


DESCRIPTION: 0.25W 3KVDC Isolated Single And Dual Output SMD DC/DC Converters

Miniature surface mounted DC/DC Converters are an ideal and economical solution for many applications where noise reduction, voltage isolation, voltage conversion in distributed power systems is required. these converters are qualified for the higher temperatures requested by lead-free reflow solder processes, especially for automated SMD production lines.

FEATURES

RoHS compliant, CE certification	Efficiency up to 80%	Operating temperature : -40℃ to 105℃
UL 94V-0 package material	Input voltage : 3.3V,5V,12V	Plastic encapsulated
Dual isolated output	Output voltage : $\pm 5V, \pm 9V, \pm 12V, \pm 15V$ / 3.3V,5V,9V,12V,15V	Power density 1.37W/cm ³
3KVDC isolation (1 minute)	Custom solutions available	/

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency
	V	V	m A	%
TPVT0503-W2	5	± 3.3	$\pm 38/\pm 3.8$	70
TPVT0505-W2	5	± 5	$\pm 25/\pm 2.5$	70
TPVT0509-W2	5	± 9	$\pm 13.75/\pm 1.375$	72
TPVT0512-W2	5	± 12	$\pm 10.5/\pm 1.05$	75
TPVT0515-W2	5	± 15	$\pm 8.25/\pm 0.825$	80
TPVT1205-W2	12	± 5	$\pm 25/\pm 2.5$	70
TPVT1209-W2	12	± 9	$\pm 13.75/\pm 1.375$	72
TPVT1212-W2	12	± 12	$\pm 10.5/\pm 1.05$	75
TPVT1215-W2	12	± 15	$\pm 8.25/\pm 0.825$	80
TPVT0303A-W2	3.3	3.3	75.7/7.57	70
TPVT0305A-W2	3.3	5	50/5	70
TPVT0505A-W2	5	5	50/5	70
TPVT0509A-W2	5	9	28/2.8	72
TPVT0512A-W2	5	12	20.8/2.08	75
TPVT0515A-W2	5	15	16.7/1.67	80
TPVT1203A-W2	12	3.3	75.7/7.57	70
TPVT1205A-W2	12	5	50/5	70
TPVT1209A-W2	12	9	28/2.8	72
TPVT1212A-W2	12	12	20.8/2.08	75
TPVT1215A-W2	12	15	16.7/1.67	80

Add suffix "P" for continuous short circuit protection, for example TPVT0505P-W2.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input variants	2.9	3.3	3.6	V
Voltage range	5V input variants	4.5	5	5.5	V
Voltage range	12V input variants	11	12	13.3	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40℃ to 85℃			0.25	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%/%
Load Regulation(10% load to rated load)	3.3V & 5V output variants		10	12	%
Load Regulation(10% load to rated load)	9V output variants		6.5	8.0	%
Load Regulation(10% load to rated load)	12V output variants		7	9	%
Load Regulation(10% load to rated load)	15V output variants		6.5	7.5	%

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300℃
Internal power dissipation	560mW
Input voltage V_{in} , TPVT03	5.5V
Input voltage V_{in} , TPVT05	7V
Input voltage V_{in} , TPVT12	15V

ISOLATION CHARACTERISTICS

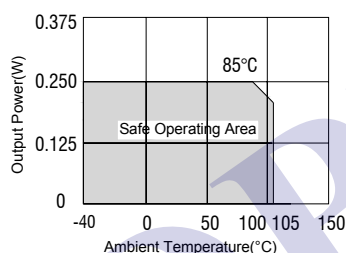
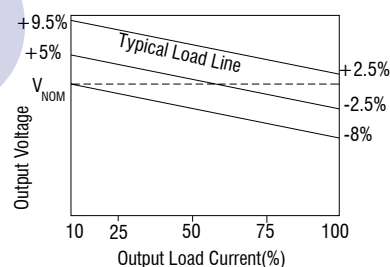
Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

GENERAL CHARACTERISTICS

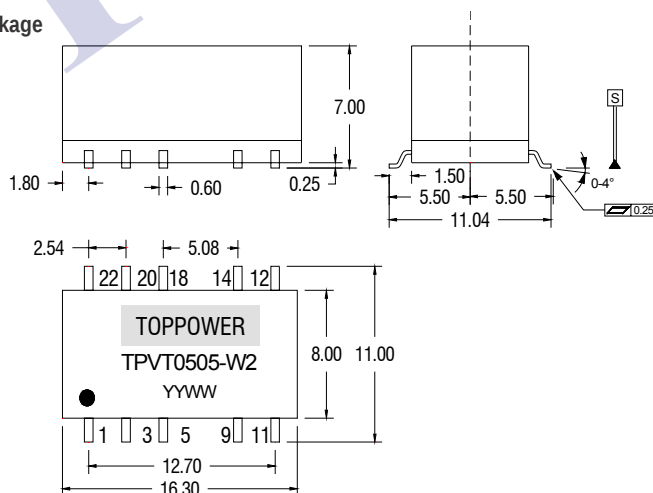
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V, 5V input variants		120		kHz
Switching frequency	12V input variants		130		kHz

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^{\circ}\text{C}$	-40		105	℃
Storage		-55		125	℃
Reflow Soldering Temperature		Peak temp. $\leq 245^{\circ}\text{C}$, maximum duration time $\leq 60\text{s}$ at 217°C . For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS

TOLERANCE ENVELOPES

RoHS COMPLIANCE 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
SMD Package

PIN CONNECTIONS

10 PIN SMD		
Pin	Dual Output	Single Output
1	-Vin	-Vin
3	+Vin	+Vin
5	NA	NA
9	OV	OV
11	-Vout	NA
12	NA	NA
14	+Vout	+Vout
18	NA	NA
20	NA	NA
22	NA	NA

NA - Not available for electrical connection.

All dimensions in mm $\pm 0.25\text{mm}$. All pins on a 2.54mm pitch. Weight: 1.53g

