



MICROPAC INDUSTRIES, INC.

OPTOELECTRONIC PRODUCTS
DIVISION

725 EAST WALNUT ST. • GARLAND, TEXAS 75040 • 214/276-6905

GENERAL DESCRIPTION

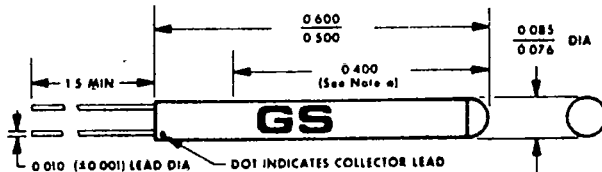
GLASS HERMETIC PACKAGE

DOME LENS

General Sensors' Type GS 2020 is an N-P-N Silicon Phototransistor in a small diameter hard glass package.

The dome-shaped lens is flame formed and has a small acceptance angle (30° between half-power points) for low cross-talk between adjacent channels.

PHYSICAL DESCRIPTION



NOTES a. Within this zone body diameter is 0.079 ± 0.003
b. All dimensions are in inches



OPTICAL/ELECTRICAL CHARACTERISTICS AT 25° C

PARAMETER	LIGHT CURRENT		DARK CURRENT	COLLECTOR BREAKDOWN	EMITTER BREAKDOWN	LIGHT CURRENT RISE TIME	SATURATION VOLTAGE	ANGULAR RESPONSE
TEST CONDITION	V _{CE} = 5 V * H = 9 mW/cm ² †		V _{CE} = 30 V H = 0	I _C = 100 μA	I _E = 100 μA	R _L = 1000 Ω V _{CC} = 5 V I _L = 1.0 mA	I _C = 0.4 ma H as shown	Note 1
SYMBOL	I _L		I _D	BV _{CEO}	BV _{ECO}	tr	V _{CE} (sat)	0
UNIT	mA		nA	VOLTS	VOLTS	μ sec	VOLTS	degrees
	MIN	MAX	MAX	MIN	MIN	TYP	TYP	TYP
GS 2020-1	1.0	3.0	100	25	5	2.5	0.3	15
GS 2020-2	1.0	3.0	25	50	7	2.5	0.3	15
GS 2020-3 (LS 400)	1.0	—	25	50	6	2.5	0.3	15
GS 2020-4 (TIL 401)	0.5	3.0	25	50	6	2.5	0.3	15
GS 2020-5 (TIL 402)	2.0	6.0	25	50	6	2.5	0.3	15
GS 2020-6 (TIL 403)	5.0	10	25	50	6	2.5	0.3	15
GS 2020-7 (TIL 404)	8.0	16	25	50	6	2.5	0.3	15
GS 2020-8 (TIL 405)	10	20	25	50	6	2.5	0.3	15
GS 2020-9 (TIL 406)	15	—	25	50	6	2.5	0.3	15
Short Case								
GS 2020-11	1.0	3.0	100	25	5	2.5	0.3	15
GS 2020-12	1.0	3.0	25	50	7	2.5	0.3	15

* Irradiance in mW/cm² from a tungsten source at a color temperature of 2870° K.

† The angle between incidence for peak response and incidence for 50% of peak response.

† Light current is measured with irradiance = 9 mW/cm² at a wavelength of 0.7 to 1.0 μm determined by a Corning CS7 69 filter.

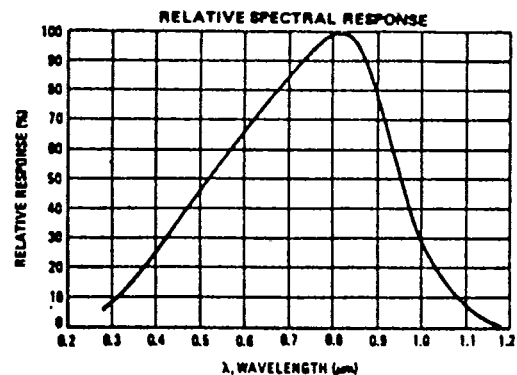
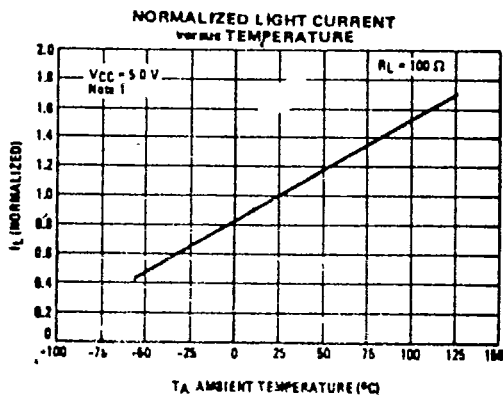
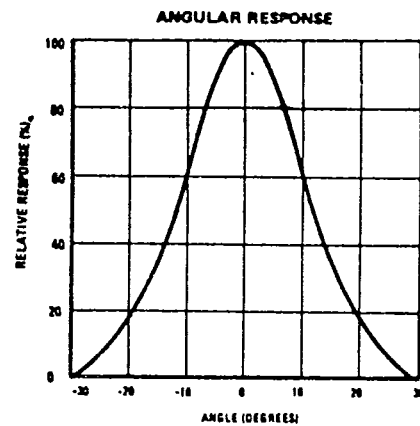
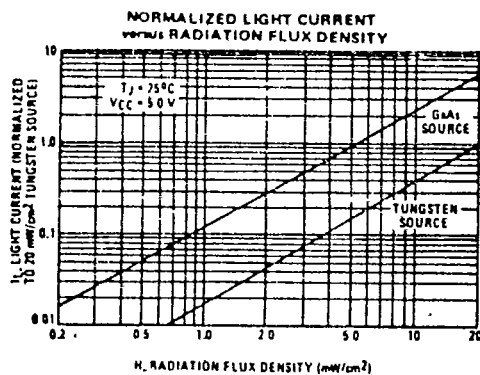
SILICON PHOTOTRANSISTOR TYPE GS 2020

ABSOLUTE MAXIMUM RATINGS 25°C FREE AIR TEMPERATURE UNLESS NOTED

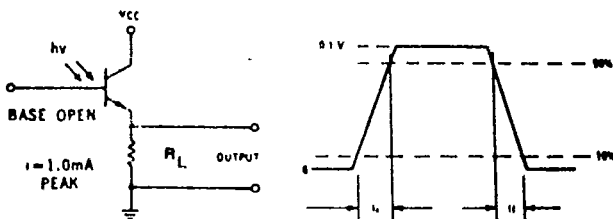
Collector-Emitter Voltage	50 V
Emitter-Collector Voltage	6 V
Continuous Device Dissipation at (or below) 25°C Case Temp. (See Note)	50 mW
Operating Case Temperature Range	-65°C to 125°C
Storage Temperature Range	-65°C to 150°C
Lead Temperature 1/16 inch from Case for 10 seconds	260°C

NOTE: Derate linearly to 125°C case temperature at the rate of 0.5 mW/°C.

TYPICAL CHARACTERISTICS



PULSE RESPONSE TEST CIRCUIT AND WAVEFORM



For unsaturated rise time measurements, radiation is provided by a pulsed GaAs (gallium-arsenide) LED ($\lambda = 0.9\ \mu\text{m}$) with a pulse width equal to or greater than 200 microseconds.