

61058**TO - 46 PHOTOTRANSISTOR**

6/30/03

Features:

- Hermetically sealed
- High sensitivity
- Base lead provided for conventional transistor biasing
- Narrow viewing angle

Applications:

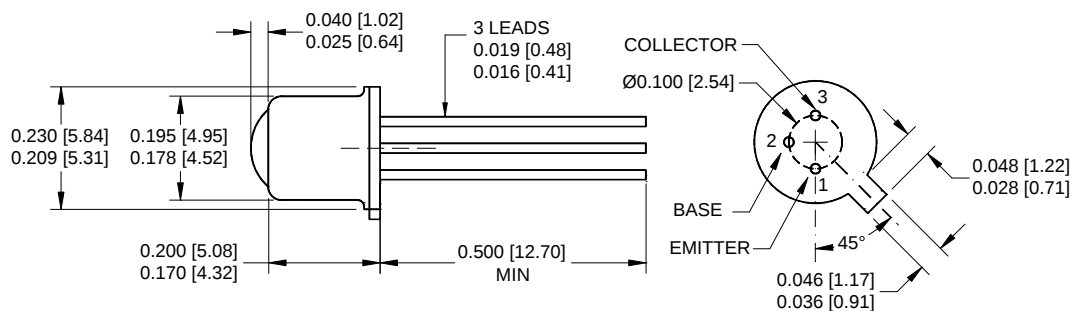
- Incremental encoding
- Reflective sensors
- Position sensors
- Level sensors

DESCRIPTION

The **61058** is an N-P-N Planar Silicon phototransistor in a lensed TO-46 three-lead package. It is available in a range of sensitivities and is ideal for use wherever high response, low dark current leakage, and low saturation characteristics are required. Available custom binned to customer specifications or screened to MIL-PRF-19500.

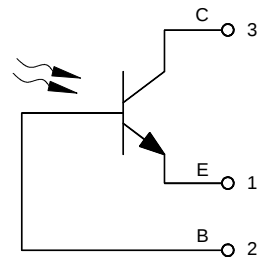
ABSOLUTE MAXIMUM RATINGS

Collector-Emitter Voltage.....	30V
Emitter-Collector Voltage.....	7V
Continuous Collector Current.....	50mA
Power Dissipation (Derate at the rate of 2.5 mW/°C above 25°C).....	250mW
Storage Temperature.....	-65°C to +150°C
Operating Temperature.....	-55°C to +125°C
Lead Soldering Temperature (10 seconds, 1/16" from case).....	240°C

Package Dimensions**Schematic Diagram**

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE.



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ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

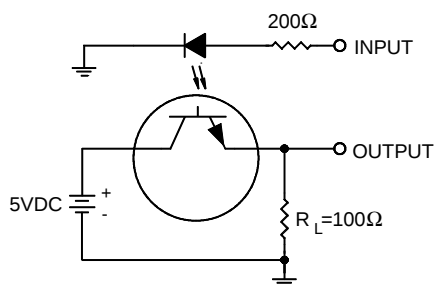
TO -46 PHOTOTRANSISTOR

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	61058-X01 61058-X02 61058-X03 61058-X04	1 4 8 15		5 9 16 --	mA	V _{CE} = 5.0V, H = 5 mW/cm ²	1
Dark Current	61058-XXX			100	nA	V _{CE} = 10V, H = 0	
Collector-Emitter Breakdown Voltage	61058-XXX	BV _{CEO}	30		V	I _C = 100μA	
Emitter-Collector Breakdown Voltage	61058-XXX	BV _{ECO}	7		V	I _E = 100μA	
Light Current Rise Time		t _r	3.0		μs	R _L = 100Ω, V _{CC} = 5V, I _L = 0.8 mA	
Saturation Voltage	61058-XXX	V _{CE(sat)}	0.2		V	I _C = 0.4mA, H = 5 mW/cm ²	
Angular Response	61058-XXX	θ	10		degrees		2

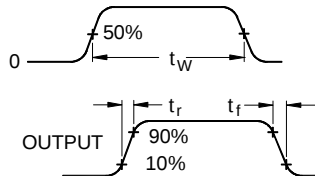
NOTES:

- Irradiance (H) in mW/cm² from a tungsten source at a color temperature of 2870K..
- The angle between incidence for peak response and incidence for 50% of peak response.

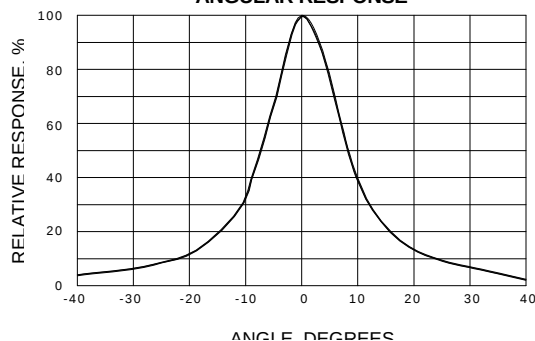
TEST CIRCUIT AND WAVEFORMS



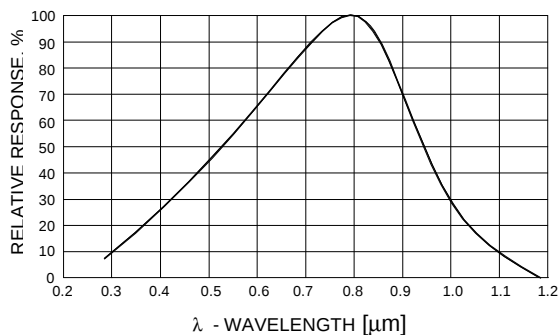
INPUT
t_r AND t_f ≤ 100 ns
t_w = 10 μs
2% DUTY CYCLE



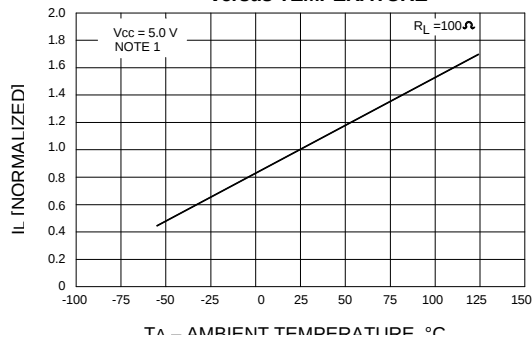
ANGULAR RESPONSE



RELATIVE SPECTRAL RESPONSE



NORMALIZED LIGHT CURRENT versus TEMPERATURE



RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Collector-Emitter Current	I _F	5	10	mA
Irradiance (H)	H	15	25	mW/cm ²

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION	I _L Range
61058-001	Commercial	1 to 5mA
61058-101	Screened	1 to 5mA
61058-002	Commercial	4 to 9mA
61058-102	Screened	4 to 9mA
61058-003	Commercial	8 to 16mA
61058-103	Screened	8 to 16mA
61058-004	Commercial	15 mA min
61058-104	Screened	15 mA min