

E-T-A® 9001 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 9001 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 9001 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

9001 Over Current Detector

Trip Point

050 50 Amp

075 75 Amp

100 100 Amp

125 125 Amp

150 150 Amp

9001 - 050 = ordering example

9002 Accessories

Code

001 Accessory busbar

9002 - 001 = ordering example



Series 9001

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

Absolute 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 listed 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	T_{op}	-40		125	°C (ref. Note 1)
Output Trip Time	T_{trip}		1.0	2.5	µS, $di/dt = I_{trip}/\mu S$
Output ON Voltage	V_{os}		0.15	0.40	VDC sinking 20 mA
Output ON Current	I_{os}			20	mA
9001-050 Trip Current	I_{trip}	44.0	50.0	56.0	Amps @ 25° C
9001-075 Trip Current	I_{trip}	66.0	75.0	84.0	Amps @ 25° C
9001-100 Trip Current	I_{trip}	88.0	100.0	112.0	Amps @ 25° C
9001-125 Trip Current	I_{trip}	110.0	125.0	140.0	Amps @ 25° C
9001-150 Trip Current	I_{trip}	132.0	150.0	168.0	Amps @ 25° C

Note 1: See Mounting and Interface Application Note for severe duty mounting recommendations

Note 2: Detector sensitive to unidirectional current as defined in mechanical dimension drawing

Trip Current vs. Temperature

Figure 1 - 9001-050

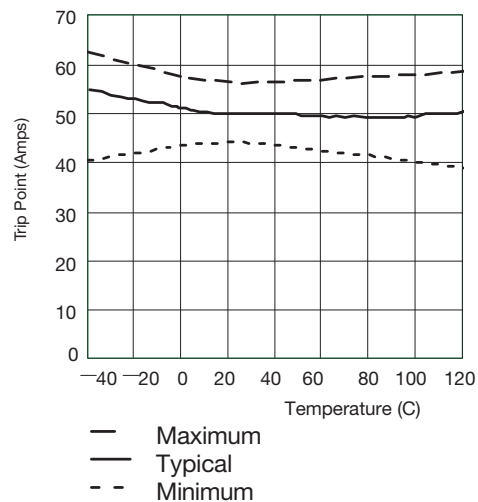


Figure 2 - 9001-075

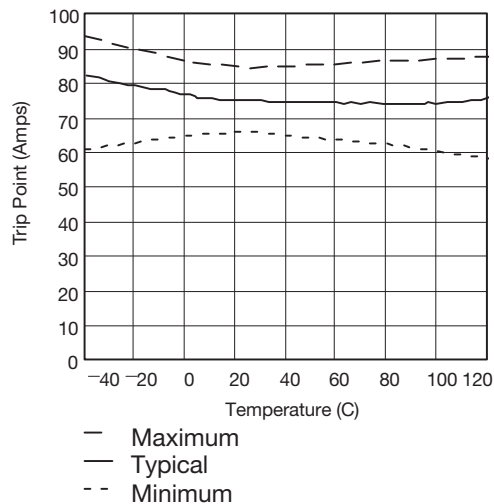


Figure 3 - 9001-100

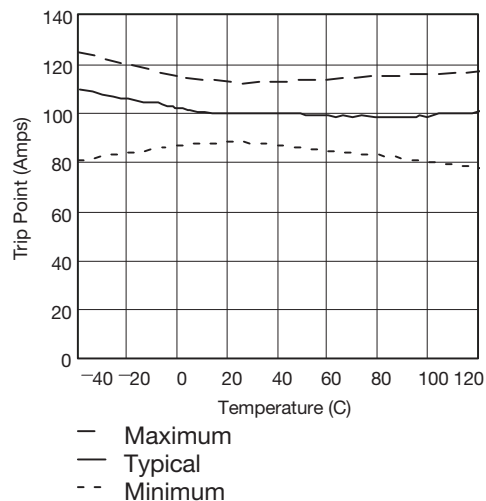


Figure 4 - 9001-125

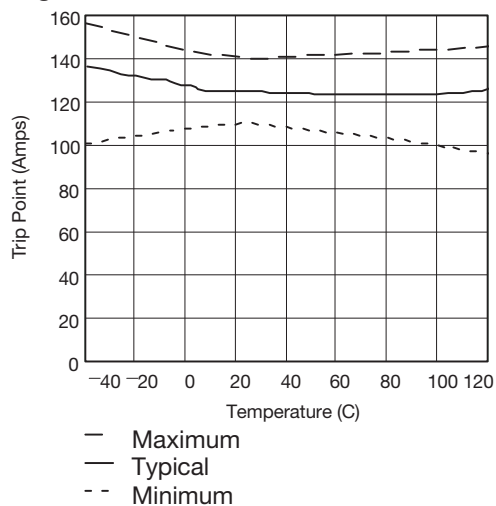
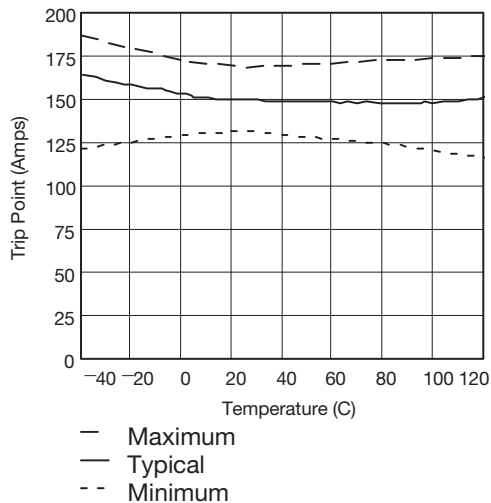
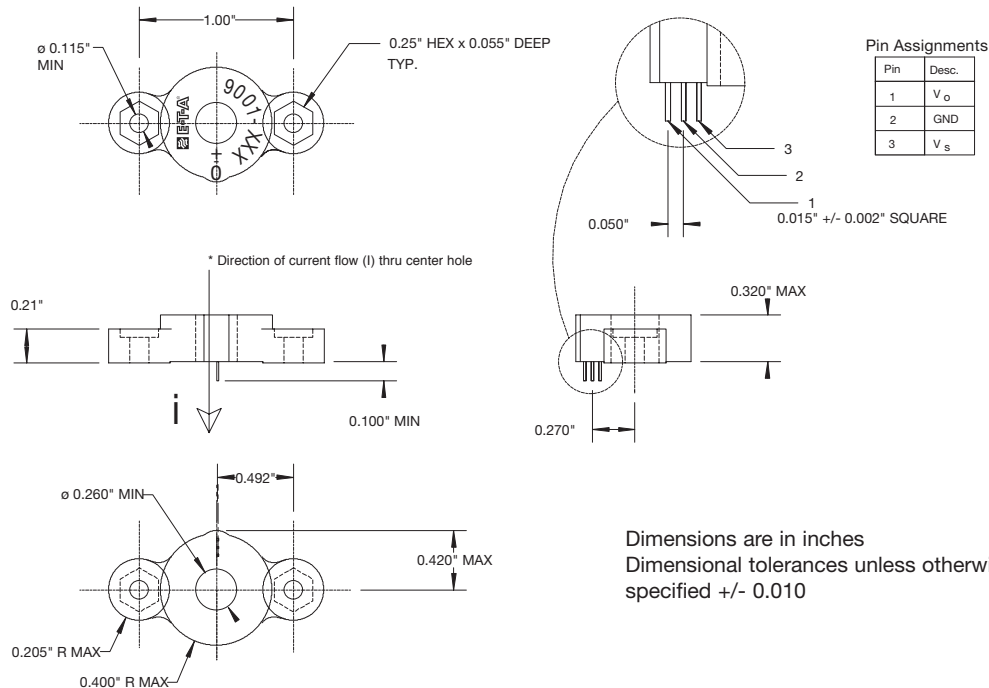


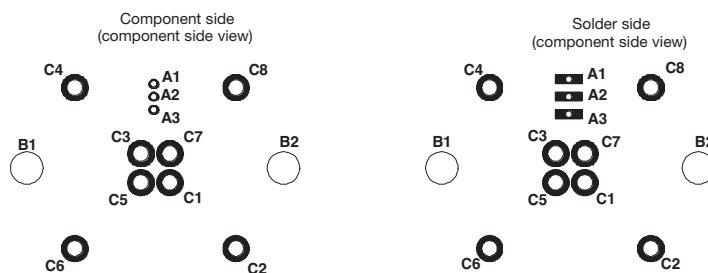
Figure 5 - 9001-150



Mechanical Dimensions



Printed Circuit Board Mounting Footprint



Hole Location Chart

Hole	X	Y
A1	-0.008"	0.320"
A2	-0.008"	0.270"
A3	-0.008"	0.220"
B1	-0.500"	0.000"
B2	0.500"	0.000"
C1	0.056"	-0.056"
C2	0.311"	-0.311"
C3	-0.056"	0.056"
C4	-0.311"	0.311"
C5	-0.056"	-0.056"
C6	-0.311"	-0.311"
C7	0.056"	-0.056"
C8	0.311"	-0.311"

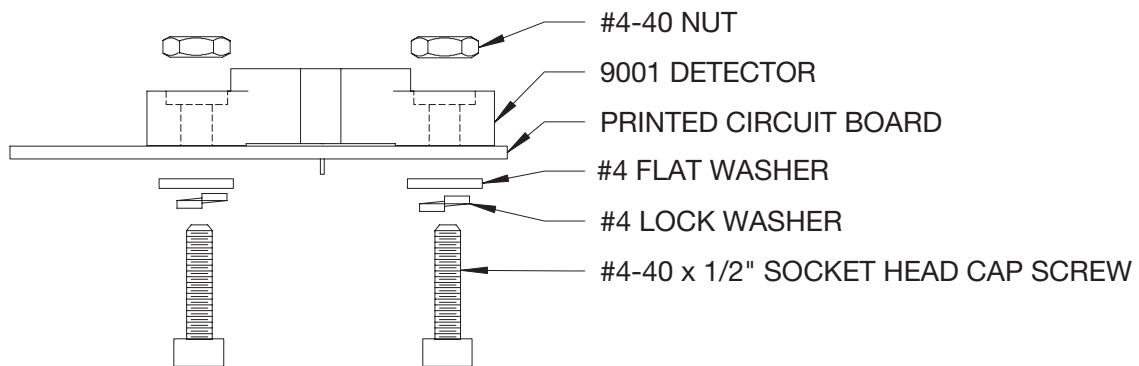
Hole Description Chart

Hole	Finished Diameter	Top Pad	Bottom Pad
A	0.027"	0.035"	0.035" x 0.100"
B	0.136"	None	None
C	0.060"	0.100"	0.100"

Notes:

1. B holes for recommended 4-40 mounting screws
2. C holes for optional accessory busbars (part number 9002-001)
3. Center aperture of detector located at X=0.000, Y=0.000
4. Hole diameter tolerance +/- 0.003"
5. Hole location tolerance +/- 0.003"

Recommended Mounting Exploded View



9002-001 Accessory Busbar Mechanical Dimensions

