



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

The TKA 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 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	3.3	3.3	303/30.3	75	DIP
TKA0305DA	3.3	5	200/20	80	DIP
TKA0309DA	3.3	9	111/11.1	75	DIP
TKA0312DA	3.3	12	83/8.3	80	DIP
TKA0315DA	3.3	15	67/6.7	80	DIP
TKA0324DA	3.3	24	42/4.2	82	DIP
TKA0303SA	3.3	3.3	303/30.3	74	SIP
TKA0305SA	3.3	5	200/20	80	SIP
TKA0309SA	3.3	9	111/11.1	76	SIP
TKA0312SA	3.3	12	83/8.3	77	SIP
TKA0315SA	3.3	15	67/6.7	80	SIP
TKA0324SA	3.3	24	42/4.2	82	SIP
TKA0503DA	5	3.3	303/30.3	78	DIP
TKA0505DA	5	5	200/20	72	DIP
TKA0509DA	5	9	111/11.1	75	DIP
TKA0512DA	5	12	83/8.3	78	DIP
TKA0515DA	5	15	67/6.7	80	DIP
TKA0524DA	5	24	42/4.2	82	DIP
TKA0503SA	5	3.3	303/30.3	78	SIP
TKA0505SA	5	5	200/20	72	SIP
TKA0509SA	5	9	111/11.1	77	SIP
TKA0512SA	5	12	83/8.3	78	SIP
TKA0515SA	5	15	67/6.7	80	SIP
TKA0524SA	5	24	42/4.2	82	SIP
TKA1205DA	12	5	200/20	75	DIP
TKA1209DA	12	9	111/11.1	82	DIP
TKA1212DA	12	12	83/8.3	82	DIP
TKA1215DA	12	15	67/6.7	82	DIP
TKA1224DA	12	24	42/4.2	82	DIP
TKA1205SA	12	5	200/20	74	SIP
TKA1209SA	12	9	111/11.1	79	SIP
TKA1212SA	12	12	83/8.3	81	SIP
TKA1215SA	12	15	67/6.7	81	SIP
TKA1224SA	12	24	42/4.2	82	SIP
TKA2405DA	24	5	200/20	70	DIP
TKA2409DA	24	9	111/11.1	73	DIP
TKA2412DA	24	12	83/8.3	75	DIP
TKA2415DA	24	15	67/6.7	78	DIP
TKA2424DA	24	24	42/4.2	77	DIP
TKA2405SA	24	5	200/20	70	SIP
TKA2409SA	24	9	111/11.1	73	SIP
TKA2412SA	24	12	83/8.3	75	SIP
TKA2415SA	24	15	67/6.7	78	SIP
TKA2424SA	24	24	42/4.2	77	SIP

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

**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.

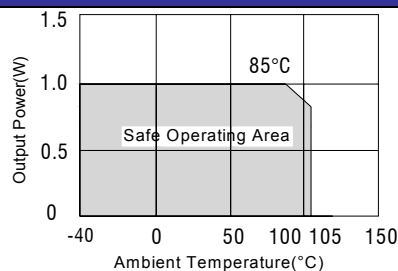
**GENERAL CHARACTERISTICS**

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

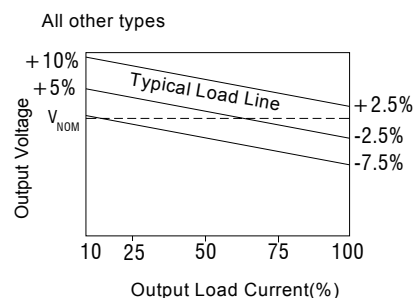
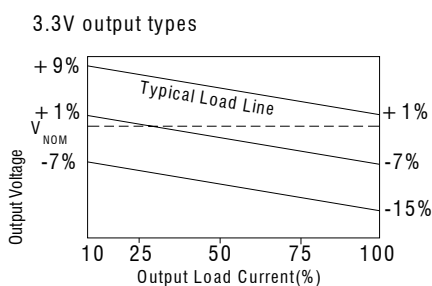
**TEMPERATURE CHARACTERISTICS**

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				

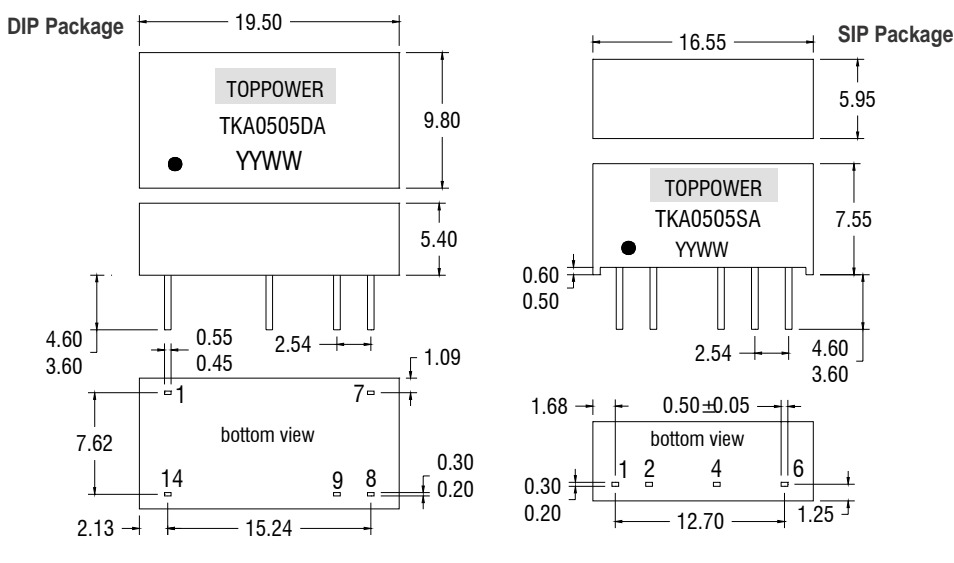
**TEMPERATURE DERATING GRAPHS**



**TOLERANCE ENVELOPES**



**MECHANICAL DIMENSIONS** **PIN CONNECTIONS**

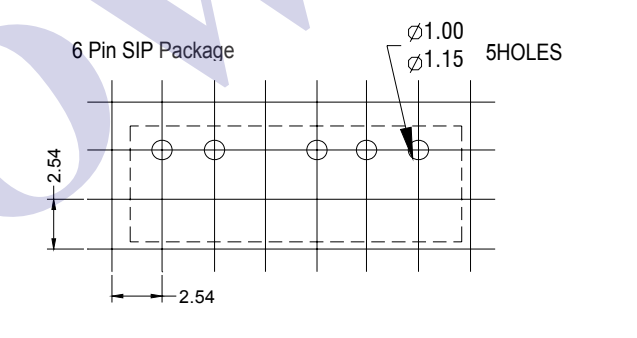
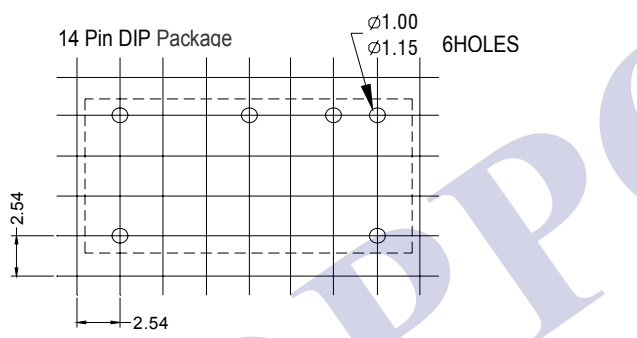


14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	OV
9	+Vout
14	+Vin

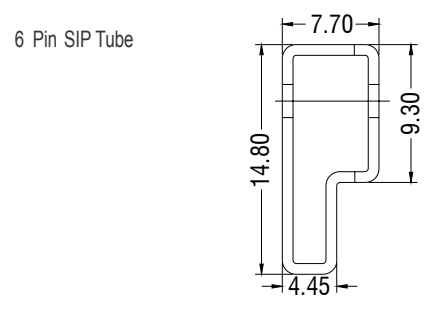
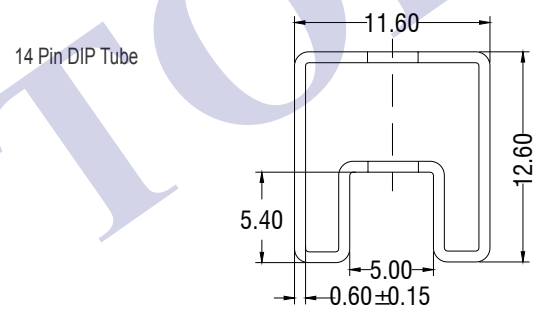
6 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

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**



Unless otherwise stated all dimensions in mm $\pm 0.5\text{mm}$   
 Tube length(14 Pin DIP): 520mm  $\pm 2\text{mm}$   
 Tube length(6 Pin SIP): 525mm  $\pm 2\text{mm}$

DIP Tube Quantity:30PCS  
 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.