

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 ³
UL 94V-0 package material	Footprint from 0.69cm ²	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

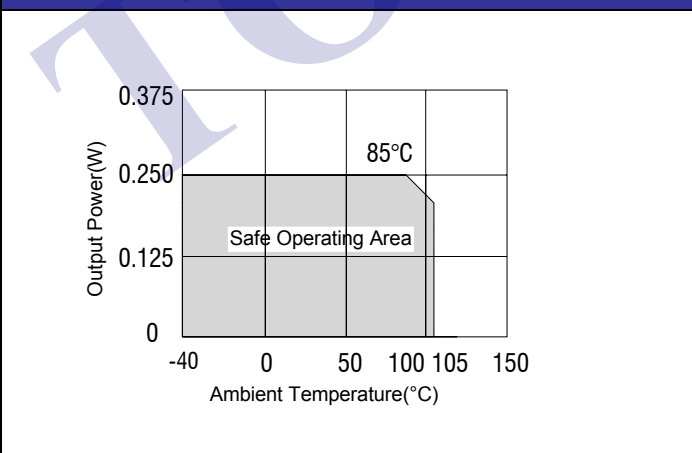
GENERAL CHARACTERISTICS

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

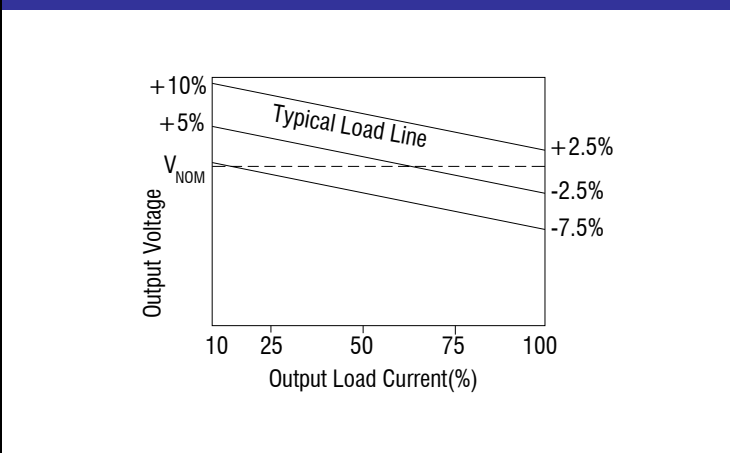
TEMPERATURE CHARACTERISTICS

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



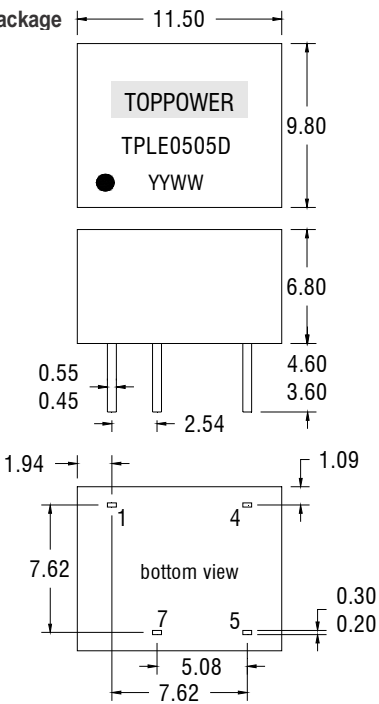
TOLERANCE ENVELOPES



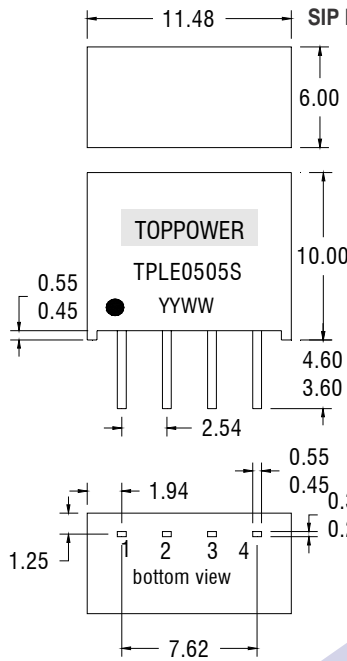
MECHANICAL DIMENSIONS

PIN CONNECTIONS

DIP Package



SIP Package



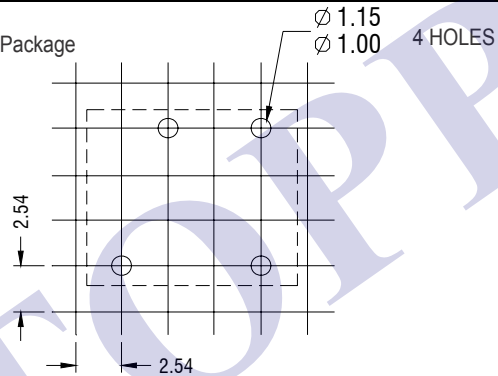
8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

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

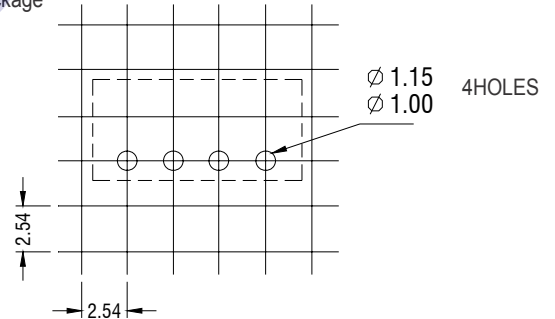
All dimensions in mm±0.25mm. All pins on a 0.54mm pitch and within±0.25mm of true position.
 Weight: 1.30g(SIP), 1.48g(DIP)

RECOMMENDED FOOTPRINT DETAILS

8 Pin DIP Package

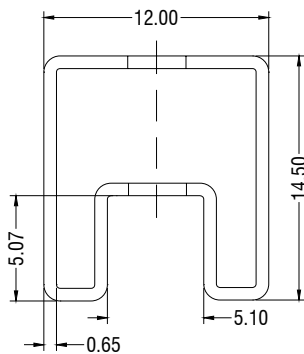


4Pin SIP Package

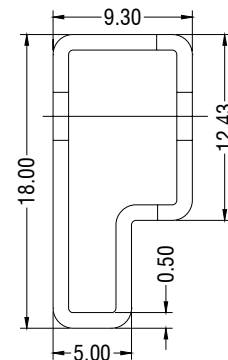


TUBE OUTLINE DIMENSIONS

8Pin DIP Tube



4Pin SIP Tube



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