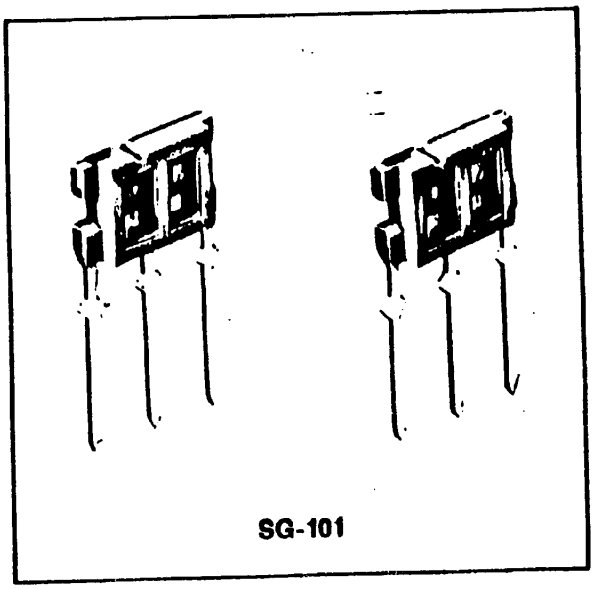
SG-101 MINIATURE REFLECTIVE SENSOR

The SG-101 is a reflective sensor consisting of a GaAs infrared LED and an NPN phototransistor. The device is mounted in a miniature single-in-line package with the standard 100 mil pitch lead spacing. The phototransistor responds to the radiation from the LED only when a reflective object passes within its field of view.



SG-101

FEATURES

- Miniature low plastic package
- Standard 100 mil pitch lead spacing
- High output current
- High sensitivity

APPLICATIONS

- Position reporting device
- End position switch
- Speed monitoring
- Motion detection

ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

RATINGS		SYMBOL	VALUE	UNITS
Input	Power Dissipation	P_D	50	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Pulse Forward Current	I_{FP}*		A
Output	Collector Power Dissipation	P_C	50	mW
	Collector Current	I_C	25	mA
	Collector-Emitter Voltage	V_{CE}	30	V
	Emitter-Collector Voltage	V_{ECO}	3	V
Operating Temperature		T_{opr}	−10 — +70	°C
Storage Temperature		T_{stg}	−20 — +80	°C
Lead Soldering Temperature		T_{sol}**	240	°C
Power Dissipation		P		mW

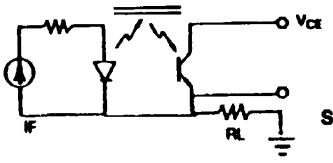
*tw=100μsec, T=10msec
**2mm away from case, 5sec duration

ELECTRICAL CHARACTERISTICS

(Ta = 25°C)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input	Forward Voltage	V_F	I_F=30mA			1.4	V
	Reverse Current	I_R	V_R=5V			10	μA
	Pin to Pin Capacitance	Ct	V=0V, f=1KHz		25		pF
	Peak Emission Wavelength	λ_p			940		nm
Output	Dark Current	I_{CEO}	V_{CE}=10V			1	μA
	Pin to Pin Capacitance	Ct	V_{CE}=0V, f=1KHz				pF
Output Current		Io*	V_{CE}=5V, I_F=20mA	100			μA
Leakage Current		I_{CEOD}**	V_{CE}=5V, I_F=20mA			10	μA
Response Speed	Rise Time	t_r***	V_{CC}=5V Io=100μA R_L=1Kohms		25		μsec
	Fall Time	t_f***			30		μsec

*Output Measurement

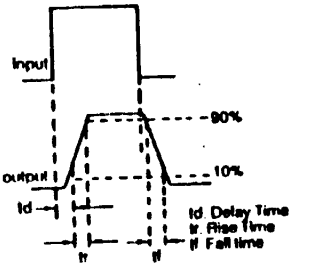


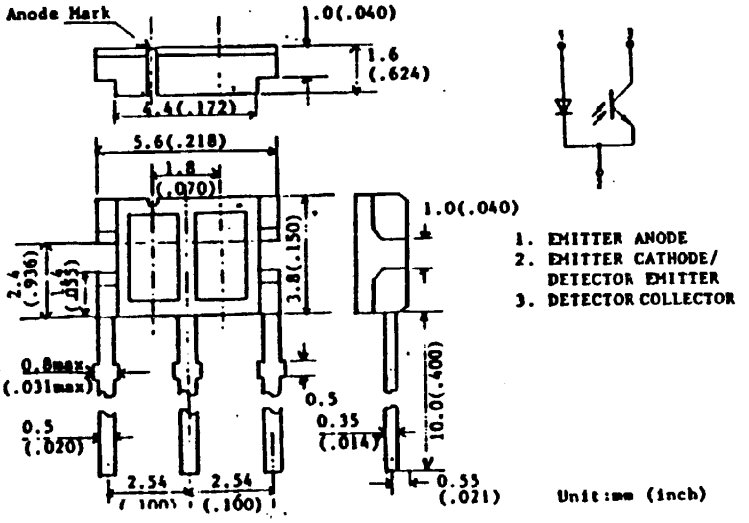
Standard reflector:
Kodak white test card
r=90%

Distance from the assembly head to the reflective surface:
d=1mm

**Leakage Current is the collector current measured with the indicated current in the input diode and with no reflecting surface.

***Response Time Measurement





1. EMITTER ANODE
2. EMITTER CATHODE/ DETECTOR EMITTER
3. DETECTOR COLLECTOR

Unit:mm (inch)