

DESCRIPTION : 0.5W 1.5KVDC and 3KVDC Isolated Miniature Single Output DC/DC Converters

The TKE-W5 series are miniature, isolated 0.5W 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.

FEATURES

RoHS compliant	Sub-Miniature SIP & DIP styles	DIP: 3KVDC isolation, SIP: 1.5KVDC isolation
UL 94V-0 package material	Operating temperature: -40°C to 105°C	Power density 2.09W/cm ³
Footprint at 0.69cm ²	Industry standard pinout	Input voltage: 3.3V, 5V, 12V
Output voltage: 3.3V, 5V, 9V, 12V, 15V	Custom solutions available	CE certification

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TKE0303D-W5	3.3	3.3	152/15.2	71	DIP
TKE0305D-W5	3.3	5	100/10	74	DIP
TKE0309D-W5	3.3	9	55.5/5.55	75	DIP
TKE0303S-W5	3.3	3.3	152/15.2	71	SIP
TKE0305S-W5	3.3	5	100/10	75	SIP
TKE0309S-W5	3.3	9	55.5/5.55	74	SIP
TKE0503D-W5	5	3.3	152/15.2	74	DIP
TKE0505D-W5	5	5	100/10	69	DIP
TKE0509D-W5	5	9	55.5/5.55	74	DIP
TKE0512D-W5	5	12	41.7/4.17	78	DIP
TKE0515D-W5	5	15	33.3/3.33	78	DIP
TKE0503S-W5	5	3.3	152/15.2	74	SIP
TKE0505S-W5	5	5	100/10	69	SIP
TKE0509S-W5	5	9	55.5/5.55	75	SIP
TKE0512S-W5	5	12	41.7/4.17	78	SIP
TKE0515S-W5	5	15	33.3/3.33	78	SIP
TKE1205D-W5	12	5	100/10	72	DIP
TKE1209D-W5	12	9	55.5/5.55	78	DIP
TKE1212D-W5	12	12	41.7/4.17	80	DIP
TKE1215D-W5	12	15	33.3/3.33	81	DIP
TKE1205S-W5	12	5	100/10	72	SIP
TKE1209S-W5	12	9	55.5/5.55	78	SIP
TKE1212S-W5	12	12	41.7/4.17	80	SIP
TKE1215S-W5	12	15	33.3/3.33	81	SIP

Add suffix "P" for continuous short circuit protection, for example TKE0505SP-W5.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input	2.9	3.3	3.6	V
Voltage range	5V input	4.5	5.0	5.5	V
Voltage range	12V input	11	12.0	13.3	V

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	520mW
Input voltage Vin, TKE03	5.5V
Input voltage Vin, TKE05	7V
Input voltage Vin, TKE12	15V

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

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Max.	Units
Rated Power	TA= -40°C to 85°C, see derating graphs		0.5	W
Voltage Set Point Accuracy	See tolerance envelope			
Line regulation	High Vin to low Vin		1.2	%/%
Load Regulation(10% load to rated load)	3.3V output types & 0309		15	%
Load Regulation(10% load to rated load)	5V output types		15	%
Load Regulation(10% load to rated load)	9V output types		10	%
Load Regulation(10% load to rated load)	12V output types		10	%
Load Regulation(10% load to rated load)	15V output types		9	%

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage DIP package	tested for 1 second	3000			VDC
Isolation test voltage SIP package	tested for 1 second	1500			VDC
Resistance	Viso= 1000VDC	1			GΩ

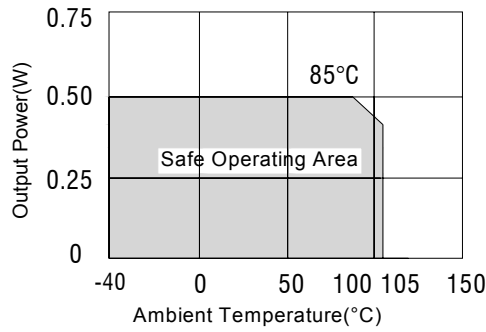
GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All output types		120		kHz

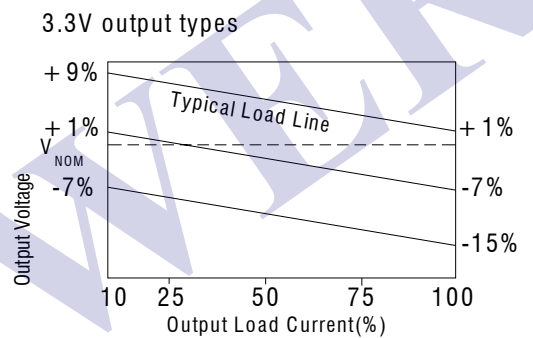
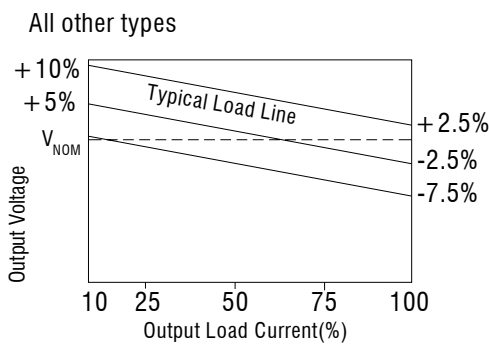
TEMPERATURE CHARACTERISTICS

Specification	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-50		130	°C
Case temperature rise above ambient	0505D/S, 1205D/S			35	°C
Case temperature rise above ambient	All other output types				
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS



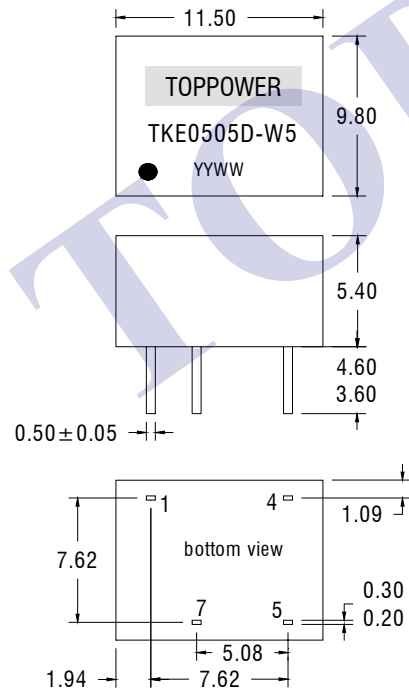
TOLERANCE ENVELOPES



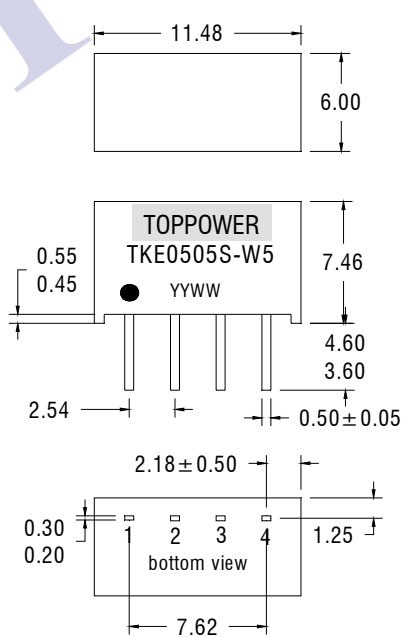
MECHANICAL DIMENSIONS

PIN CONNECTIONS

DIP Package



SIP Package



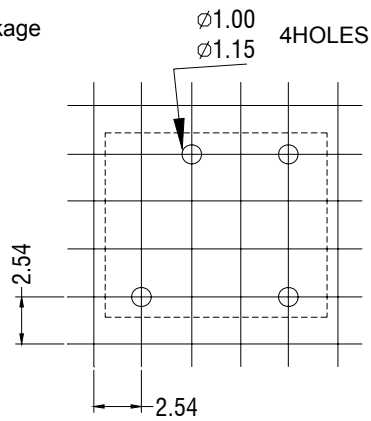
8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

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

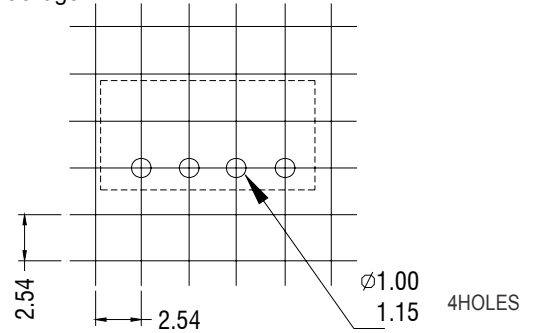
All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.
 Weight: 1.09g(SIP) 1.25g(DIP)

RECOMMENDED FOOTPRINT DETAILS

8 Pin DIP Package

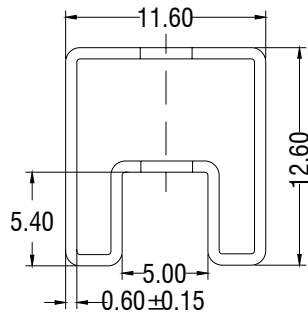


4 Pin SIP Package

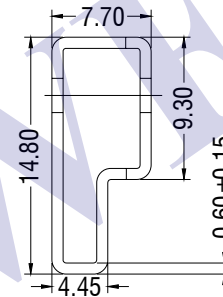


TUBE OUTLINE DIMENSIONS

8 Pin DIP Tube



4 Pin SIP Tube



Unless otherwise stated all dimensions in mm $\pm 0.5\text{mm}$
 Tube length(8 Pin DIP):520mm $\pm 2\text{mm}$
 Tube length(4 Pin SIP):525mm $\pm 2\text{mm}$

Tube Quantity:40PCS

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.