Installation Instructions for SS46 Series Low Gauss Latching Hall Effect Position Sensors

PK 88501

GENERAL INFORMATION

The SS46 sensor is a magnetically bipolar, latching device. It requires positive gauss (S-pole) to operate, typically 100 gauss at 25°C. It will not release until exposed to negative gauss (N-pole), typically -100 gauss at 25°C. SS46 qualifies as a true latching device. It will maintain these characteristics over the entire operating temperature range of -55 to +150°C.

SS46 Series sensors operate from a 4.5 to 24 VDC supply. If power is accidentally wired backwards, sensor will not be damaged. Termination is .590 inch PCB terminals on .050 inch centers.

SOLDERING/ASSEMBLY INSTRUCTIONS

Leads must be adequately supported during any forming/shearing operation to ensure that the leads are not stressed inside the plastic case. Recommended PC board wave soldering temperature is 250 to 260°C (482 to 500°F), duration should be 3 seconds maximum.

Figure 1 illustrates how the operate and release characteristics shift over the specified temperature range of the device. Three different values are given - maximum, minimum and nominal. As can be seen from the graph, the sensors are truly latching and nearly symmetrical.

ELECTRICAL CHARACTERISTICS

	Typ.	Max.	Remarks
Supply Current	4mA	8.7 mA	
Output Voltage (Operated)	0.15 V	0.40 V	Sinking 10 mA max.
Output Current (Operated)		10mA	
Output Leakage Current (Released)		10µA	Leakage into sensor output
Output Switching Time			
Rise	0.2 µs	1.5 µs	10 to 90%
Fall	0.5 µs	1.5 µs	90 to 10%

MAGNETICCHARACTERISTICS

	0 to 85°C	-40 to 125°C	-55 to 150°C	25°C Typical
Operating Gauss	+250 max. +40 min.	+325 max. +25 min.	+375 max. 25 min.	+100 typ. +50 min.
Release Gauss	-40 max. -250 min.	-25 max. -325 min.	-25 max. -375 max.	-50 max. -100 typ.
Differential Gauss	80 min.	50 min.	50 min.	200 typ.

ABSOLUTE MAXIMUM RATINGS*

Supply Voltage (Vs)	-24 to +28 VDC
Voltage externally applied to output	+28 VDC max. OFF condition only -0.5 V min. OFF or ON condition
Output Current	20mA
Temperature Range	-55 to +170°C (-67 to 338°F)
Magnetic Flux	No limit. Circuit cannot be damaged by magnetic overdrive.

*As with all solid state components, sensor performance can be expected to deteriorate as rating limits are approached; sensors will not be damaged, however, unless limits are exceeded.

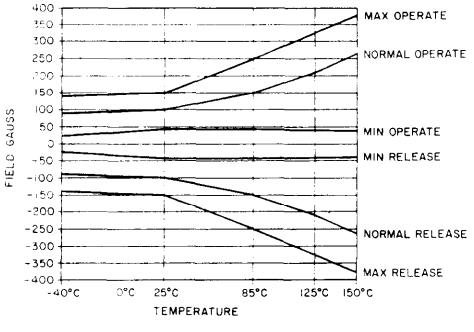


Figure 1
Operate and Release Shift over Temperature

Figure 2 shows the current versus temperature characteristics for the SS46. As can be expected, current draw increases as temperature decreases. Maximum current draw will occur at -40°C and is 8.7 mA.

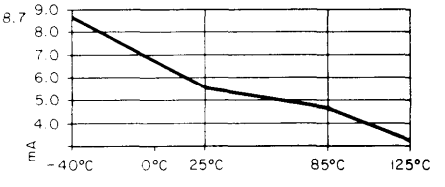


Figure 2
Current vs. Temperature

		Data Points				
		-40°	25°	85°	125°	150°
Operate	Max.	140	150	250	325	375
	Nom.	90	100	150	210	260
	Min.	25	45	45	40	40
Release	Max.	-25	-45	-45	-40	-40
	Nom.	-90	-100	-150	-210	-260
	Min.	-140	-150	-250	-325	-375

Figure 3 illustrates current versus voltage. The points were plotted at T = 24°C. As supply voltage increases, current draw also increases. At 24°C, a typical current draw with a 5 volt supply will be 3.5 mA. If 6-24 V supply is used, a 4 mA draw can be expected.

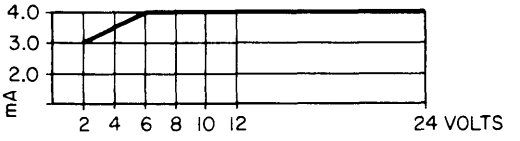
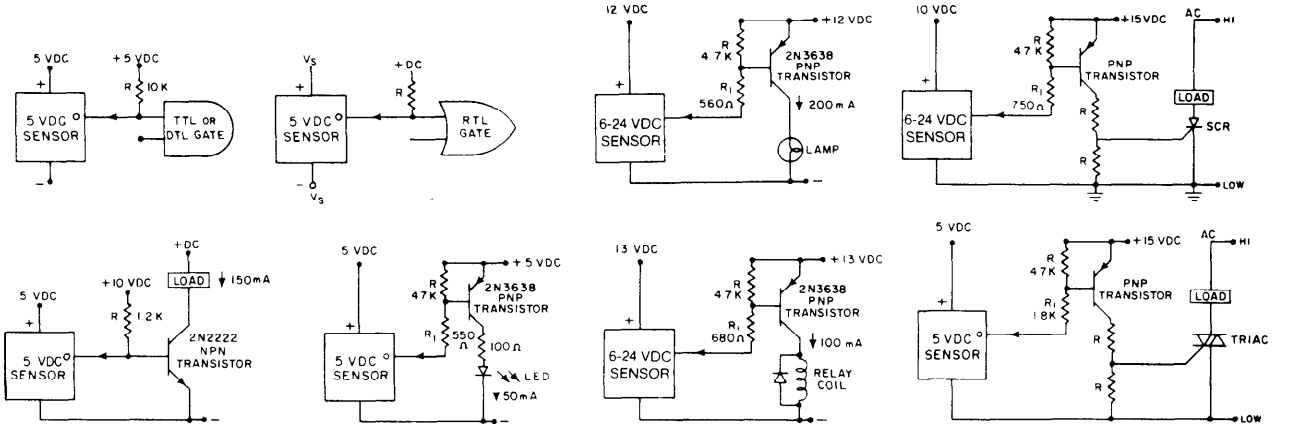
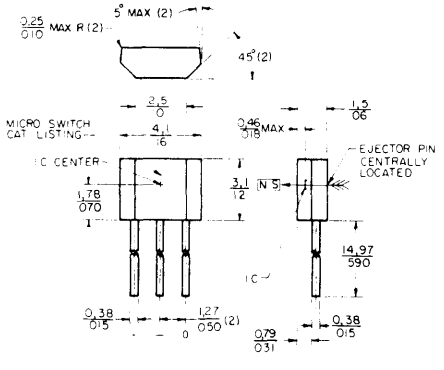


Figure 3
Current vs. Voltage @ 24°C

INTERFACING DIAGRAMS



MOUNTING DIMENSIONS (for reference only)



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