E-T-A TD Over Current Detector

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

Series TD

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	µS, di/dt=I_{trip}/µS
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

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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

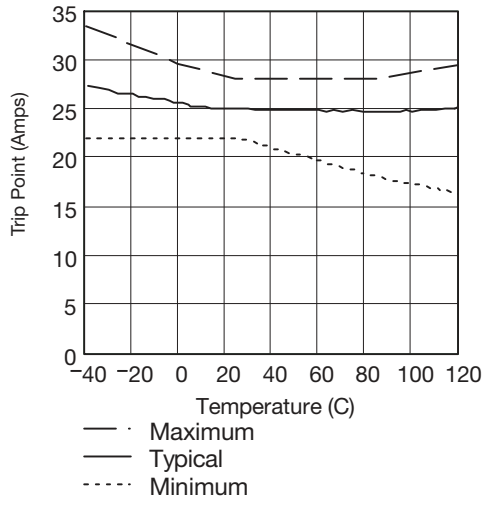


Figure 2 - TD-030

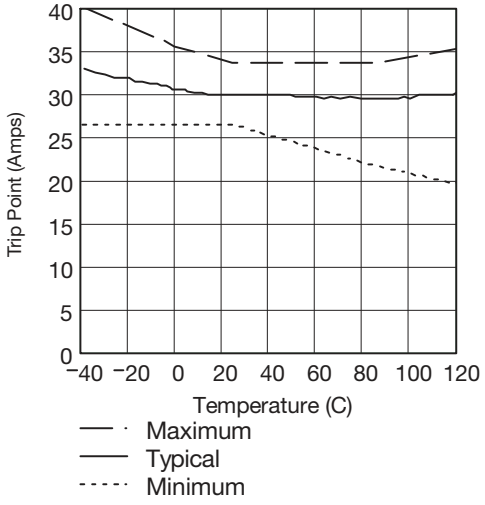


Figure 3 - TD-035

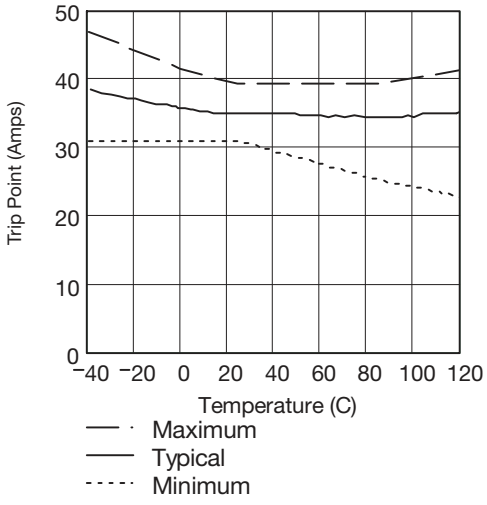
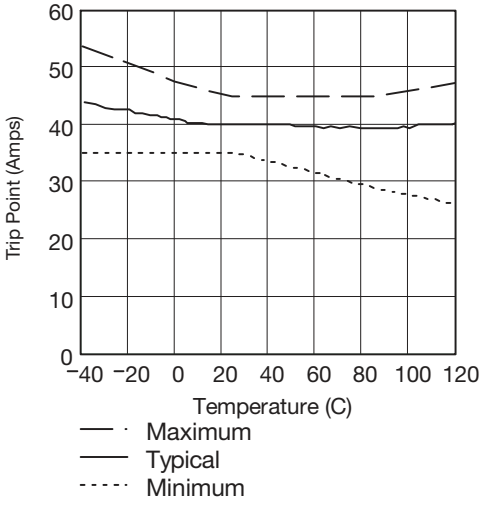


Figure 4 - TD-040



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Trip Current vs. Temperature

Figure 5 - TD-045

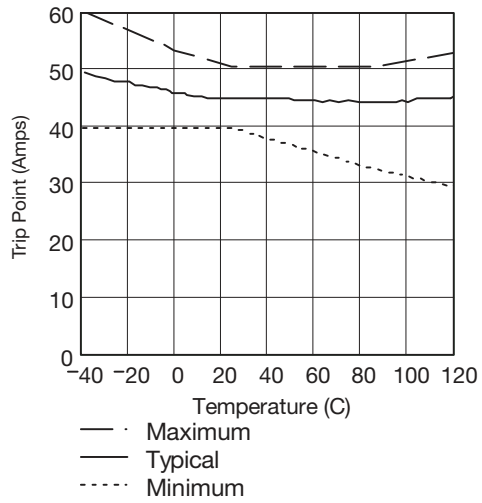


Figure 6 - TD-050

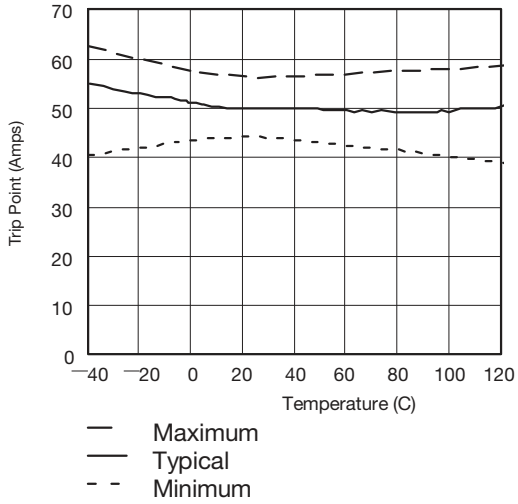


Figure 7 - TD-075

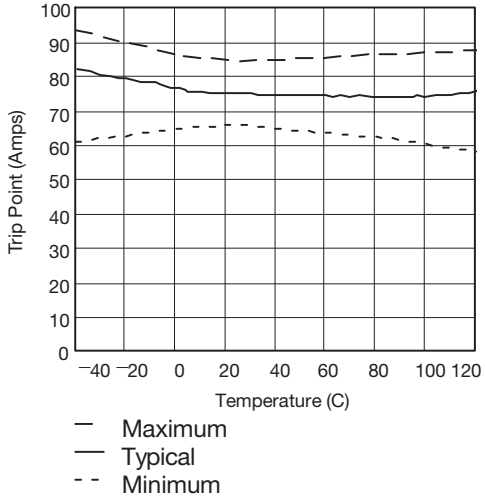


Figure 8 - TD-100

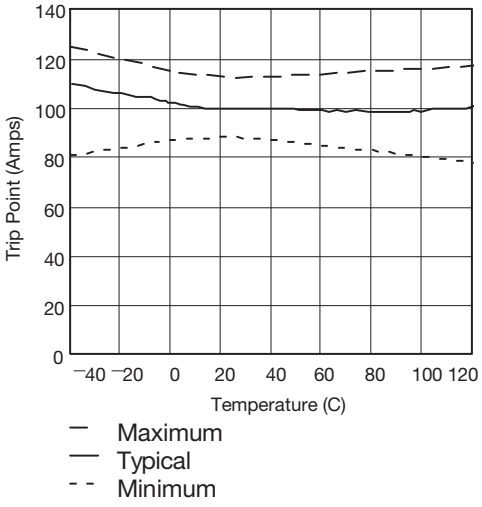
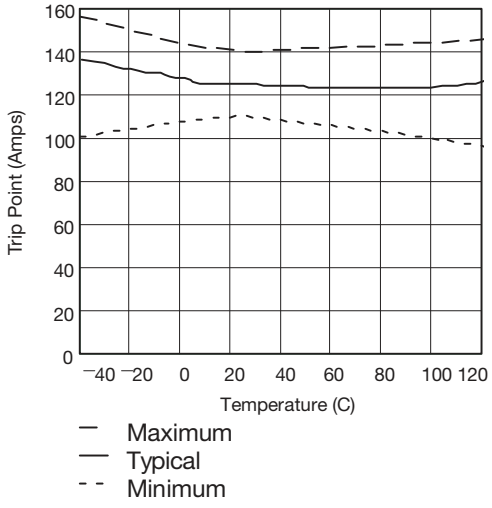


Figure 9 - TD-125



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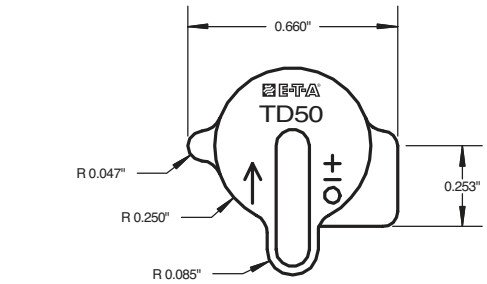
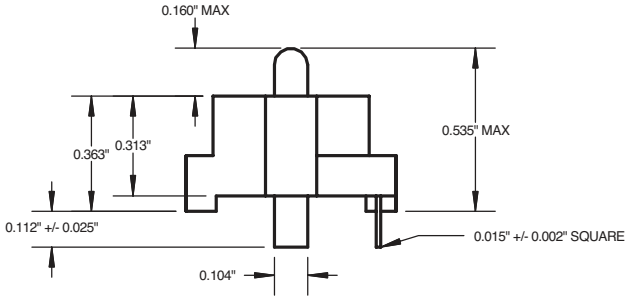
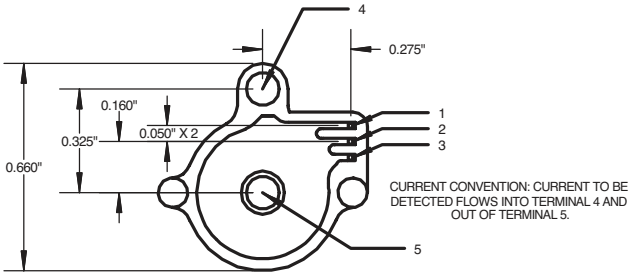
Mechanical Dimensions - A Package



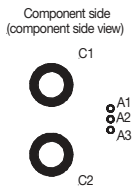
Dimensions are in inches
Dimensional tolerances unless otherwise specified: +/- 0.010”

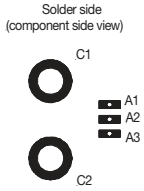


Pin	Desc.
1	Vo
2	GND
3	Vs
4	Iin
5	Iout



Printed Circuit Board Mounting Footprint





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”

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