

**DESCRIPTION: 1W 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 leadframe 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	Lead frame technology	Single isolated output
1KVDC isolation	Efficiency up to 78%	Power density 1.8W/cm <sup>3</sup>
Operating temperature: -40°C to 85°C	UL 94V-0 Package material	Footprint over pins 1.37cm <sup>2</sup>
Input voltage: 3.3V, 5V, 12V, 24V	Output voltage: 3.3V, 5V, 9V, 12V, 15V	Custom solutions available

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current	Efficiency
	V	V	mA	%
TPTE0303	3.3	3.3	303	72
TPTE0305	3.3	5	201	77
TPTE0309	3.3	9	111	77
TPTE0312	3.3	12	83	77
TPTE0315	3.3	15	67	77
TPTE0503	5	3.3	303	74
TPTE0505	5	5	200	69
TPTE0509	5	9	111	75
TPTE0512	5	12	84	78
TPTE0515	5	15	66	78
TPTE1203	12	3.3	303	74
TPTE1205	12	5	200	67
TPTE1209	12	9	111	73
TPTE1212	12	12	83	74
TPTE1215	12	15	66	75
TPTE2403	24	3.3	303	74
TPTE2405	24	5	200	67
TPTE2409	24	9	111	73
TPTE2412	24	12	83	74
TPTE2415	24	15	66	75

**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	24V input variants	22	24	26.5	V

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Tested for 1 second	1000			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, 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°C to 85°C			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 & 2415		6	7.0	%

**GENERAL CHARACTERISTICS**

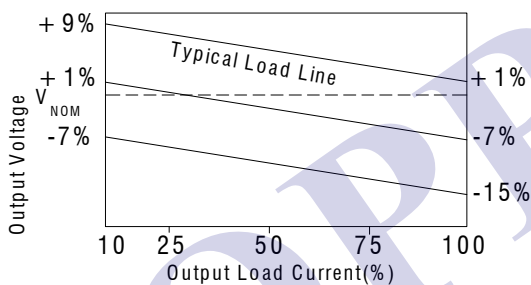
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All output types		120		kHz

**TEMPERATURE CHARACTERISTICS**

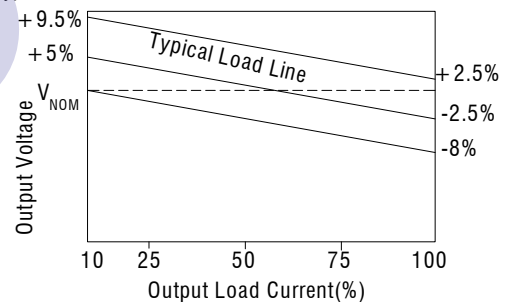
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output types	-40		85	°C
Storage		-55		125	°C
Cooling	Free air convection				

**TOLERANCE ENVELOPES**

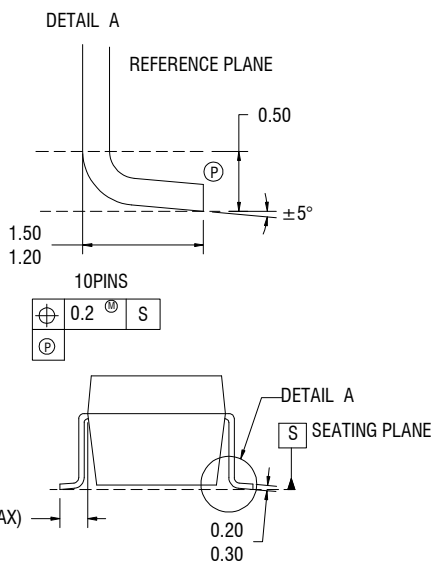
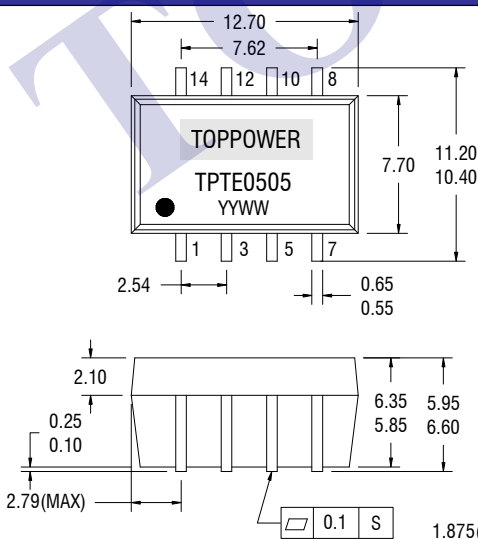
3.3V output types



All other types



**MECHANICAL DIMENSIONS**

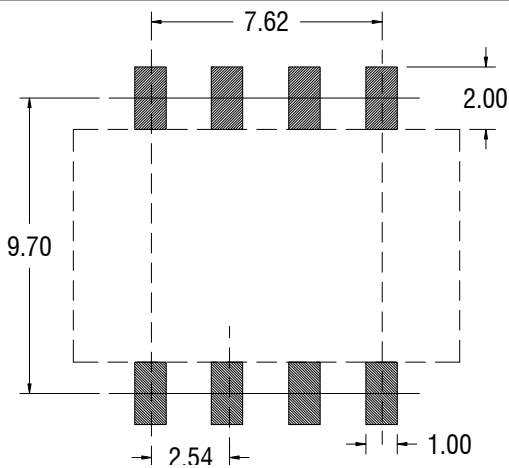


PIN CONNECTIONS	
Pin	Function
1	-Vin
3	+Vin
5	NA
7	-Vout
8	+Vout
10	NA
12	NA
14	NA

NA - Not available for 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

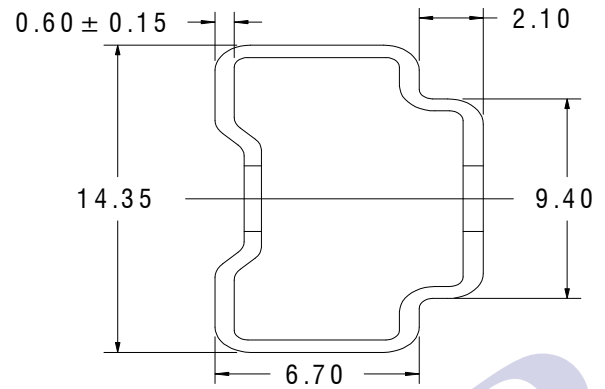
**RECOMMENDED FOOTPRINT DETAILS**



All pins on a 2.54mm pitch.

Unless otherwise stated all dimensions in mm ± 0.5mm.

**TUBE OUTLINE DIMENSIONS**

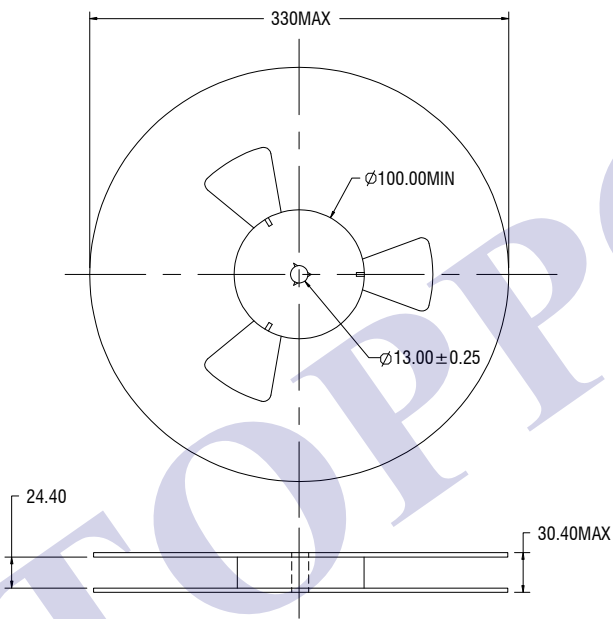


Unless otherwise stated all dimensions in mm ± 0.5mm.

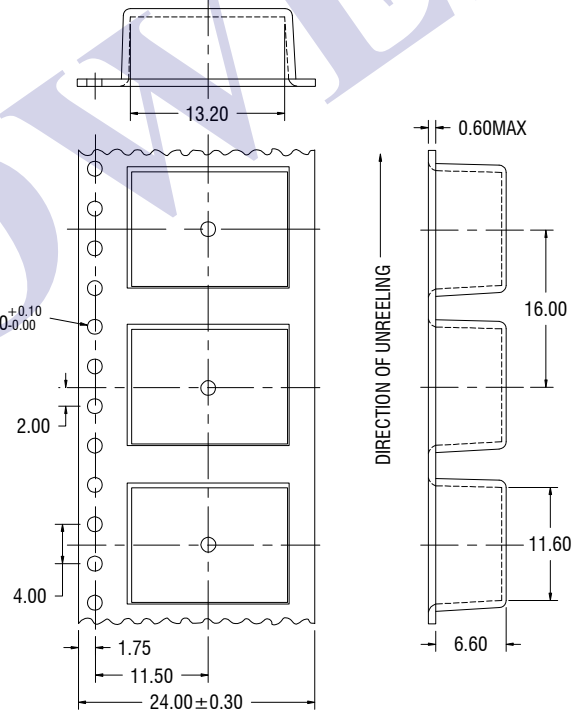
Tube length: 475mm ± 2.0mm

Tube Quantity: 35

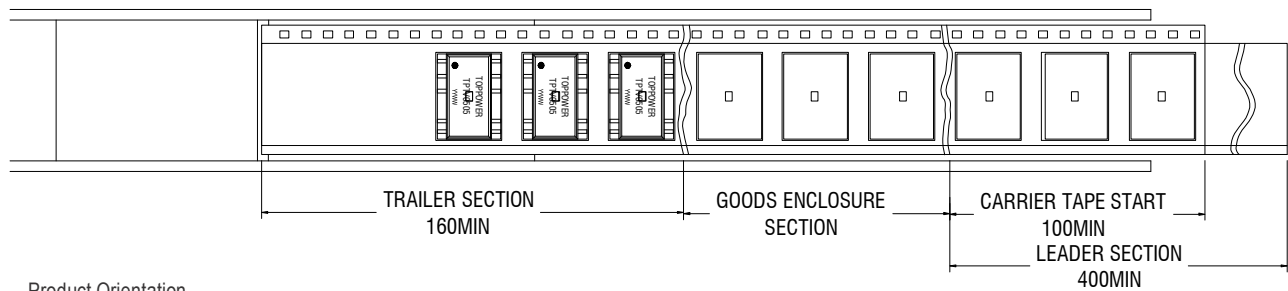
**REEL OUTLINE DIMENSIONS**



**TAPE OUTLINE DIMENSIONS**



**REEL PACKAGING DETAILS**



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Reel Quantity : 500