

**DESCRIPTION: 0.25W 3KVDC Isolated Miniature Single Output DC/DC Converters**

The TKA-W25series are miniature, isolated 0.25W 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 83%	Operating temperature: -40°C to 105°C
UL 94V-0 package material	Internal SMD construction	Industry standard pinout
Power sharing on output	Input voltage :3.3V, 5V ,12V ,24V	Output voltage: 3.3V, 5V, 9V,12V,15V,24V

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TKA0303DA-W25	3.3	3.3	75.8/7.58	75	DIP
TKA0305DA-W25	3.3	5	50/5	80	DIP
TKA0309DA-W25	3.3	9	27.8/2.78	75	DIP
TKA0312DA-W25	3.3	12	21/2.1	80	DIP
TKA0315DA-W25	3.3	15	16/1.6	80	DIP
TKA0324DA-W25	3.3	24	10.4/1.04	82	DIP
TKA0303SA-W25	3.3	3.3	75.8/7.58	74	SIP
TKA0305SA-W25	3.3	5	50/5	80	SIP
TKA0309SA-W25	3.3	9	27.8/2.78	76	SIP
TKA0312SA-W25	3.3	12	21/2.1	77	SIP
TKA0315SA-W25	3.3	15	16/1.6	80	SIP
TKA0324SA-W25	3.3	24	10.4/1.04	82	SIP
TKA0503DA-W25	5	3.3	75.8/7.58	78	DIP
TKA0505DA-W25	5	5	50/5	72	DIP
TKA0509DA-W25	5	9	27.8/2.78	75	DIP
TKA0512DA-W25	5	12	21/2.1	78	DIP
TKA0515DA-W25	5	15	16/1.6	80	DIP
TKA0524DA-W25	5	24	10.4/1.04	82	DIP
TKA0503SA-W25	5	3.3	75.8/7.58	78	SIP
TKA0505SA-W25	5	5	50/5	72	SIP
TKA0509SA-W25	5	9	27.8/2.78	77	SIP
TKA0512SA-W25	5	12	21/2.1	78	SIP
TKA0515SA-W25	5	15	16/1.6	80	SIP
TKA0524SA-W25	5	24	10.4/1.04	82	SIP
TKA1205DA-W25	12	5	50/5	75	DIP
TKA1209DA-W25	12	9	27.8/2.78	82	DIP
TKA1212DA-W25	12	12	21/2.1	82	DIP
TKA1215DA-W25	12	15	16/1.6	82	DIP
TKA1224DA-W25	12	24	10.4/1.04	82	DIP
TKA1205SA-W25	12	5	50/5	74	SIP
TKA1209SA-W25	12	9	27.8/2.78	79	SIP
TKA1212SA-W25	12	12	21/2.1	81	SIP
TKA1215SA-W25	12	15	16/1.6	81	SIP
TKA1224SA-W25	12	24	10.4/1.04	82	SIP
TKA2405DA-W25	24	5	50/5	70	DIP
TKA2409DA-W25	24	9	27.8/2.78	73	DIP
TKA2412DA-W25	24	12	21/2.1	75	DIP
TKA2415DA-W25	24	15	16/1.6	78	DIP
TKA2424DA-W25	24	24	10.4/1.04	77	DIP
TKA2405SA-W25	24	5	50/5	70	SIP
TKA2409SA-W25	24	9	27.8/2.78	73	SIP
TKA2412SA-W25	24	12	21/2.1	75	SIP
TKA2415SA-W25	24	15	16/1.6	78	SIP
TKA2424SA-W25	24	24	10.4/1.04	77	SIP

Add suffix "P" for continuous short circuit protection, for example TKA0505SAP-W25.

**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	5.6	V
Voltage range	12V input variants	10.7	12	13.1	V
Voltage range	24V input variants	22	24	26.5	V
Reflected ripple current	3.3V input		30	60	mA p-p
Reflected ripple current	All other		25	37	mA p-p

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 12 seconds	300 °C
Internal power dissipation	540mW
Input voltage $V_{in}$ , TKA03	5.5V
Input voltage $V_{in}$ , TKA05	7V
Input voltage $V_{in}$ , TKA12	15V
Input voltage $V_{in}$ , TKA24	28V

**ISOLATION CHARACTERISTICS**

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

All specifications typical at  $T_A=25^{\circ}C$ , nominal input voltage and rated output current unless otherwise specified.

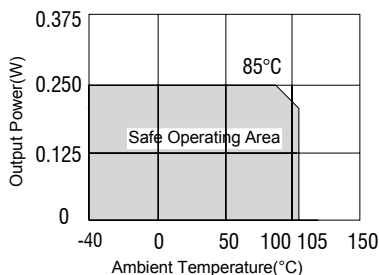
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3V input and 0503		95		kHz
Switching frequency	All other types		120		kHz

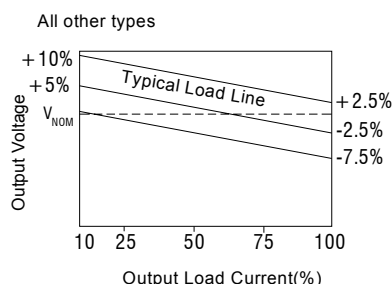
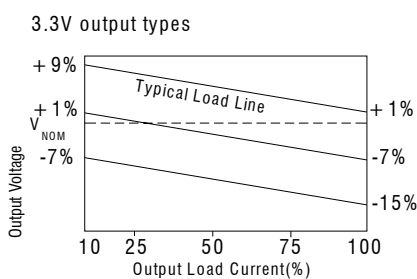
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^{\circ}C$	-40		105	$^{\circ}C$
Storage		-50		130	$^{\circ}C$
Case temperature rise above ambient	5V output types		30		$^{\circ}C$
Case temperature rise above ambient	All other types		21		$^{\circ}C$
Cooling	Free air convection				

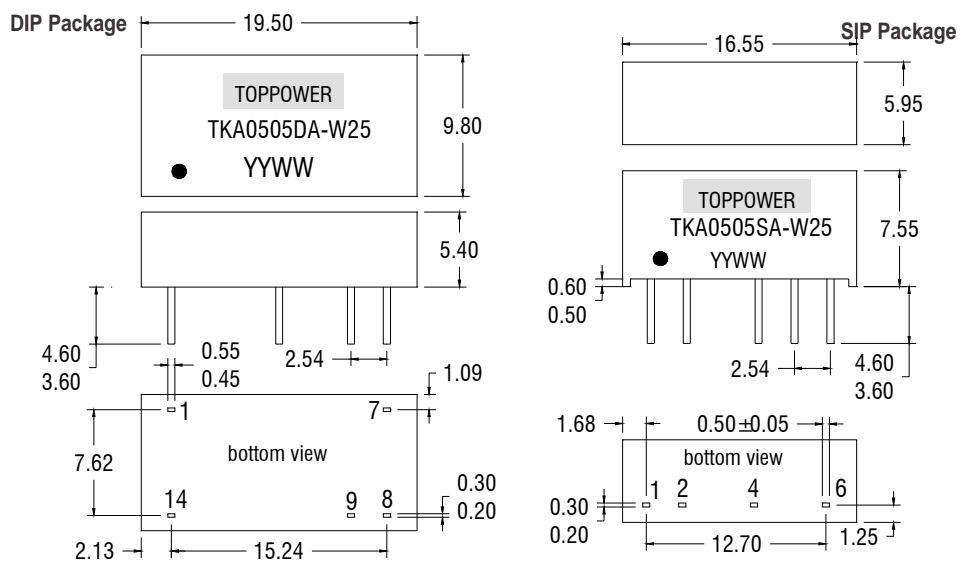
**TEMPERATURE DERATING GRAPHS**



**TOLERANCE ENVELOPES**



**MECHANICAL DIMENSIONS**



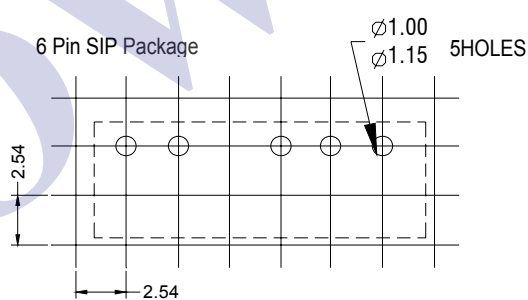
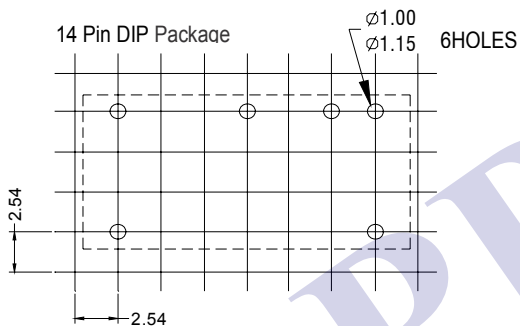
**PIN CONNECTIONS**

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

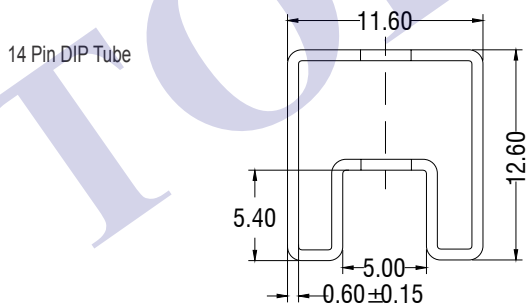
6 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

All dimensions in  $\pm 0.25\text{mm}$  All pins on a 2.54mm pitch and within  $\pm 0.25$  of true position  
weight:1.4g(SIP) 1.9g(DIP)

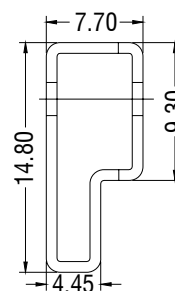
**RECOMMENDED FOOTPRINT DETAILS**



**TUBE OUTLINE DIMENSIONS**



6 Pin SIP Tube



Unless otherwise stated all dimensions in  $\text{mm} \pm 0.5\text{mm}$

Tube length(14 Pin DIP): 520mm  $\pm 2\text{mm}$

DIP Tube Quantity:30PCS

Tube length(6 Pin SIP): 525mm  $\pm 2\text{mm}$

SIP Tube Quantity:30PCS

**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.