

Topstek Current Transducer TKV 3A .. TKV 50A

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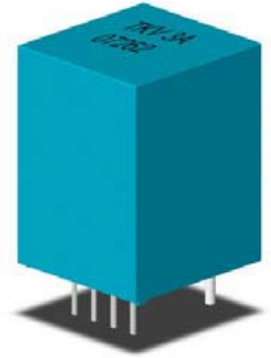
TKV 3A~50A

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

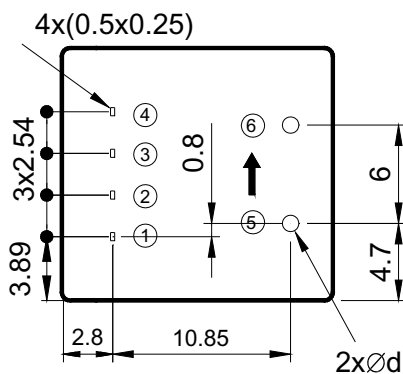
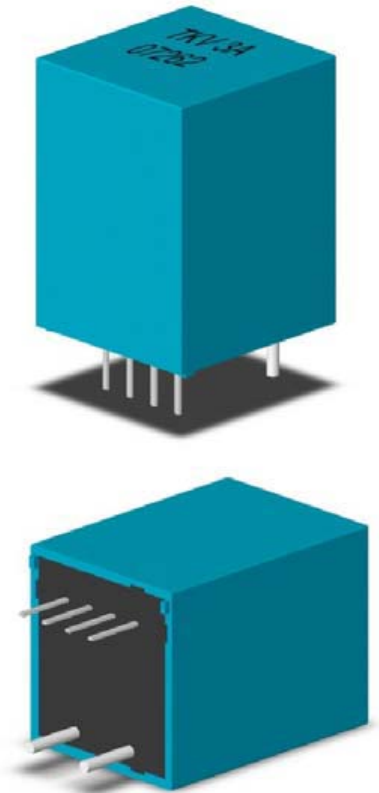
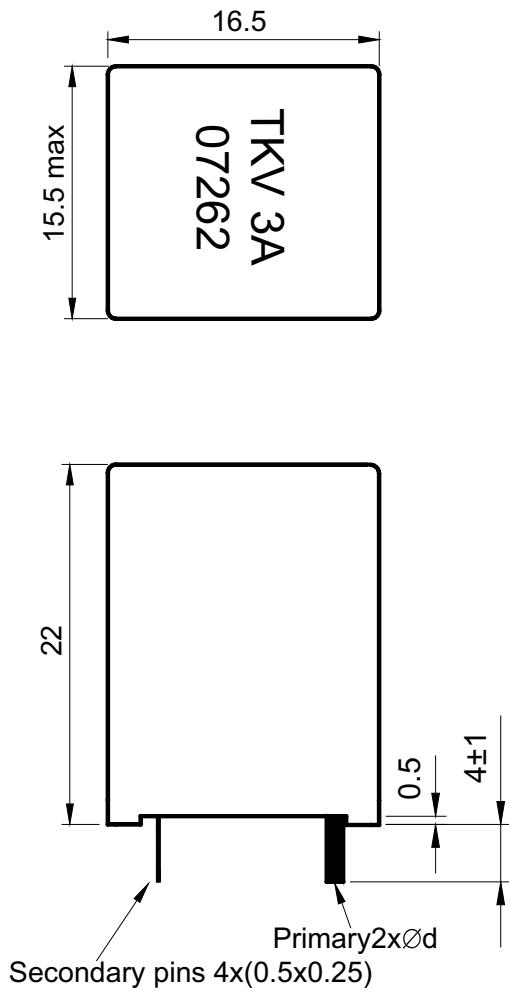
Parameter	Symbol	Unit	TKV3A .. TKV50A	TKV3A-B12 .. TKV50A-B12
Nominal Input Current	I_{fn}	A DC	3 .. 50	
Linear Range	I_{fs}	A DC	$\pm 9 .. \pm 150 = 3 \times I_{fn}$	$\pm 7.2 .. \pm 120 = 2.4 \times I_{fn}$
Nominal Output Voltage	V_{hn}	V	4 V $\pm 1\%$ at $I_f = I_{fn}$ ($R_L = 10k\Omega$)	
Offset Voltage	V_{os}	mV	Within ± 40 mV @ $I_f = 0$, $T_a = 25^\circ\text{C}$	
Output Resistance	R_{OUT}	Ω	<100 Ω	
Hysteresis Error	V_{oh}	mV	Within ± 15 mV @ $I_f = I_{fn} \rightarrow 0$	
Supply Voltage	V_{CC}/V_{EE}	V	$\pm 15\text{V} \pm 5\%$	$\pm 12\text{V} \pm 5\%$
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	3 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 ± 0.1 %/ $^\circ\text{C}$ @ I_{fn}	
Thermal Drift of Zero Current Offset	-	mV/ $^\circ\text{C}$	Within ± 1.5 mV/ $^\circ\text{C}$ @ I_{fn}	
Dielectric Strength	-	V	AC2.5KV X 60 sec	
Isolation Resistance @ 1000 VDC	R_{IS}	M Ω	>1000 M Ω	
Operating Temperature	T_a	$^\circ\text{C}$	-15°C to 80°C	
Storage Temperature	T_s	$^\circ\text{C}$	-20°C to 85°C	
Mass	W	g	10 g	

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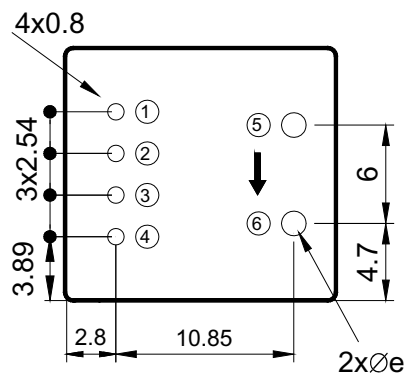
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Appearance, dimensions and pin identification for TKV 3A .. TKV 25A models

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



Bottom View



3A to 25A PCB mounting hole layout

Pin Assignment	
①	-15V
②	0V
③	+15V
④	V _{OUT}
⑤	I +
⑥	I -

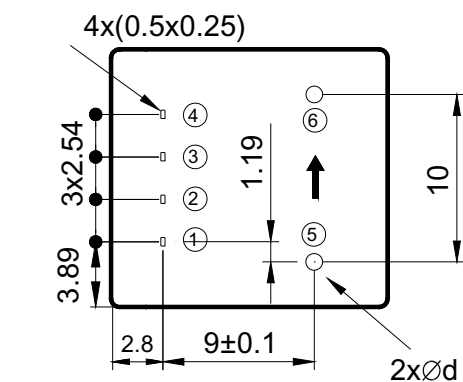
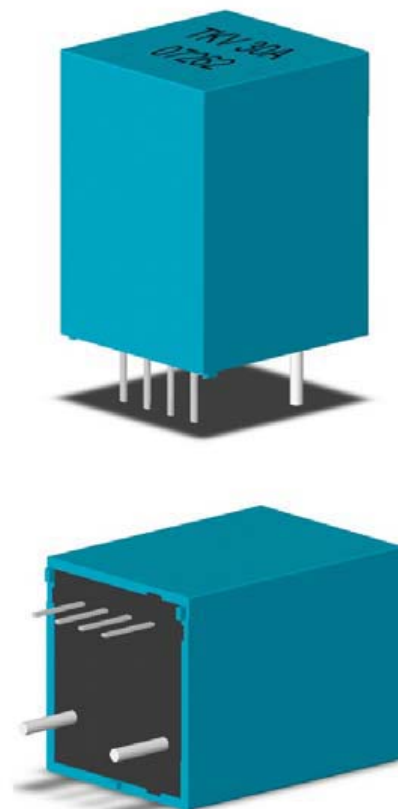
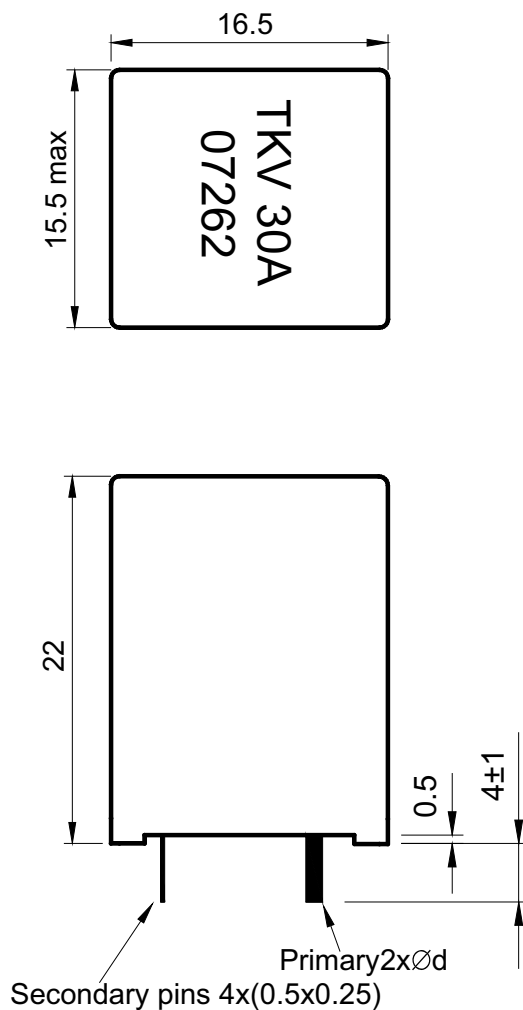
Nominal Primary Current	3--4A	5--7A	7.5--12A	12.5--20A	21--30A
d (mm)	0.6	0.8	1.0	1.2	1.6
e (mm)	1.2	1.4	1.6	1.8	2.2

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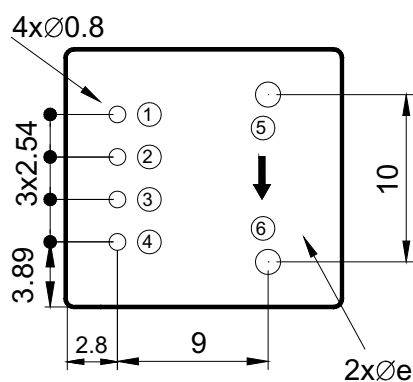
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Appearance, dimensions and pin identification for TKV 30A..TKV 50A models

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



Bottom View



PCB mounting hole layout

Pin Assignment	
①	-15V
②	0V
③	+15V
④	V _{OUT}
⑤	I +
⑥	I -

Nominal Primary Current	30—37.5A	40--50A
d (mm)	1.6	2.0
e (mm)	2.2	2.6