

**DESCRIPTION: 2W 3KVDC Isolated Twin Output DC/DC Converters**



The TPD-2W series are miniature, isolated 2W DC/DC-converters with twin output voltage 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 3KVDC isolation.

**FEATURES**

RoHS compliant, CE certification	Twin independent output	Input/output isolation 3KVDC
Output/output isolation 3KVDC	Power sharing on output	Efficiency up to 80%
UL 94V-0 package material	Footprint from 1.17cm <sup>2</sup>	Input voltage: 5V, 12V,24V
Output one: 5V,9V,12V,15V	Output two: 3.3V, 5V, 9V, 12V, 15V	Operating temperature: -40°Cto 105°C

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage 1	Output Voltage 2	Output Current 1	Output Current 2	Efficiency	Package Style
	V	V	V	mA	mA	%	
TPD050503D-2W	5	5	3.3	200	302	69	DIP
TPD050505D-2W	5	5	5	200	198	70	DIP
TPD050509D-2W	5	5	9	200	110	79	DIP
TPD050512D-2W	5	5	12	200	82	80	DIP
TPD050515D-2W	5	5	15	200	70	79	DIP
TPD050503S-2W	5	5	3.3	200	302	70	SIP
TPD050505S-2W	5	5	5	200	198	70	SIP
TPD050509S-2W	5	5	9	200	110	79	SIP
TPD050512S-2W	5	5	12	200	82	80	SIP
TPD050515S-2W	5	5	15	200	70	80	SIP
TPD050909S-2W	5	9	9	111	111	82	SIP
TPD051212S-2W	5	12	12	83	83	82	SIP
TPD051515S-2W	5	15	15	67	67	83	SIP
TPD120505D-2W	12	5	5	200	198	70	DIP
TPD120509D-2W	12	5	9	200	110	80	DIP
TPD120512D-2W	12	5	12	200	82	80	DIP
TPD120515D-2W	12	5	15	200	70	79	DIP
TPD120505S-2W	12	5	5	200	198	70	SIP
TPD120509S-2W	12	5	9	200	110	80	SIP
TPD120512S-2W	12	5	12	200	82	79	SIP
TPD120515S-2W	12	5	15	200	70	80	SIP
TPD120909S-2W	12	9	9	111	111	83	SIP
TPD121212S-2W	12	12	12	83	83	85	SIP
TPD121515S-2W	12	15	15	67	67	83	SIP
TPD240505S-2W	24	5	5	200	200	81	SIP
TPD240909S-2W	24	9	9	111	111	82	SIP
TPD241212S-2W	24	12	12	83	83	84	SIP
TPD241515S-2W	24	15	15	67	67	84	SIP

Add suffix "P" for continuous short circuit protection, for example TPD050505SP-2W. Add suffix "N" Define different output pin, for example TPD050505S/N-2W.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	5V input types	4.5	5.0	5.5	V
Voltage range	12V input types	11	12	13	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			2.0	W
Voltage set point accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN (voltage variation +/-5%)		1.0	1.2	%/%
Load regulation(10% load to rated load)	3.3V output variants			14	%
Load regulation(10% load to rated load)	5V output variants			14	%
Load regulation(10% load to rated load)	9V output variants			9	%
Load regulation(10% load to rated load)	12V output variants			9	%
Load regulation(10% load to rated load)	15V output variants			9	%

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, TPD05 variants	6.5V
Input voltage Vin, TPD12 variants	14.5V
Input voltage Vin, TPD24 variants	28V

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

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 second	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

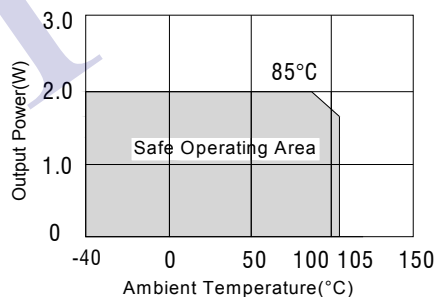
**GENERAL CHARACTERISTICS**

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

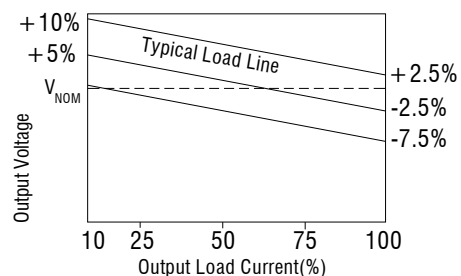
**TEMPERATURE CHARACTERISTICS**

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**



**SOLDERING INFORMATION**

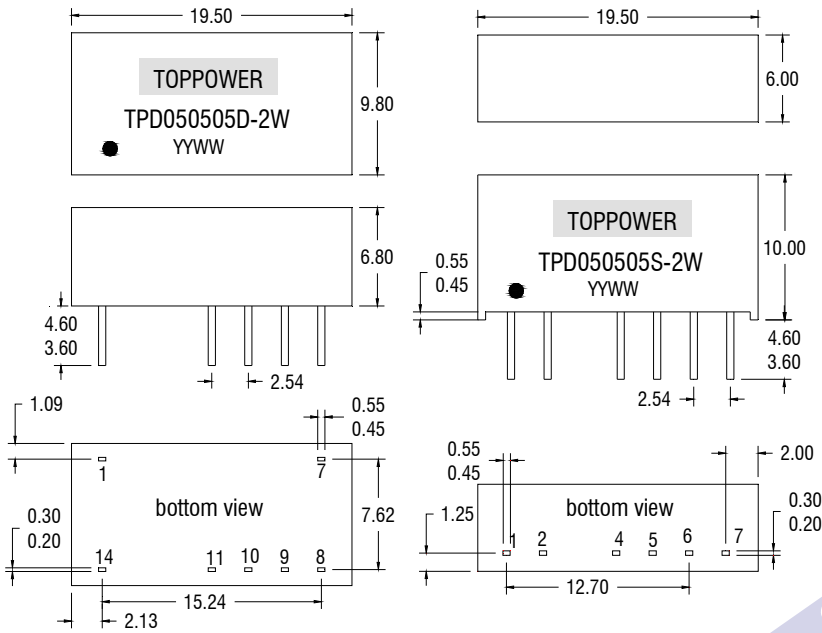
This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. Both SIP and DIP types in this series are backward compatible with Sn/Pb soldering systems.

**MECHANICAL DIMENSIONS**

**PIN CONNECTIONS**

**DIP Package**

**SIP Package**



14 PIN DIP		
Pin	Function	Add suffix "/N" function
1	-Vin	-Vin
7	NC	NC
8	-Vout2	+Vout2
9	+Vout2	-Vout2
10	-Vout1	+Vout1
11	+Vout1	-Vout1
14	+Vin	+Vin

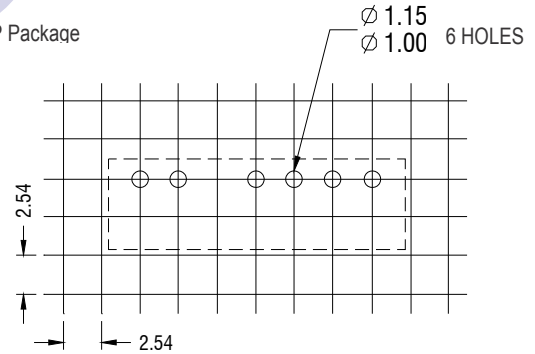
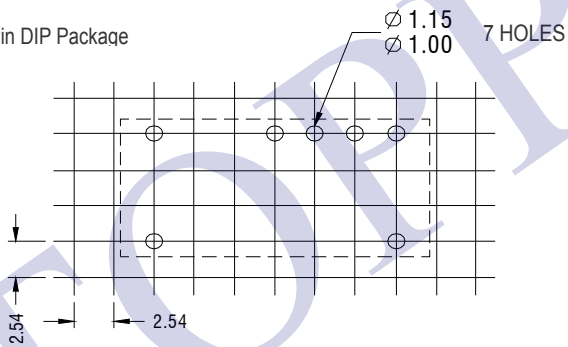
7 PIN SIP		
Pin	Function	Add suffix "/N" function
1	+Vin	+Vin
2	-Vin	-Vin
4	+Vout1	-Vout1
5	-Vout1	+Vout1
6	+Vout2	-Vout2
7	-Vout2	+Vout2

All dimensions in mm  $\pm 0.25$ mm. All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position.  
Weight: 2.3g (DIP & SIP)

**RECOMMENDED FOOTPRINT DETAILS**

**14Pin DIP Package**

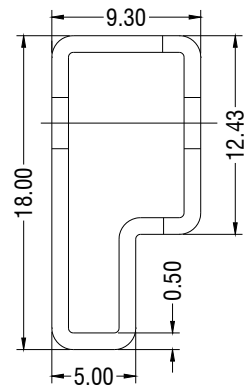
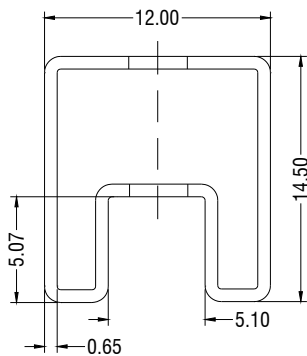
**7Pin SIP Package**



**TUBE OUTLINE DIMENSIONS**

**14Pin DIP Tube**

**7Pin SIP Tube**



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

Tube length (14 Pin DIP) : 520mm  $\pm 2$ mm      Tube Quantity : 25PCS  
Tube length (7 Pin SIP) : 520mm  $\pm 2$ mm      Tube Quantity : 25PCS