

# Topstek Current Transducer TK3A .. TK50A

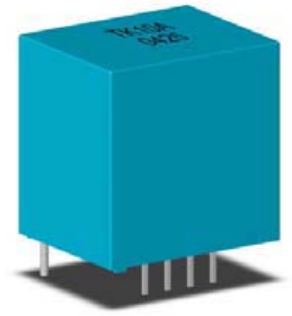
## TK 3A~50A

### Features

- ◆ Highly reliable Hall Effect device
- ◆ Compact and light weight
- ◆ Fast response time
- ◆ Excellent linearity of the output voltage over a wide input range
- ◆ Excellent frequency response (> 50 kHz)
- ◆ Low power consumption (12 mA nominal)
- ◆ Capable of measuring both DC and AC, both pulsed and mixed
- ◆ High isolation voltage between the measuring circuit and the current-carrying conductor (AC2.5KV)
- ◆ Extended operating temperature range
- ◆ Flame-Retardant plastic case and silicone encapsulate, using UL classified materials, ensures protection against environmental contaminants and vibration over a wide temperature and humidity range

### Applications

- ◆ UPS systems
- ◆ Industrial robots
- ◆ NC tooling machines
- ◆ Elevator controllers
- ◆ Process control devices
- ◆ AC and DC servo systems
- ◆ Motor speed controller
- ◆ Electrical vehicle controllers
- ◆ Inverter-controlled welding machines
- ◆ General and special purpose inverters
- ◆ Power supply for laser processing machines
- ◆ Controller for traction equipment e.g. electric trains
- ◆ Other automatic control systems



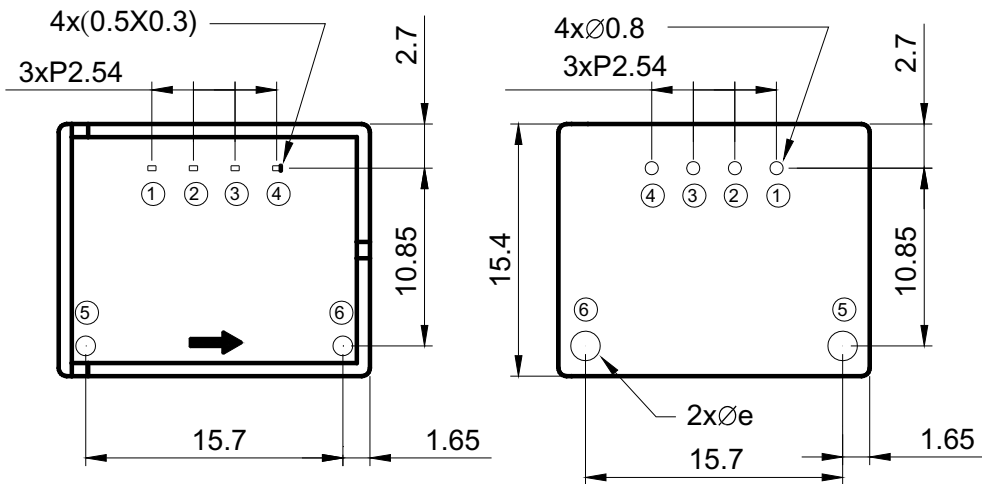
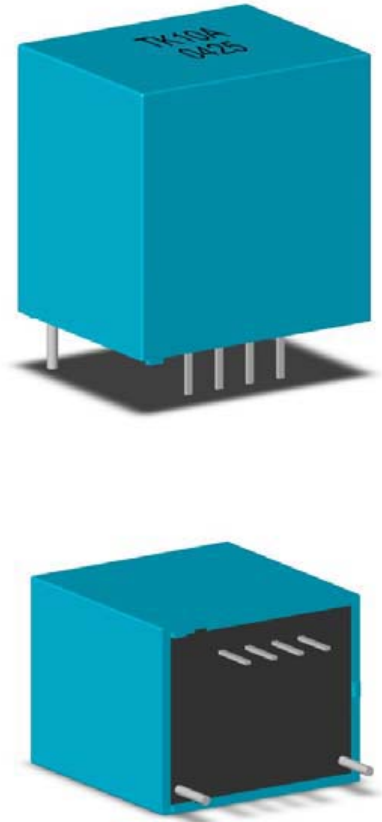
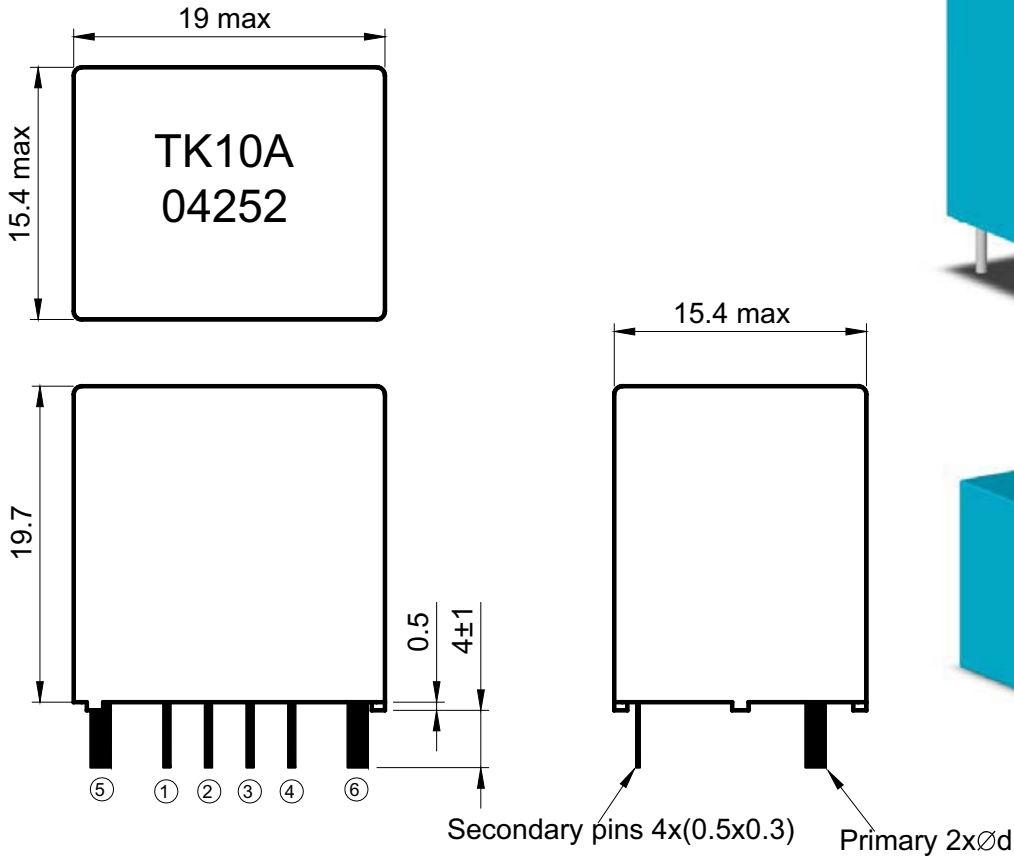
### Specifications

Parameter	Symbol	Unit	TK3A .. TK50A
Nominal Input Current	$I_{fn}$	A DC	3 .. 50
Linear Range	$I_{fs}$	A DC	$\pm 9 .. \pm 150 = 3 \times I_{fn}$
Nominal Output Voltage	$V_{hn}$	V	4 V $\pm 1\%$ at $I_f = I_{fn}$ ( $R_L = 10k\Omega$ )
Offset Voltage	$V_{os}$	mV	Within $\pm 40$ mV @ $I_f = 0$ , $T_a = 25^\circ\text{C}$
Output Resistance	$R_{OUT}$	$\Omega$	$< 100\Omega$
Hysteresis Error	$V_{oh}$	mV	Within $\pm 15$ mV @ $I_f = I_{fn} \rightarrow 0$
Supply Voltage	$V_{CC}/V_{EE}$	V	$\pm 15V \pm 5\%$
Linearity	$\rho$	%	Within $\pm 1\%$ of $I_{fn}$
Consumption Current	$I_{CC}$	mA	$\pm 12$ mA nominal, $\pm 16$ mA max
Response Time (90% $V_{hn}$ )	$T_r$	$\mu\text{sec}$	5 $\mu\text{sec}$ max. @ $d I_f / dt = I_{fn} / \mu\text{sec}$
Frequency bandwidth (-3dB)	$f_{BW}$	Hz	DC to 50kHz
Thermal Drift of Output	-	$\% / ^\circ\text{C}$	Within $\pm 0.1$ $\% / ^\circ\text{C}$ @ $I_{fn}$
Thermal Drift of Zero Current Offset	-	$\text{mV} / ^\circ\text{C}$	Within $\pm 1.5$ $\text{mV} / ^\circ\text{C}$ @ $I_{fn}$
Dielectric Strength	-	V	AC2.5KV X 60 sec
Isolation Resistance @ 1000 VDC	$R_{IS}$	$M\Omega$	$> 1000 M\Omega$
Operating Temperature	$T_a$	$^\circ\text{C}$	$-15^\circ\text{C}$ to $80^\circ\text{C}$
Storage Temperature	$T_s$	$^\circ\text{C}$	$-20^\circ\text{C}$ to $85^\circ\text{C}$
Mass	W	g	10 g

# Topstek Current Transducer TK3A .. TK50A

## Appearance, dimensions and pin identification for TK3A .. TK20A models

All dimensions in mm  $\pm 0.2$ , holes  $-0, +0.2$  except otherwise noted.



Pin Assignment	
①	-15V
②	0V
③	+15V
④	Vout
⑤	I +
⑥	I -

Bottom View

3A to 20A PCB mounting hole layout

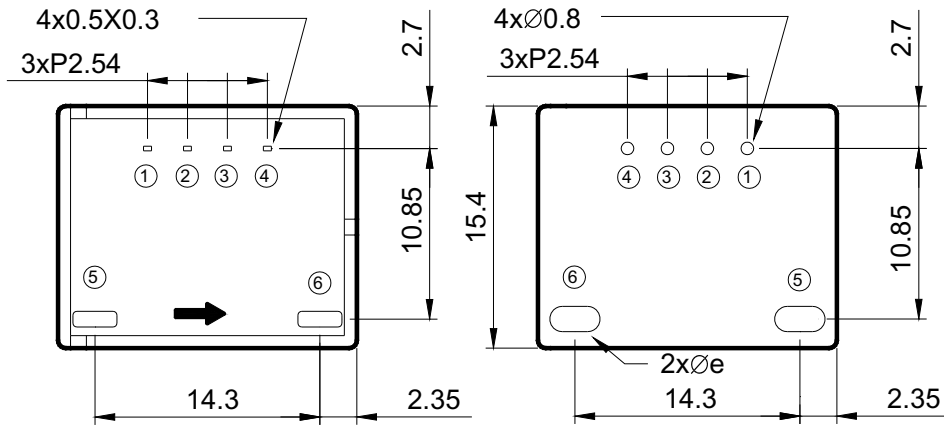
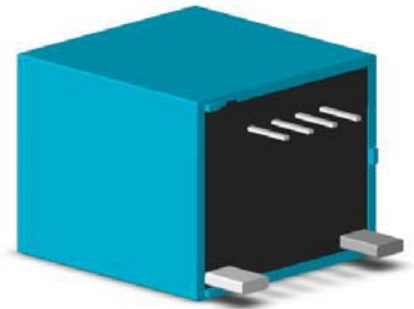
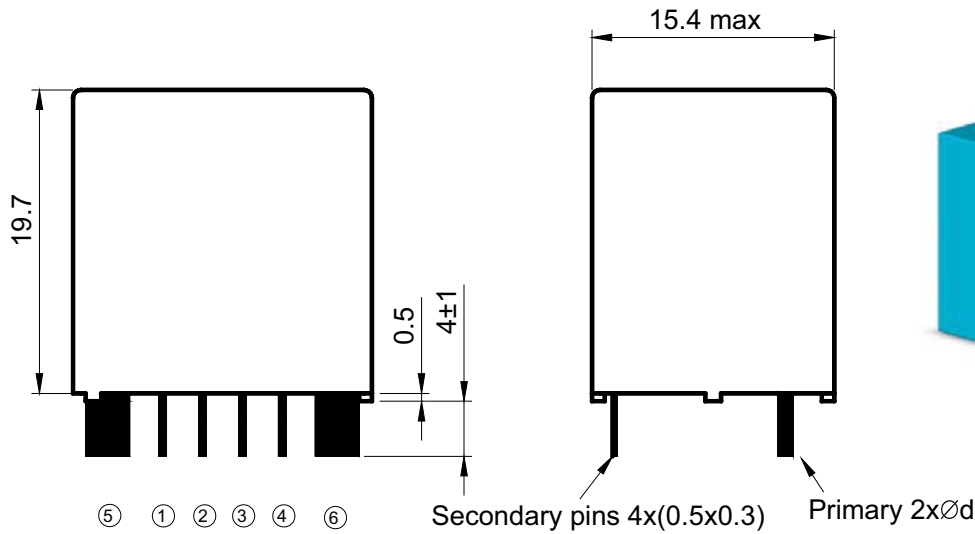
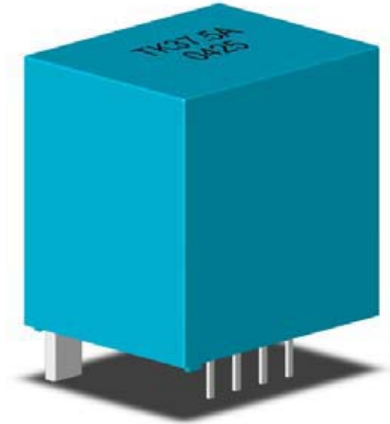
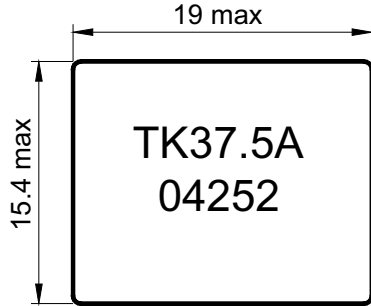
Part Number	TK3A	TK4A	TK5A	TK6A	TK7.5A	TK10A	TK12.5A	TK15A	TK18.5A	TK20A
d(mm)	0.6	0.8	0.8	0.8	1.0	1.2	1.2	1.4	1.4	1.6
e(mm)	1.2	1.2	1.2	1.2	1.6	1.8	1.8	2.2	2.2	2.4

# Topstek Current Transducer TK3A .. TK50A

## Appearance, dimensions and pin identification for TK25A .. TK50A models

All dimensions in mm  $\pm 0.2$ , holes  $-0, +0.2$  except otherwise noted.

➔ Positive current flow direction



Bottom View

25A to 50A PCB mounting hole layout

Pin Assignment	
①	-15V
②	0V
③	+15V
④	Vout
⑤	I +
⑥	I -

Part Number	TK25A	TK30A	TK37.5A	TK50A
d(mm)	□ 1x2	□ 1x2	□ 1x2.8	□ 1x2.8
e(mm)	□ 1.6x2.8	□ 1.6x2.8	□ 1.6x3.2	□ 1.6x3.2