TOPPOWER

TPA 24V & 48V Series



DESCRIPTION: **1W 3KVDC Isolated Single and Dual Output DC/DC Converters**

The TPA series are miniature, isolated 1W 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 3KVDC isolation.

FEATURES

RoHS compliant、CE certification	Efficiency up to 81%	Power density up to 0.86W/cm^3
Single and dual output from a single input rail	UL 94V-0 package material	No heat sink required
3KVDC isolation	Industry standard pinout	Power sharing on output
Input voltage: 24V,48V	Output voltage: 5V, 9V, 12V, 15V, 24V / ±5V, ±9V, ±12V, ±15V, ±24V	Operating temperature :-40ºC to 105ºC

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPA2405DA	24	5	200/20	69	DIP
TPA2409DA	24	9	111/11.1	78	DIP
TPA2412DA	24	12	83/8.3	81	DIP
TPA2415DA	24	15	66/6.6	81	DIP
TPA2424DA	24	24	42/4.2	81	DIP
TPA4805DA	48	5	200/20	69	DIP
TPA4809DA	48	9	111/11.1	80	DIP
TPA4812DA	48	12	83/8.3	80	DIP
TPA4815DA	48	15	66/6.6	79	DIP
TPA2405D	24	±5	±100/±10	69	DIP
TPA2409D	24	±9	±56/±5.6	78	DIP
TPA2412D	24	±12	±41/±4.1	81	DIP
TPA2415D	24	±15	±32/±3.2	81	DIP
TPA2424D	24	±24	±21/±2.1	81	DIP
TPA2405S	24	±5	±100/±10	69	SIP
TPA2409S	24	±9	±56/±5.6	78	SIP
TPA2412S	24	±12	±42/±4.2	81	SIP
TPA2415S	24	±15	±34/±3.4	80	SIP
TPA2424S	24	±24	±21/±2.1	81	SIP
TPA4805D	48	±5	±100/±10	69	DIP
TPA4809D	48	±9	±56/±5.6	80	DIP
TPA4812D	48	±12	±42/±4.2	80	DIP
TPA4815D	48	±15	±34/±3.4	79	DIP
TPA4805S	48	±5	±100/±10	70	SIP
TPA4809S	48	±9	±56/±5.6	79	SIP
TPA4812S	48	±12	±43/±4.3	79	SIP
TPA4815S	48	±15	±33/±3.3	79	SIP

Add suffix “P” for continuous short circuit protection, for example TPA2405SP.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	24V input variants	22	24	27	V
Voltage range	48V input variants	44	48	53	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40ºC to 85ºC			1	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)	5V output			14	%
Load Regulation(10% load to rated load)	all other output			12	%

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

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ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300ºC
Internal power dissipation	450mW
Input voltage Vin, TPA24	28V
Input voltage Vin, TPA48	54V

ISOLATION CHARACTERISTICS

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

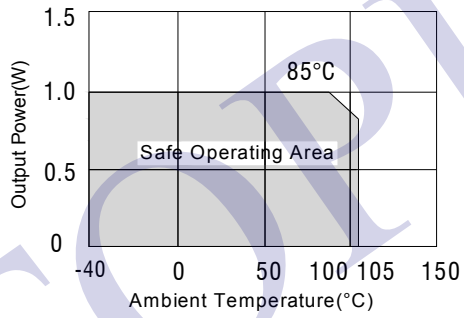
GENERAL CHARACTERISTICS

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

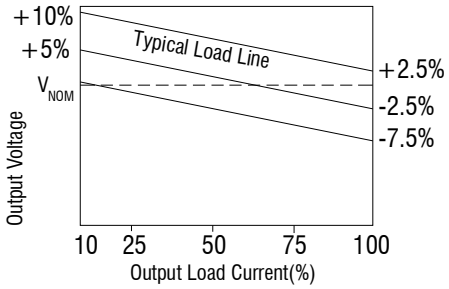
TEMPER ATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	ºC
Storage		-55		150	ºC
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES



SOLDERING INFORMATION

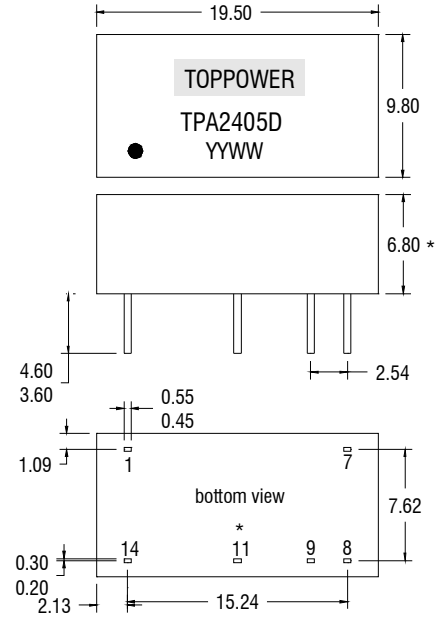
This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300ºC for 10 seconds. Both types in this series are backward compatible with Sn/Pb soldering systems.

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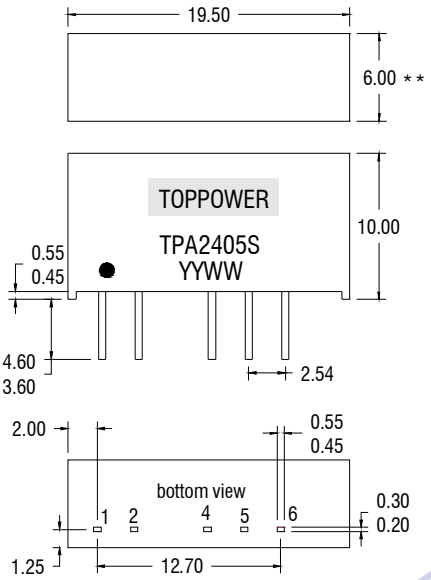
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MECHANICAL DIMENSIONS

DIP Package



SIP Package



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

*7.70 for 48V variants **7.50 for 48V

Weight: 2.4g (24V DIP) 2.9g (48V DIP) 2.2 g(24V SIP) 2.9g(48V SIP)

*Pin not fitted on single output variants

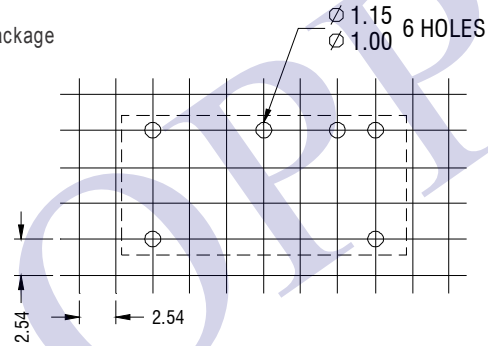
PIN CONNECTIONS

14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	OV
9	+Vout
11*	-Vout
14	+Vin

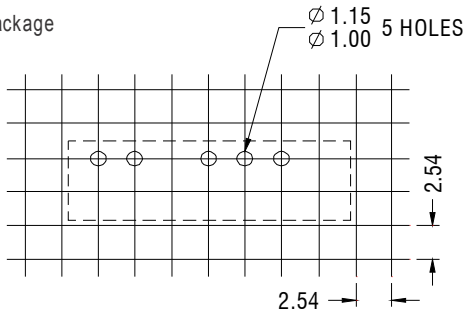
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
5	OV
6	+Vout

RECOMMENDED FOOTPRINT DETAILS

14 Pin DIP Package

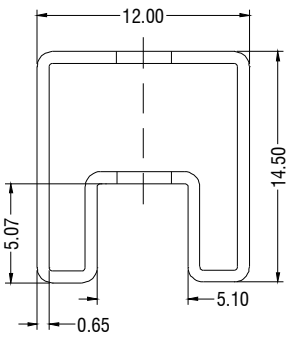


7 Pin SIP Package

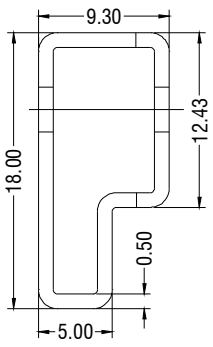


RoHS COMPLIAIVCE INFORMATION

14 Pin DIP Tube



7 Pin SIP Tube



Unless otherwise stated all dimensions in mm ±0.5mm.

Tube length (14 Pin DIP) : 520mm ±2mm.

Tube length (7 Pin SIP) :520mm ±2mm.

Tube Quantity : 25PCS

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