


DESCRIPTION: 3W 1.5KVDC Isolated Triple Output DC/DC Converters

The TPT series are miniature, isolated 3W DC/DC converters in a SIP 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 and providing three output voltages of -24V, -48V and -72V from a single isolated 4V, 5V and 12V input voltage.

FEATURES

RoHS compliant, CE certification	Triple outputs (-24V, -48V & -72V)	Input/output isolation 1.5KVDC
Power sharing on outputs	Industrial temperature range	UL 94V-0 package material
Operating temperature -40℃ to 105℃	Toroidal magnetics	Power density 1.65W/cm ³

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output	Rated Output Current	Output Current		Output Current	
	V		V	Min. Load	Full Load	Min. Load	Full Load
				mA	mA	mA	mA
TPT0472S	4	-V _{OUT1}	-24	1.5	43	4.3	125
		-V _{OUT2}	-48	0.7	22	2.2	64
		-V _{OUT3}	-72	0.6	14	1.5	45
TPT0572S	5	-V _{OUT1}	-24	1.5	43	4.3	125
		-V _{OUT2}	-48	0.7	22	2.2	64
		-V _{OUT3}	-72	0.6	14	1.5	45
TPT1272S	12	-V _{OUT1}	-24	1.4	43	4.2	127
		-V _{OUT2}	-48	0.7	22	2.2	64
		-V _{OUT3}	-72	0.6	14	1.5	43

Add suffix "P" for continuous short circuit protection, for example TPT0472SP.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	TPT0472S	3.6	4.0	5.0	V
Voltage range	TPT0572S	4.5	5.0	5.5	V
Voltage range	TPT1272S	11	12	13.3	V
Zero load input current (ICCZL)	TPT0472S, 0% output load		55	75	mA
Zero load input current (ICCZL)	TPT0572S, 0% output load		55	75	mA
Zero load input current (ICCZL)	TPT1272S, 0% output load		28	52	mA

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Typ.	Units
Total Rated Power (POUT)	Total of all outputs or any single output	0.1		3.0	W
Single Channel Voltage Set Point Accuracy	P _{out} = 100mW	0		10	%
Single Channel Voltage Set Point Accuracy	P _{out} = 3W	-7.5		2.5	%
Output Voltage - V _{out1}	P _{out} = 100mW	24		26.3	V
Output Voltage - V _{out1}	P _{out} = 3W	22.2		24.5	V
Output Voltage- V _{out2}	P _{out} = 100mW	48		53	V
Output Voltage- V _{out2}	P _{out} = 3W	44.4		50	V
Output Voltage- V _{out3}	P _{out} = 100mW	72		80	V
Output Voltage- V _{out3}	P _{out} = 3W	66.6		74	V
Line regulation	V _{in} = 90% to 110% of nominal		1.0	1.2	%
Load regulation	P _{out} = 100mW to 3W		8	15	%

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input Voltage Vin, TPT0472S	5.5V
Input Voltage Vin, TPT0572S	7V
Input voltage Vin, TPT1272S	15V

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	1500			VDC
Isolation Capacitance	TPT0472S, 1MHz, 1V		70		pF
Isolation Capacitance	TPT0572S, 1MHz, 1V		70		pF
Isolation Capacitance	TPT1272S, 1MHz, 1V		125		pF
Insulation Resistance	1000VDC	1			GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Efficiency	All channels or any single channel	75	85		%
Switching frequency			80		kHz

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating temperature	Derating if the temperature ≥85°C	-40		105	°C
Storage		-50		125	°C

OUTPUT VOLTAGE CONFIGURATION

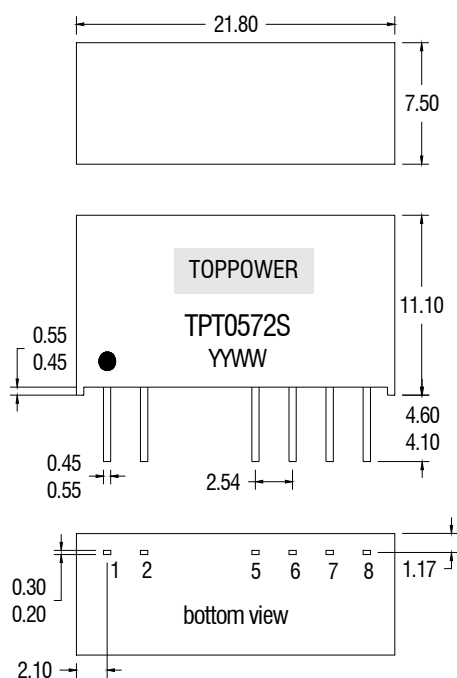
Channel Name	Standard Ref	Option 1	Option 2	Option 3
+Vout	OV	+24V	+48V	+72V
-Vout1	-24V	OV	+24V	+48V
-Vout2	-48V	-24V	OV	+24V
-Vout3	-72V	-48V	-24V	OV

POWER SHARING

The 3W total power delivery can be taken from either single channel or any combination of all three channels. This allows an enormous amount of flexibility, especially when combined with the selectable output OV reference. For example, using the option 2 output configuration; -24V at 0.5W, +24V at 1W and +48V at 1.5W power supplies are available from a single TPT device.

MECHANICAL DIMENSIONS

SIP Package



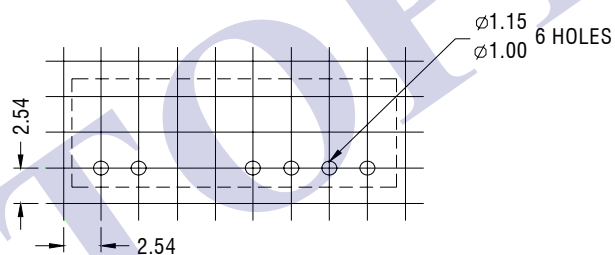
All dimensions in mm ± 0.25 mm. All pins on a 2.54mm pitch and within 0.25mm of true position.

Weight: 3.85g

PIN CONNECTIONS

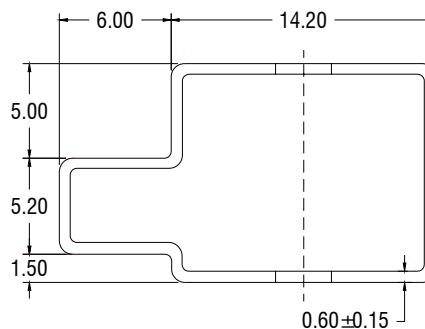
8 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	+Vout
6	-Vout1
7	-Vout2
8	-Vout3

RECOMMENDED FOOTPRINT DETAILS



Unless otherwise stated all dimensions in mm ± 0.5 mm.

TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in mm ± 0.5 mm.

Tube length : 520mm ± 2 mm.

Tube Quantity : 23PCS

SOLDERING INFORMATION

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