

Description

Hall effect type current sensor with a single digital output factory programmed to go low when a given current threshold is exceeded. The TD Series is able to operate within a temperature range of -40°C to 125°C and has a fast response time of 1µs (typical). The miniature package size allows the TD series to be mounted on printed circuit boards and is integrated with an open collector digital output which is ideal for interfacing to control circuitry.

Typical Applications

Welding equipment, servo drives, treadmills, automotive power conversion, power supplies, home audio, MRI equipment

Ordering Information

Type No

TD Over Current Detector

Trip Point

015 15 Amp

020 20 Amp

025 25 Amp

030 30 Amp

035 35 Amp

040 40 Amp

045 45 Amp

050 50 Amp

055 55 Amp

060 60 Amp

065 65 Amp

070 70 Amp

075 75 Amp

080 80 Amp

085 85 Amp

090 90 Amp

095 95 Amp

100 100 Amp

105 105 Amp

110 110 Amp

115 115 Amp

120 120 Amp

125 125 Amp

TD - 025 = ordering example



Technical Data

Absolute Maximum Ratings

Supply Voltage	-1.0 to +25 VDC
Voltage Externally Applied to Output	+25 VDC max (Output high, current below I_{trip}) -0.5 VDC min (Output high or low)
Output ON current (sink)	50 mA
Operating Temp Range	-40° C to +125° C
Sensed Current	+/- 500 Amp peak
RMS voltage for AC isolation test, 50/60 Hz, 1 minute	2.5 kVAc

Absolute maximum ratings are the extreme limits that the detector will withstand without damage. Electrical operation and characteristics are not guaranteed as the maximum limits are approached. Proper application of the detector must ensure that the detector operates within the operating characteristics below.

Operating Characteristics

	Symbol	Min	Typ.	Max	Notes
Supply Voltage	V_s	3.8		24.0	VDC
Supply Current	I_s			10.0	mA
Operating Temperature	I_s	-40		125	°C
Output Trip Time	T_{trip}		1.0	2.5	μ S, $di/dt=I_{trip}/\mu$ S
Output ON Voltage	V_{os}		0.15	0.40	VDC sinking 20 mA
Output ON Current	I_{os}			20	mA

Note 1: Detector sensitive to unidirectional current as defined in mechanical dimension drawing

Trip Currents (Amps @ 25° C)

Trip Current	Min	Max
15	13.2	16.8
20	17.6	22.4
25	22	28
30	26.4	33.6
35	30.8	39.2
40	35.2	44.8
45	39.6	50.4
50	44	56
55	48.4	61.6
60	52.8	67.2
65	57.2	72.8
70	61.6	78.4
75	66	84

Trip Current	Min	Max
80	70.4	89.6
85	74.8	95.2
90	79.2	100.8
95	83.6	106.4
100	88	112
105	92.4	117.6
110	96.8	123.2
115	101.2	128.8
120	105.6	134.4
125	110	140

Trip Current vs. Temperature

Figure 1 - TD-025

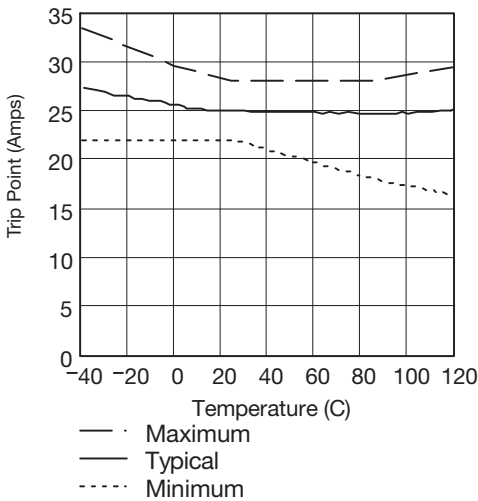


Figure 2 - TD-030

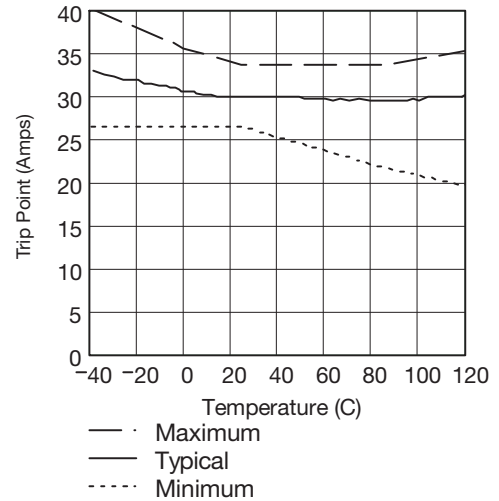


Figure 3 - TD-035

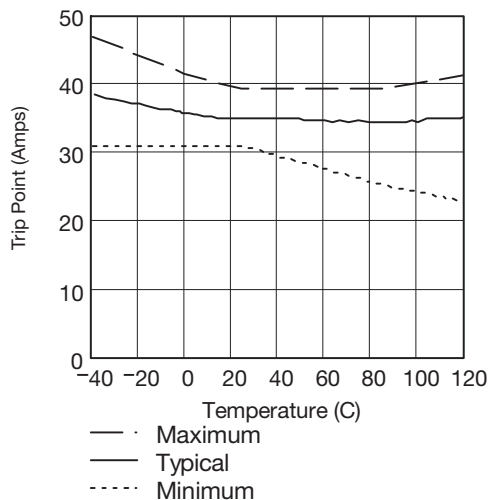
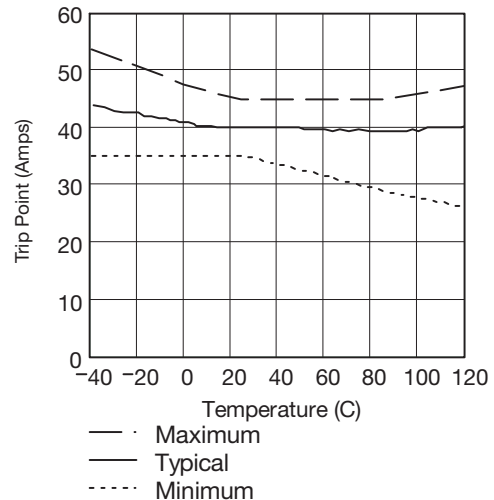


Figure 4 - TD-040



Trip Current vs. Temperature

Figure 5 - TD-045

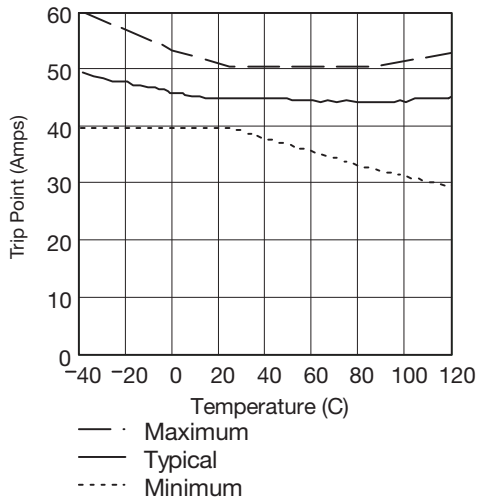


Figure 6 - TD-050

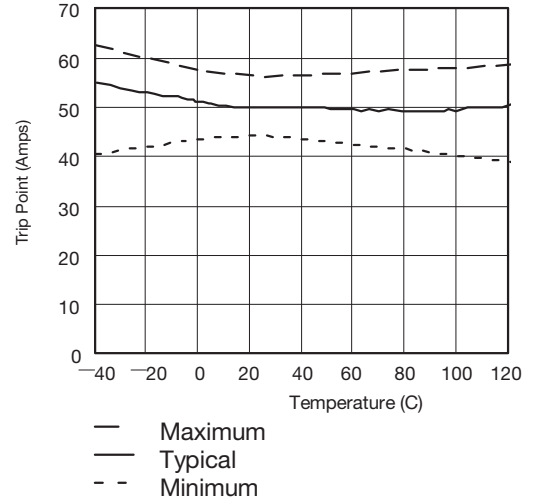


Figure 7 - TD-075

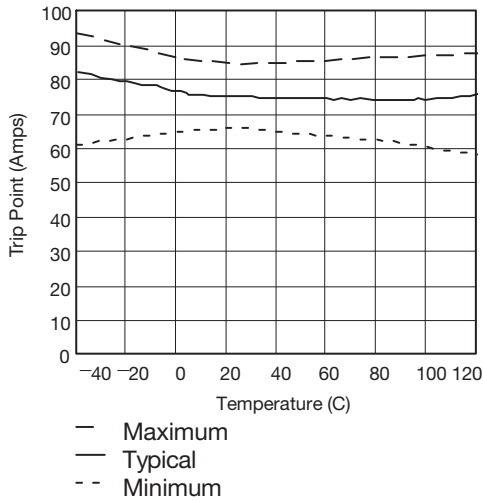


Figure 8 - TD-100

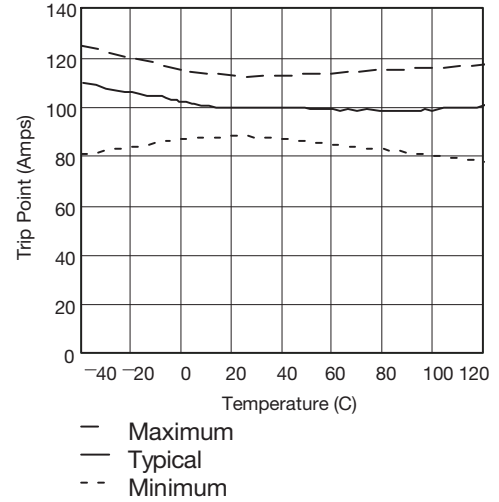
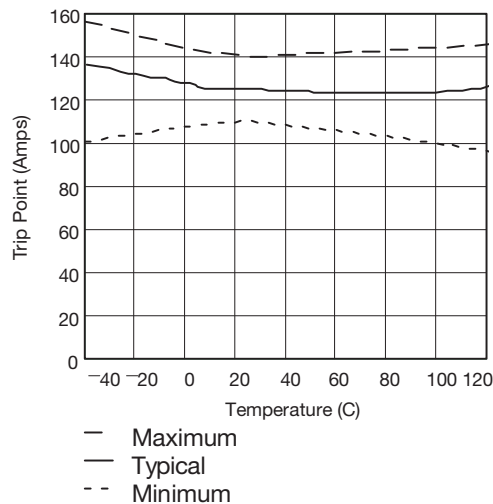
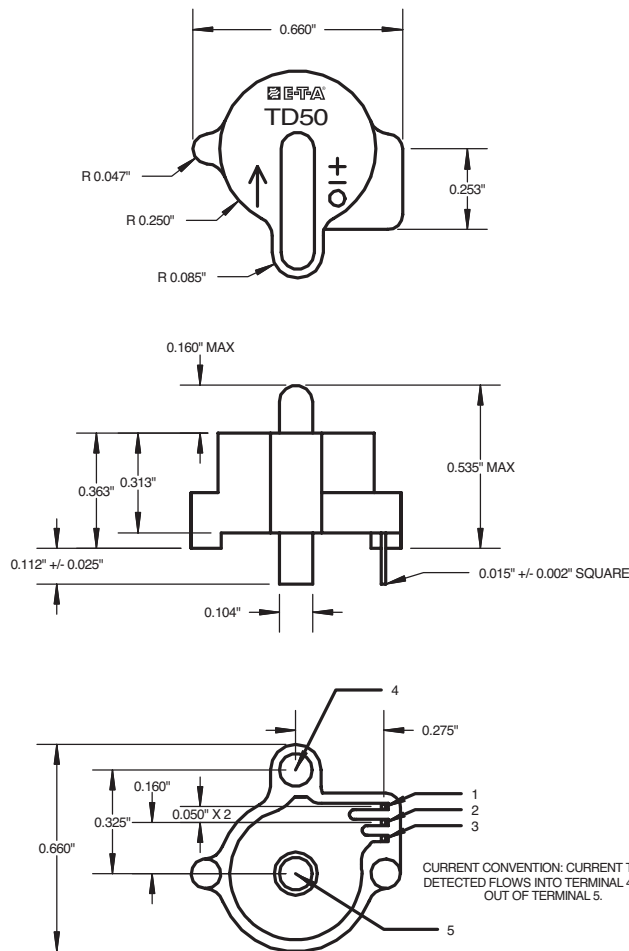


Figure 9 - TD-125



Mechanical Dimensions - A Package



Dimensions are in inches
Dimensional tolerances unless otherwise specified: +/- 0.010"

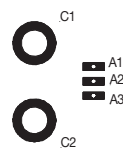
Pin	Desc.
1	Vo
2	GND
3	Vs
4	Iin
5	Iout

Printed Circuit Board Mounting Footprint

Component side
(component side view)



Solder side
(component side view)



Hole Location Chart

Hole	X	Y
A1	0.275"	-0.110"
A2	0.275"	-0.160"
A3	0.275"	-0.210"
C1	0.000	0.000
C2	0.000	-0.325"

Hole Description Chart

Hole	Finished diameter	Top Pad	Bottom Pad
A	0.027"	0.035"	0.035" x 0.100"
C	0.120"	0.200"	0.200"

Notes:

1. Center aperture of detector located at C1, X=0.000, Y=0.000
2. Hole diameter tolerance +/- 0.003"
3. Hole location tolerance +/- 0.003"