

## 1W Isolated Single Output SMD DC/DC Converters



### DESCRIPTION

The TPTE series of miniature surface mounted DC/DC Converters employ leadframe technology and transfer moulding techniques to bring all of the benefits of IC style package to hybrid circuitry. The devices are suitable for all applications where need high volume production.

### FEATURES

RoHS compliant	Lead frame technology	Single isolated output
1kVDC Isolation	Efficiency up to 78%	Power density 1.8W/cm <sup>3</sup>
Wide temperature performance at full 1 Watt load, -40°C to 85°C	UL 94V-0 Package material	Footprint over pins 1.37cm <sup>2</sup>
3.3V, 5V & 12V Input	3.3V, 5V, 9V, 12V & 15V output	Custom solutions available

### SELECTION GUIDE

Order Code	Nominal Input Voltage	Output Voltage	Output Current	Input Current at Rated Load	Efficiency	Isolation Capacitance
	V	V	mA	mA	%	pF
TPTE0303	3.3	3.3	303	409	72	32
TPTE0305	3.3	5	201	392	77	37
TPTE0309	3.3	9	111	402	77	32
TPTE0312	3.3	12	83	402	77	29
TPTE0315	3.3	15	67	402	77	30
TPTE0503	5	3.3	303	268	74	42
TPTE0505	5	5	200	295	69	35
TPTE0509	5	9	111	269	75	44
TPTE0512	5	12	84	261	78	42
TPTE0515	5	15	66	257	78	45
TPTE1205	12	5	200	125	67	48
TPTE1209	12	9	111	115	73	77
TPTE1212	12	12	83	113	74	88
TPTE1215	12	15	66	111	75	94

### INPUT CHARACTERISTICS

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

### ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso= 1000VDC	10			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 $V_{IN}$ , TPTE03xx	5.5V
Input voltage $V_{IN}$ , TPTE05xx	7V
Input voltage $V_{IN}$ , TPTE12xx	15V

All specifications typical at  $T_A=25^\circ\text{C}$ , nominal input voltage and rated output current unless otherwise specified.

### OUTPUT CHARACTERISTICS

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

### GENERAL CHARACTERISTICS

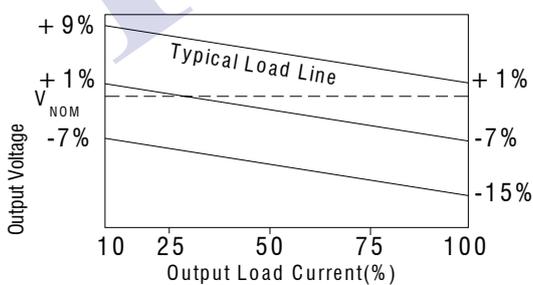
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All output types		120		kHz

### TEMPERATURE CHARACTERISTICS

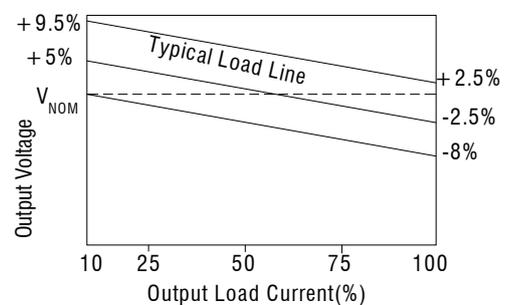
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output types	-40		85	°C
Storage		-55		125	
Cooling	Free air convection				

### TOLERANCE ENVELOPES

#### 3.3V output types

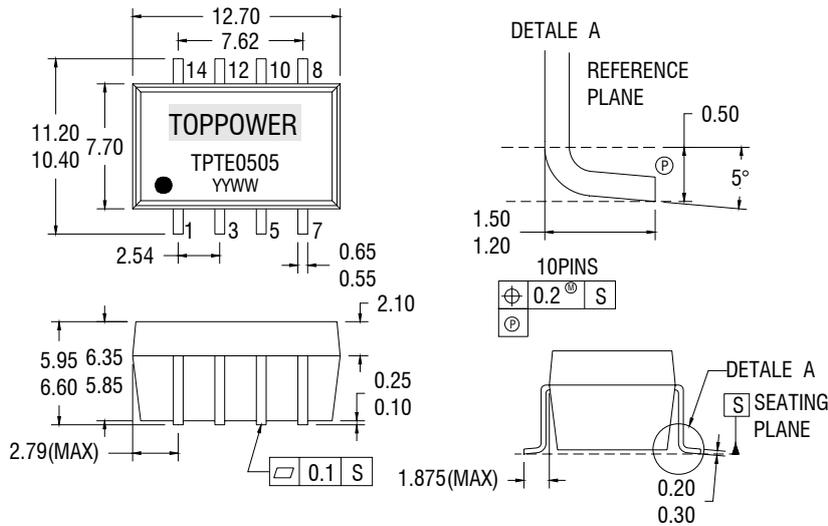


#### All other types



### PACKAGE SPECIFICATIONS

#### MECHANICAL DIMENSIONS



#### PIN CONNECTIONS

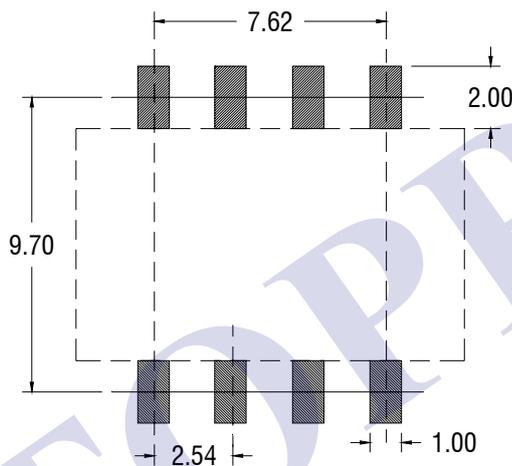
PIN	Function
1	-VIN
3	+VIN
5	NA
7	-VOUT
8	+VOUT
10	NA
12	NA
14	NA

All dimensions in mm  $\pm 0.25$ mm. All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position.

NA - Not available for electrical connection.

Weight: 1.21g

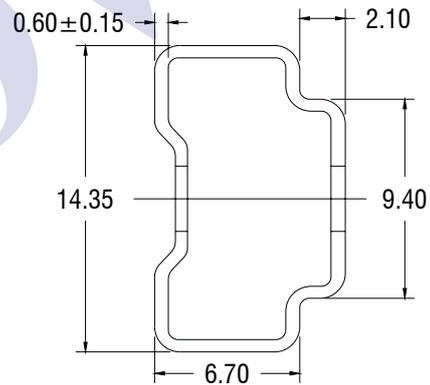
#### RECOMMENDED FOOTPRINT DETAILS



All pins on a 2.54mm pitch.

Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

#### TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

Tube length: 475mm  $\pm 2.0$ mm

Tube Quantity: 35

