

**DESCRIPTION: 0.25W 1.5KVDC Isolated Single Output DC/DC Converters**



The TPLE series are miniature, isolated low power and high efficiency DC/DC converters in a SIP and DIP package. They offer the ideal solution in many space critical applications for board level power distribution. The Internal SMD construction makes it possible to offer a product with high performance at low cost, The series offers smaller size, improved efficiency, lower output ripple noise and 1.5KVDC isolation. Operating temperature range from -40 °C to 105 °C.

**FEATURES**

RoHS compliant, CE certification	Single output rail	1.5KVDC isolation
High efficiency for low power applications	SIP & DIP package styles	Power density 0.36W/cm <sup>3</sup>
UL 94V-0 package material	Footprint from 0.69cm <sup>2</sup>	Input voltage: 3.3V, 5V, 12V, 24V
Output voltage: 3.3V, 5V, 9V, 12V, 15V	Custom solutions available	Operating temperature: -40°C to 105°C

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPLE0303D	3.3	3.3	75.8/7.58	70	DIP
TPLE0305D	3.3	5	51/5.1	70	DIP
TPLE0503D	5	3.3	75.8/7.58	70	DIP
TPLE0505D	5	5	51/5.1	71	DIP
TPLE0509D	5	9	28/2.8	74	DIP
TPLE0512D	5	12	21/2.1	76	DIP
TPLE0515D	5	15	17/1.7	76	DIP
TPLE0303S	3.3	3.3	75.8/7.58	70	SIP
TPLE0305S	3.3	5	51/5.1	70	SIP
TPLE0503S	5	3.3	75.8/7.58	70	SIP
TPLE0505S	5	5	50/5	70	SIP
TPLE0509S	5	9	28/2.8	75	SIP
TPLE0512S	5	12	21/2.1	75	SIP
TPLE0515S	5	15	16/1.6	75	SIP
TPLE1203D	12	3.3	75.8/7.58	70	DIP
TPLE1205D	12	5	50/5	71	DIP
TPLE1209D	12	9	28/2.8	75	DIP
TPLE1212D	12	12	21/2.1	75	DIP
TPLE1215D	12	15	16/1.6	75	DIP
TPLE1203S	12	3.3	75.8/7.58	70	SIP
TPLE1205S	12	5	50/5	71	SIP
TPLE1209S	12	9	28/2.8	75	SIP
TPLE1212S	12	12	21/2.1	75	SIP
TPLE1215S	12	15	16/1.6	75	SIP
TPLE2405D	24	5	50/5	71	DIP
TPLE2412D	24	12	21/2.1	75	DIP
TPLE2415D	24	15	16/1.6	75	DIP
TPLE2405S	24	5	50/5	71	SIP
TPLE2412S	24	12	21/2.1	75	SIP
TPLE2415S	24	15	16/1.6	75	SIP

Add suffix "P" for continuous short circuit protection, for example TPLE0505SP.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input types	2.9	3.3	3.6	V
Voltage range	5V input types	4.5	5.0	5.5	V
Voltage range	12V input types	11	12	13.3	V
Voltage range	24V input types	22	24	26.5	V

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40°C to 85°C			0.25	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High Vin to low Vin		1	1.2	%/%
Load Regulation(10% load to rated load)	5V output types			16	%
Load Regulation(10% load to rated load)	all other types			11	%

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

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, TPLE03	5.5V
Input voltage Vin, TPLE05	7V
Input voltage Vin, TPLE12	15V
Input voltage Vin, TPLE24	28V

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 second	1500			VDC
Resistance	Viso= 1000VDC	1			GΩ

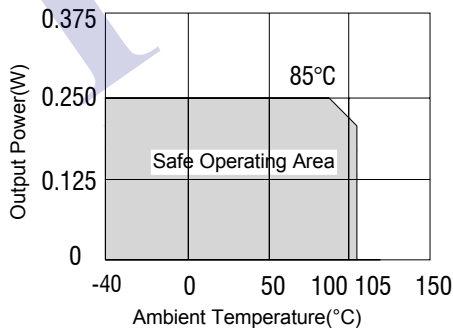
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All input types		110		kHz

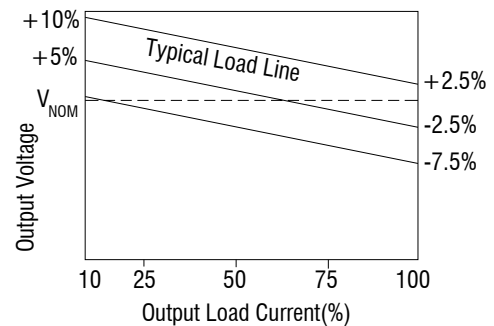
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-55		130	°C
Cooling	Free air convection				

**TEMPERATURE DERATING GRAPHS**

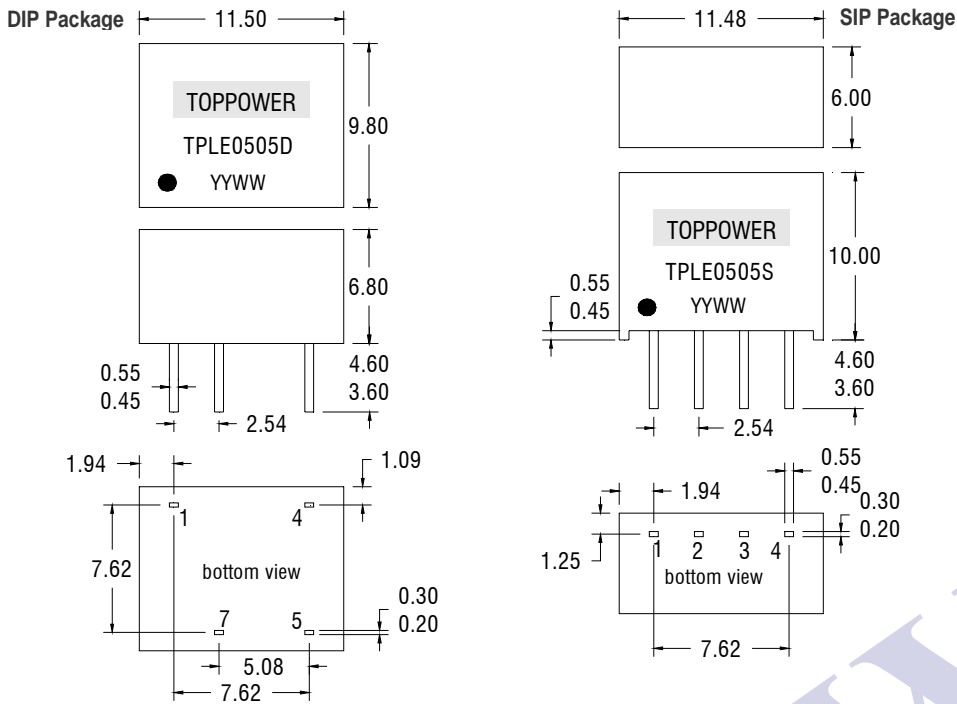


**TOLERANCE ENVELOPES**



**MECHANICAL DIMENSIONS**

**PIN CONNECTIONS**

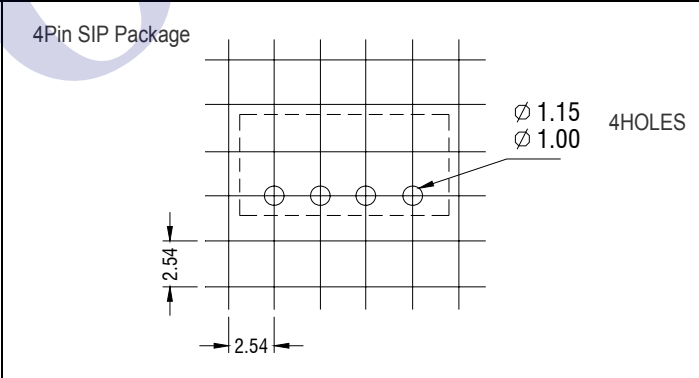
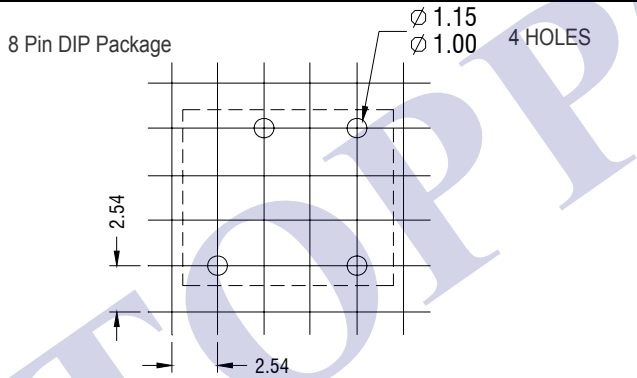


8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

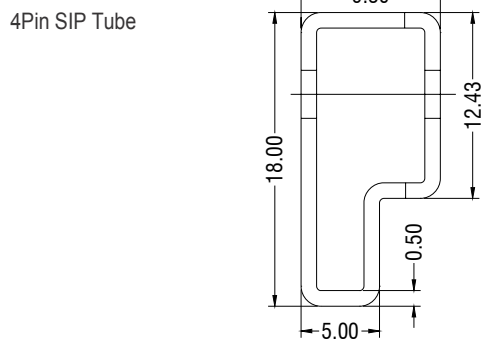
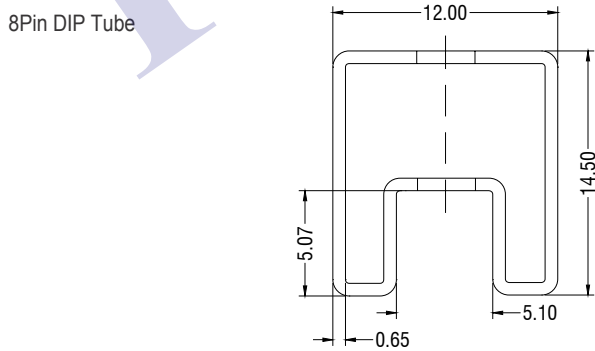
4 PIN SIP	
Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

All dimensions in mm±0.25mm. All pins on a 0.54mm pitch and within±0.25mm of true position.  
 Weight: 1.30g(SIP), 1.48g(DIP)

**RECOMMENDED FOOTPRINT DETAILS**



**TUBE OUTLINE DIMENSIONS**



Unless otherwise stated all dimensions in mm ±0.5mm.  
 Tube length (8 Pin DIP) : 520mm ±2mm.  
 Tube length (4 Pin SIP) : 520mm ±2mm.

Tube Quantity : 35PCS