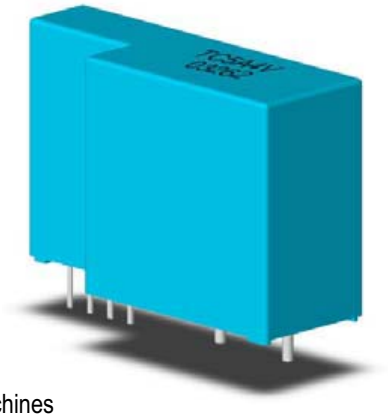
Topstek Current Transducer TC5A .. TC50A

TC 5A~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 (9 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

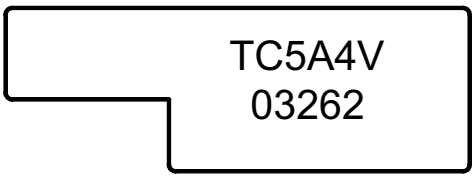
- ♦ UPS systems
- ♦ Industrial robots
- ♦ NC tooling machines
- ♦ Elevator controllers
- ♦ Process control devices
- ♦ AC and DC servo systems
- ♦ Motor speed controller
- ♦ Electrical vehicle controllers
- ♦ Inverter-controlled welding machines
- ♦ General and special purpose inverters
- ♦ Power supply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

Specifications

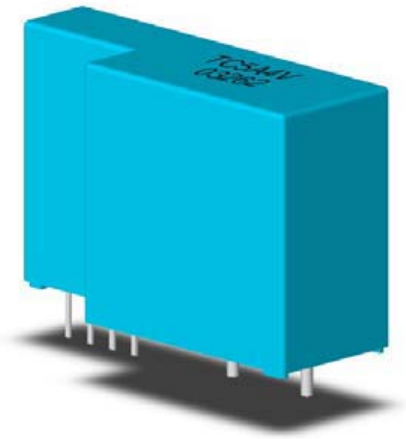
Parameter	Symbol	Unit	TC 5A 4V	TC 7.5A 4V	TC 10A 4V	TC 12.5A 4V	TC 15A 4V	TC 18.5A 4V	TC 20A 4V	TC 25A 4V	TC 50A 4V
Nominal Input Current	I_{fn}	A DC	5	7.5	10	12.5	15	18.5	20	25	50
Linear Range	I_{fs}	A DC	±15	±23	±30	±38	±45	±56	±60	±75	±150
Diameter of Primary Coil	d	mm	0.7	1	1.2	1.2	1.4	1.4	1.4	1.6	1.6x2.5
Turns of Primary Coil	T	T	10	6	5	4	3	2	2	2	1
Ampere-Turn of Primary Coil	AT	AT	50	45	50	50	45	37	40	50	50
Nominal Output Voltage	V_{hn}	V	4 V±1% at If=I_{fn} (R_L=10kΩ)								
Offset Voltage	V_{os}	mV	Within ±40 mV @ I_f=0, T_a=25°C								
Output Resistance	R_{OUT}	Ω	< 50Ω(35Ωnominal)								
Hysteresis Error	V_{oh}	mV	Within ±10 mV @ I_f=I_{fn}→0								
Supply Voltage	V_{CC}/V_{EE}	V	±15V ±5%								
Linearity (Within ±I_{fn})	ρ	%	Within ±1% of I_{fn}								
Consumption Current	I_{CC}	mA	±9 mA nominal								
Response Time (90%V_{hn})	T_r	μsec	3 μsec max. @ $d I_f / dt = I_{fn} / \mu sec$								
Thermal Drift of Output	-	%/°C	Within ±0.1 %/°C @ I_{fn}								
Thermal Drift of Zero Current Offset	-	mV/°C	Within ±1.5 mV/°C @ I_{fn}								
Dielectric Strength	-	V	AC2.5KV X 60 sec								
Isolation Resistance @ 1000 VDC	R_{IS}	MΩ	>1000 MΩ								
Operating Temperature	T_a	°C	-15°C to 80°C								
Storage Temperature	T_s	°C	-20°C to 85°C								
Mass	W	g	14 g								

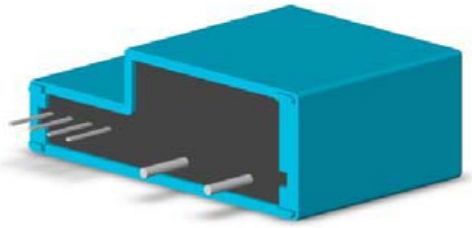
Appearance, dimensions and pin identification for 5A to 25A models

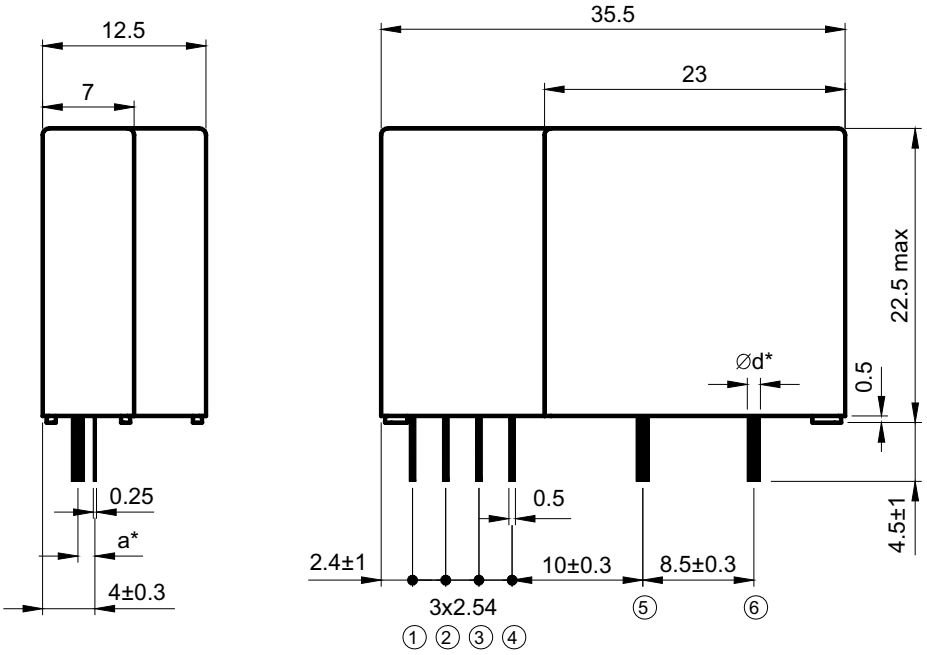
All dimensions in mm ±0.1, holes –0, +0.2 except otherwise noted



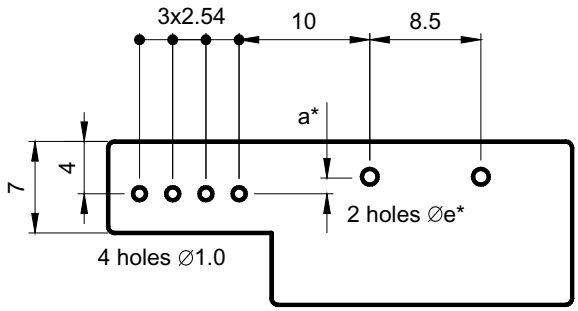
Model number and date code marking







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

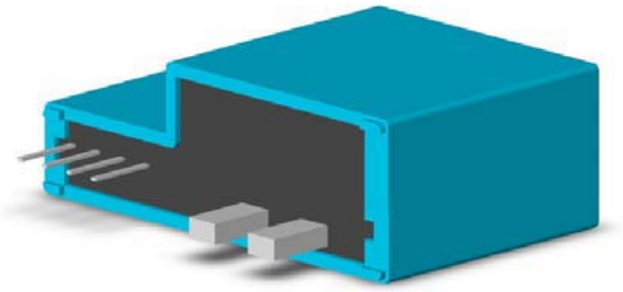


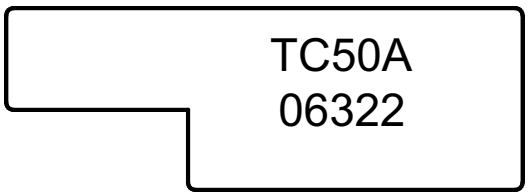
5A to 25A PCB mounting hole layout

Part Number	a* (mm)	d* (mm)	e* (mm)
TC5A4V	1.2	ø0.7	ø1.2
TC7.5A4V	1.3	ø1.0	ø1.6
TC10A4V	1.4	ø1.2	ø1.8
TC12.5A4V	1.4	ø1.2	ø1.8
TC15A4V	1.5	ø1.4	ø2.0
TC18.5A4V	1.5	ø1.4	ø2.0
TC20A4V	1.5	ø1.4	ø2.0
TC25A4V	1.5	ø1.4	ø2.2

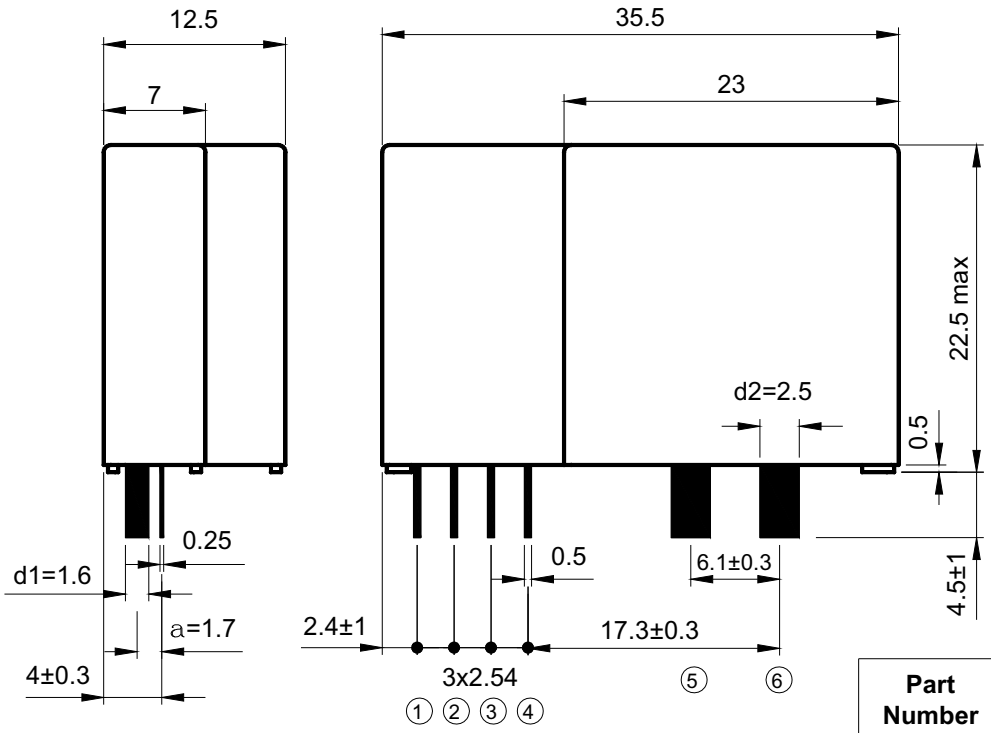
Appearance, dimensions and pin identification for TC50A model

All dimensions in mm ±0.1, holes –0, +0.2 except otherwise noted



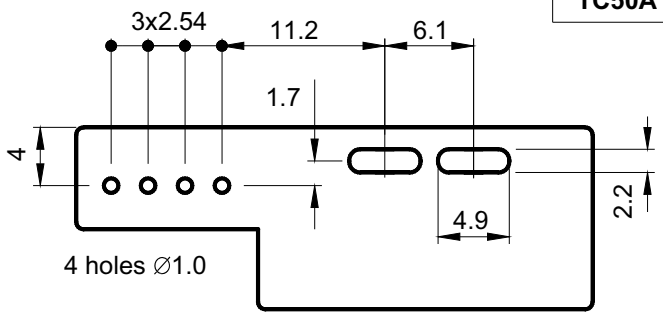


Model number and date code marking



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

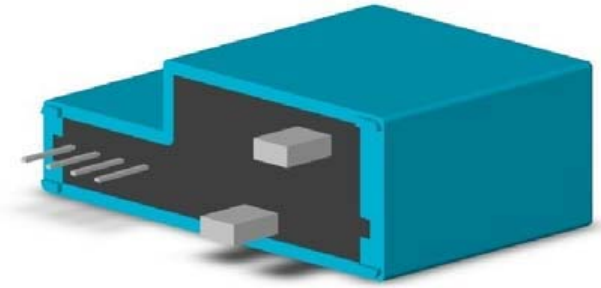
Part Number	a* (mm)	d1xd2 (mm)	hole (mm)
TC50A	1.7	▭1.6x2.5	▭2.2x4.9

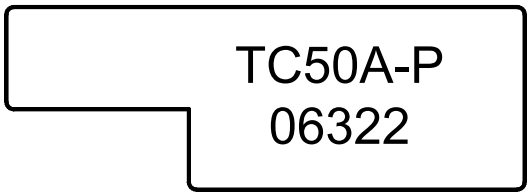


TC50A PCB mounting hole layout

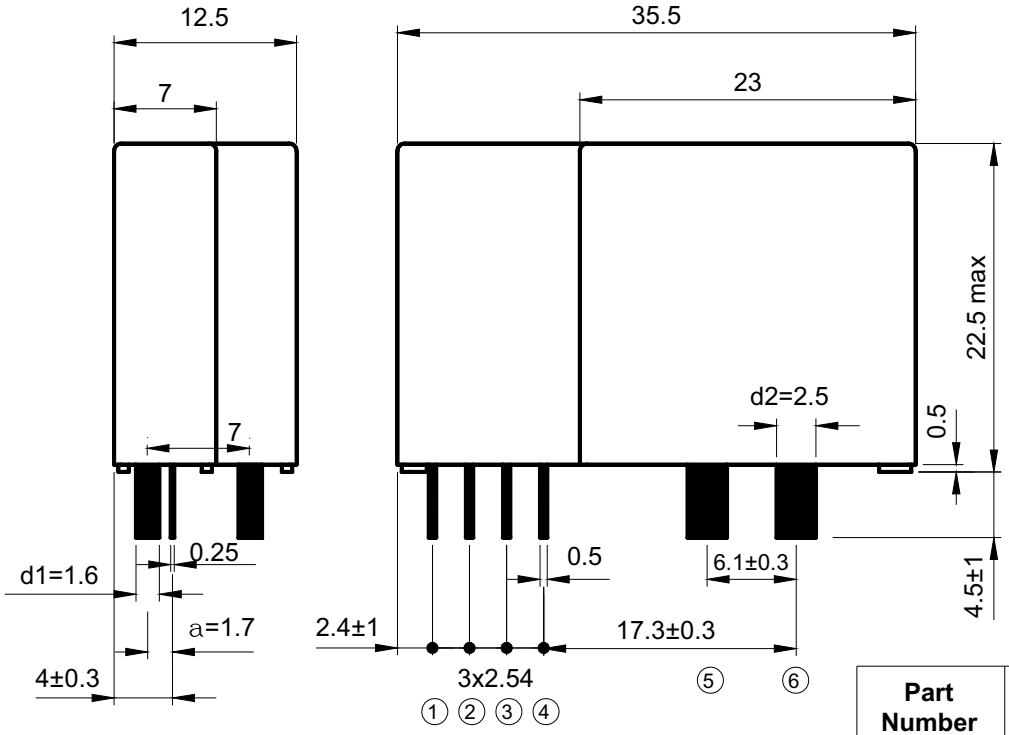
Appearance, dimensions and pin identification for TC50A-P model

All dimensions in mm ±0.1, holes –0, +0.2 except otherwise noted



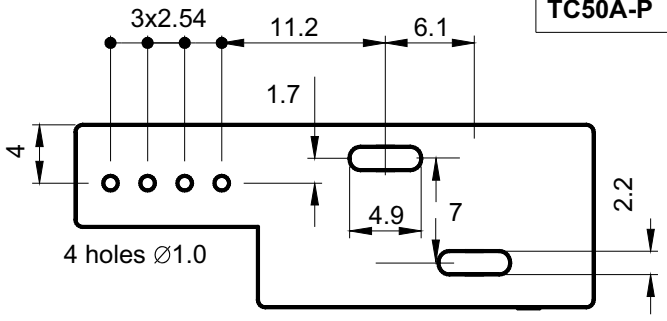


Model number and date code marking



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

Part Number	a* (mm)	d1xd2 (mm)	hole (mm)
TC50A-P	1.7	▭1.6x2.5	▭2.2x4.9



TC50A-P PCB mounting hole layout