE15xx	18V
Input voltage Vin, TPTE24xx	28V

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

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		1.0	1.2	%/%
Load regulation(10% load to rated load)	03XX,0503,1203 & 2403		10	14	%
Load regulation(10% load to rated load)	0505,1205 & 2405		13	15	%
Load regulation(10% load to rated load)	0509,1209 & 2409		8.0	9.0	%
Load regulation(10% load to rated load)	0512,1212 & 2412		6.5	7.5	%
Load regulation(10% load to rated load)	0515,1215, 1515 & 2415		6	7.0	%

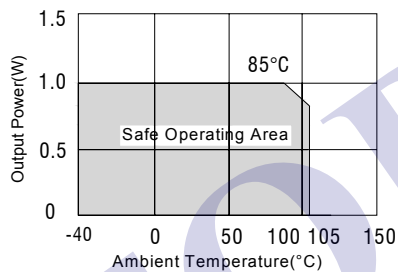
GENERAL CHARACTERISTICS

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

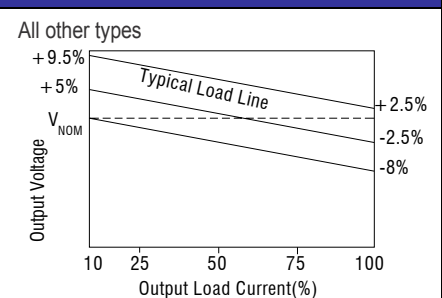
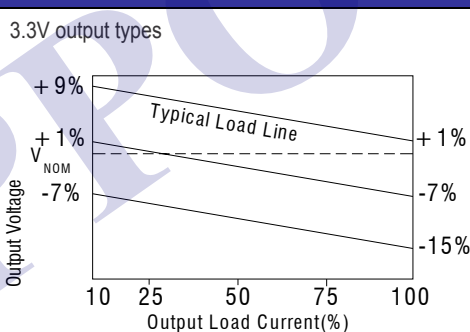
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85℃	-40		105	℃
Storage		-55		125	℃
Reflow Soldering Temperature		Peak temp. ≤245℃, maximum duration times ≤60s at 217℃. For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
Cooling	Free air convection				

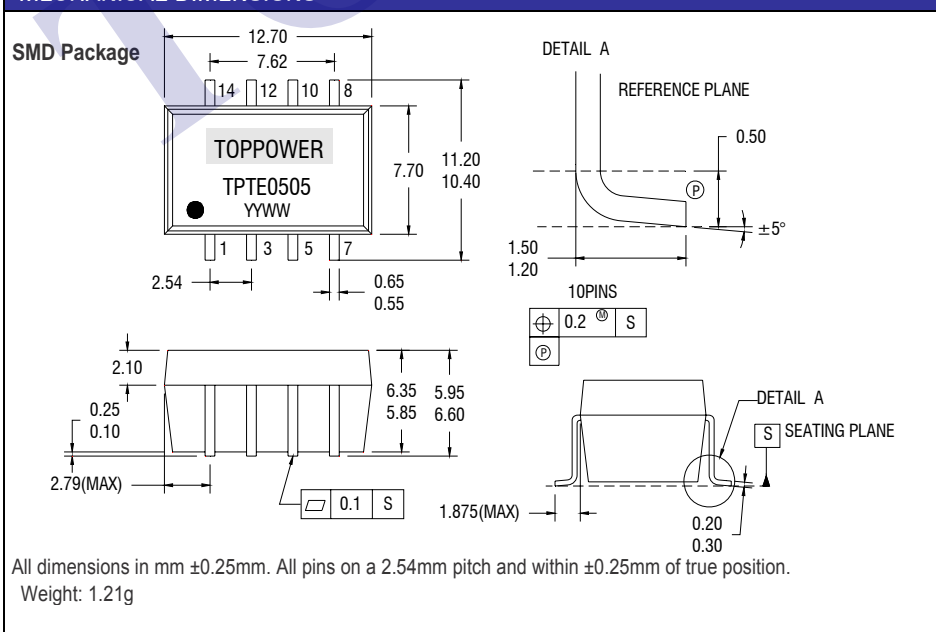
TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES



MECHANICAL DIMENSIONS

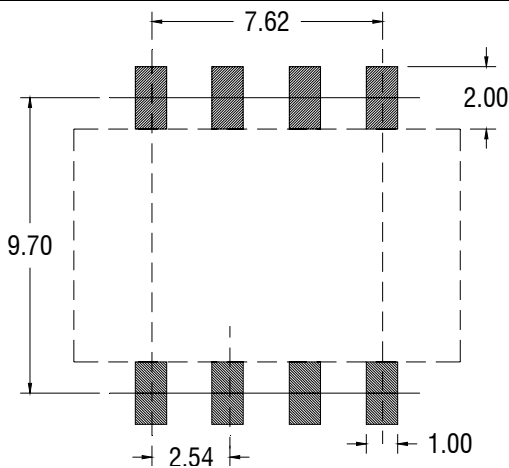


PIN CONNECTIONS

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 for electrical connection.

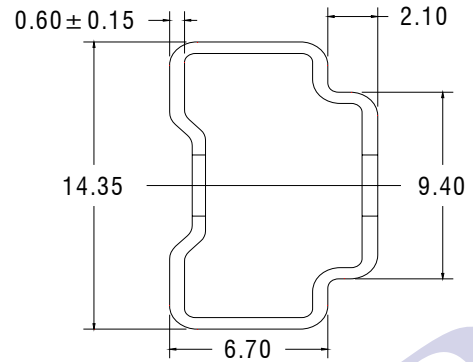
RECOMMENDED FOOTPRINT DETAILS



All pins on a 2.54mm pitch.

Unless otherwise stated all dimensions in mm ± 0.5mm.

TUBE OUTLINE DIMENSIONS

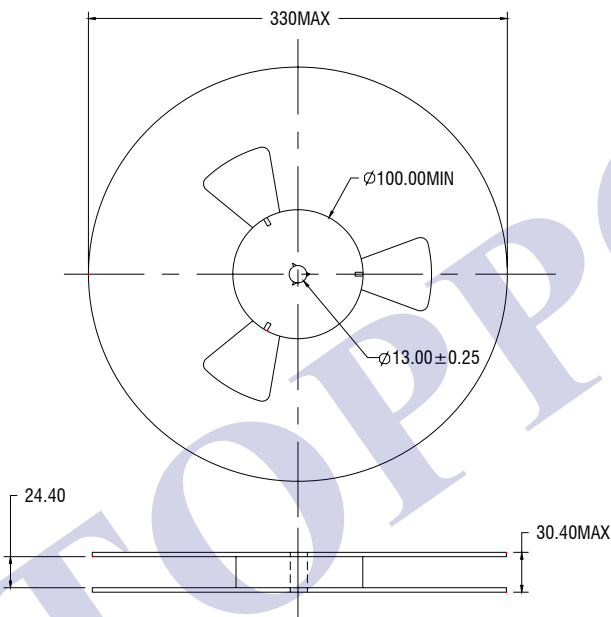


Unless otherwise stated all dimensions in mm ± 0.5mm.

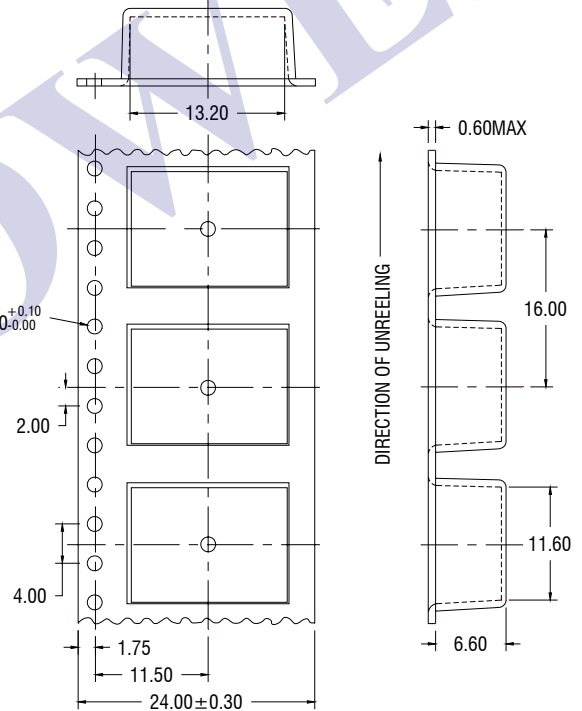
Tube length: 475mm ± 2.0mm

Tube Quantity: 35PCS

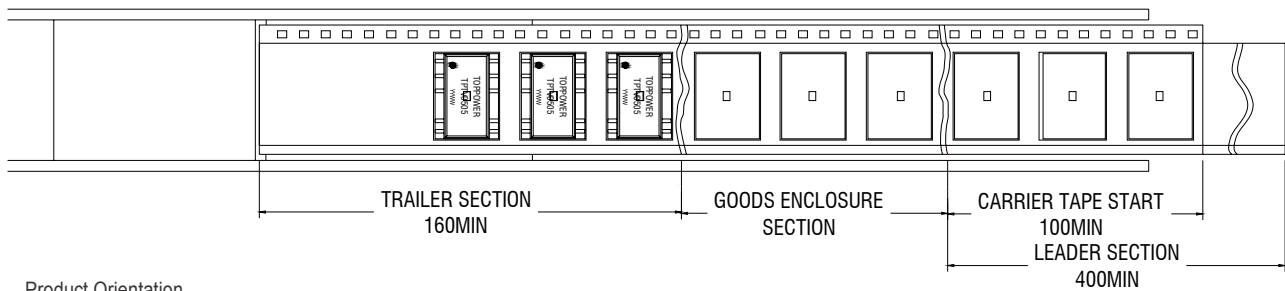
REEL OUTLINE DIMENSIONS



TAPE OUTLINE DIMENSIONS



REEL PACKAGING DETAILS



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Reel Quantity : 500PCS