



Topstek Current Transducer TH1A-S05 .. TH50A-S05

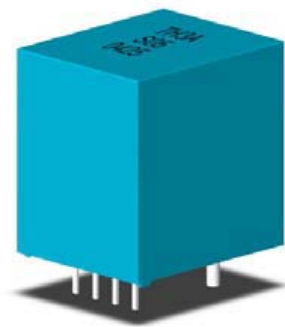
TH 3A~50A-S05

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	TH1A-S05 .. TH50A-S05
Nominal Input Current	I_{fn}	A DC	1 .. 50
Linear Range	I_{fs}	A DC	$\pm 2 .. \pm 100 = 2.0 \times I_{fn}$
Nominal Output Voltage	V_{hn}	V	$V_{REF} + 0.625 V \pm 1\% \text{ at } I_f = I_{fn} \text{ (} R_L = 10k\Omega \text{)}$
Nominal Output @ Zero Current Input	V_{REF}	V	$V_{CC}/2$
Offset Voltage	V_{os}	mV	Within $V_{REF} \pm 30 \text{ mV @ } I_f = 0, T_a = 25^\circ\text{C}$
Output Resistance	R_{OUT}	Ω	<50 Ω
Hysteresis Error	V_{oh}	mV	Within $\pm 15 \text{ mV @ } I_f = I_{fn} \rightarrow 0$
Supply Voltage	V_{CC}	V	+5V $\pm 5\%$
Linearity	ρ	%	Within $\pm 1\%$ of I_{fn}
Consumption Current	I_{CC}	mA	+12 mA nominal, +16 mA max
Response Time (90% V_{hn})	T_r	μsec	5 μsec 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 $\pm 2 \text{ mV} / ^\circ\text{C @ } I_{fn}$
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

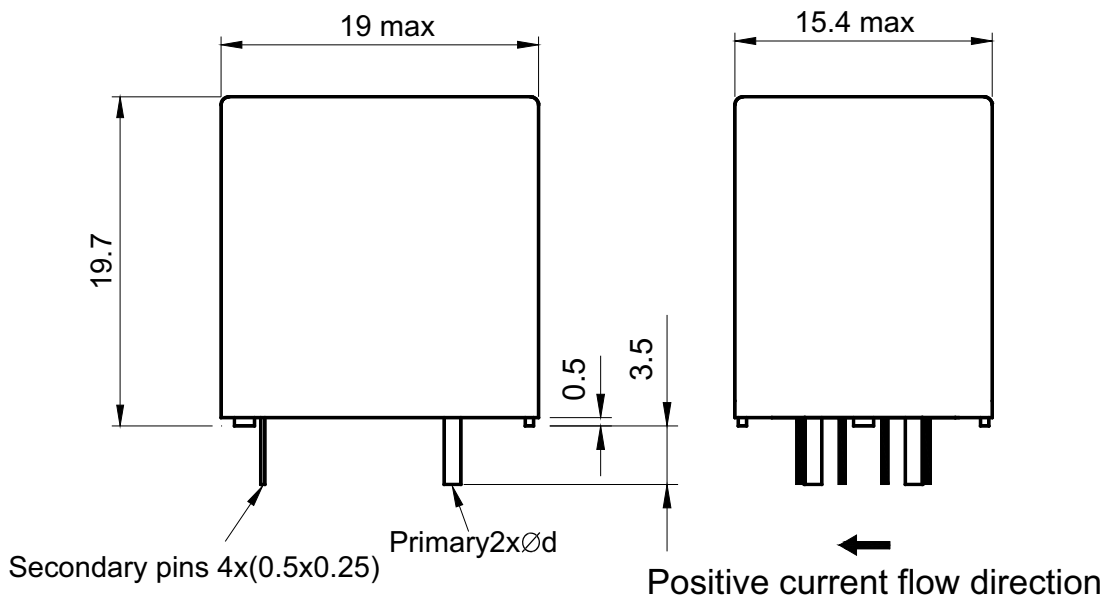
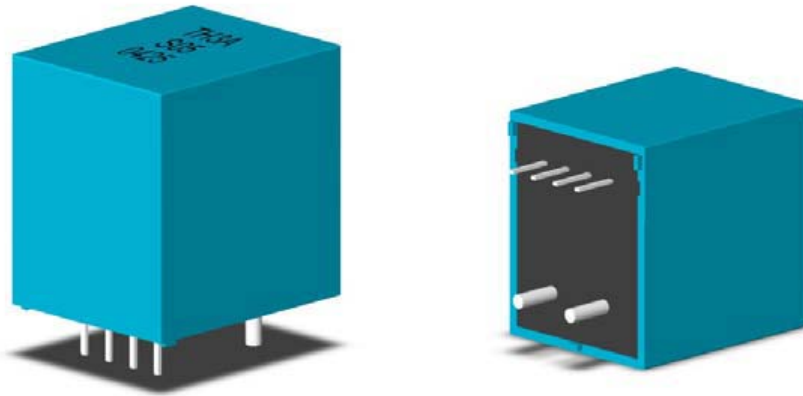




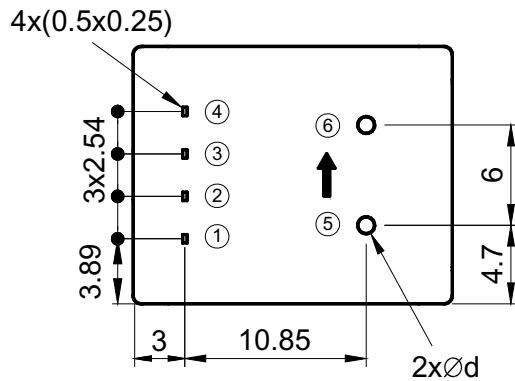
Topstek Current Transducer TH1A-S05 .. TH50A-S05

Appearance, dimensions and pin identification for TH1AS05 .. TH30AS05 models

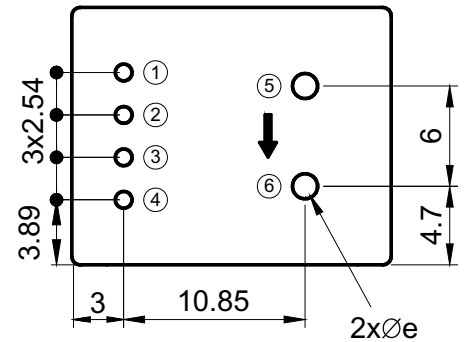
All dimensions in mm ± 0.1 , holes $-0, +0.2$ except otherwise noted.



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



Bottom View



PCB mounting hole layout

Part Number	TH1A S05	TH3A S05	TH4A S05	TH6A S05	TH7.5A S05	TH10A S05	TH12.5A S05	TH15A S05	TH18.5A S05	TH20A S05	TH25A S05	TH30A S05
d(mm)	0.6	0.6	0.8	0.8	1.0	1.2	1.2	1.4	1.4	1.6	1.6	1.6
e(mm)	1.2	1.2	1.2	1.2	1.6	1.8	1.8	2.2	2.2	2.4	2.4	2.4

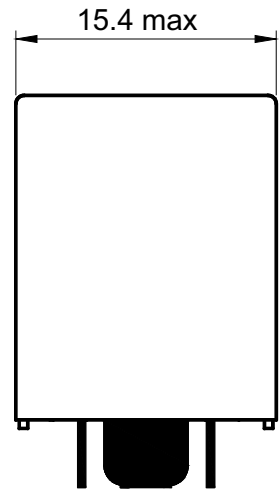
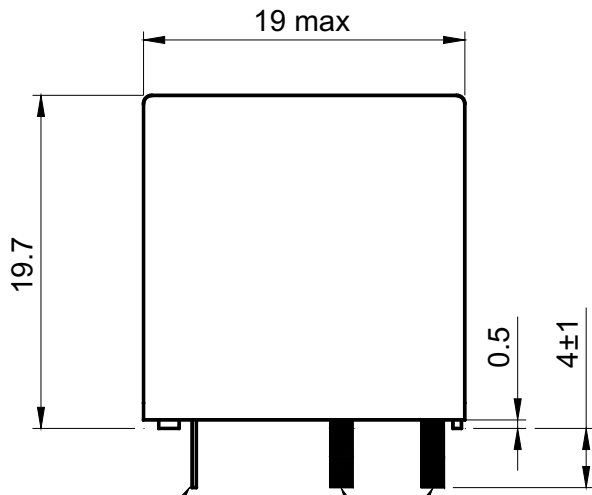
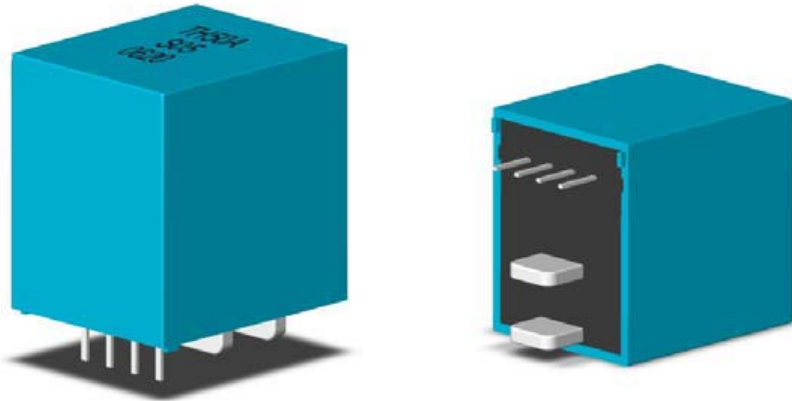




Topstek Current Transducer TH1A-S05 .. TH50A-S05

Appearance, dimensions and pin identification for TH37.5A-S05 .. TH50A-S05 models

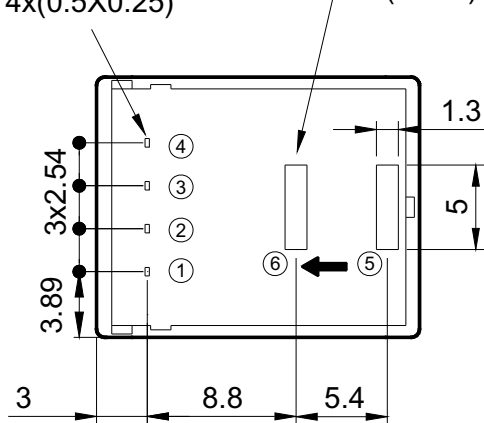
All dimensions in mm ± 0.2 , holes $-0, +0.2$ except otherwise noted.



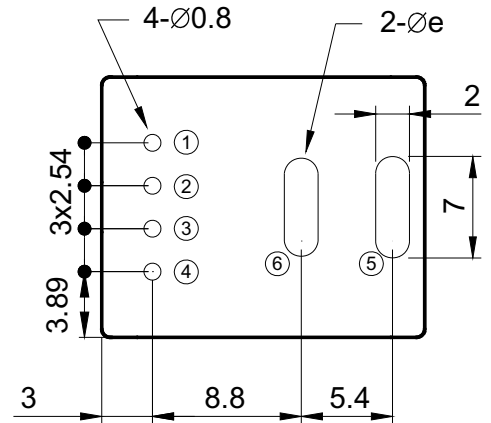
Secondary pins 4x(0.5x0.25)

Primary Conductor 2x(1.3x5)

4x(0.5X0.25)



Bottom View



PCB mounting hole layout

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



Positive current flow direction

