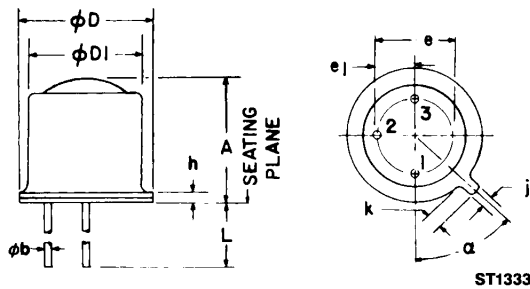


PACKAGE DIMENSIONS



ST1333

DESCRIPTION

The L14G series is a silicon phototransistor mounted in a narrow angle, TO-18 package.

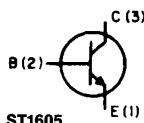
FEATURES

- Hermetically sealed package
- Narrow reception angle

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.225	.255	5.71	6.47	
@b	.016	.021	.407	.533	
@D	.209	.230	5.31	5.84	
@D ₁	.178	.195	4.52	4.96	
e	.100 NOM		2.54 NOM		2
e ₁	.050 NOM		1.27 NOM		2
h	—	.030	—	.76	
j	.036	.046	.92	1.16	
k	.028	.048	.71	1.22	1
L	.500	—	12.7	—	
α	45°	45°	45°	45°	3

PACKAGE OUTLINE

(COLLECTOR
CONNECTED
TO CASE)



ST1605

NOTES:

1. MEASURED FROM MAXIMUM DIAMETER OF DEVICE.
2. LEADS HAVING MAXIMUM DIAMETER .021" (.533mm) MEASURED IN GAUGING PLANE .054" + .001" - .000 (137 + .025 - .000mm) BELOW THE REFERENCE PLANE OF THE DEVICE SHALL BE WITHIN .007" (.778mm) THEIR TRUE POSITION RELATIVE TO MAXIMUM WIDTH TAB.
3. FROM CENTERLINE TAB.



HERMETIC SILICON PHOTOTRANSISTOR

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)	
Storage Temperature	-65°C to $+150^\circ\text{C}$
Operating Temperature	-65°C to $+125^\circ\text{C}$
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(3,4,5,6)
Lead Temperature (Flow)	260°C for 10 sec. ^(3,4,6)
Collector-Emitter Breakdown Voltage	45 Volts
Collector-Base Breakdown Voltage	45 Volts
Emitter-Base Breakdown Voltage	5 Volts
Power Dissipation ($T_A = 25^\circ\text{C}$)	300 mW ⁽¹⁾
Power Dissipation ($T_C = 25^\circ\text{C}$)	600 mW ⁽²⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown	BV_{CEO}	45	—	—	V	$I_C = 10\text{ mA}$, $E_e = 0$
Emitter-Base Breakdown	BV_{EBO}	5.0	—	—	V	$I_E = 100\ \mu\text{A}$, $E_e = 0$
Collector-Base Breakdown	BV_{CBO}	45	—	—	V	$I_C = 100\ \mu\text{A}$, $E_e = 0$
Collector-Emitter Leakage	I_{CEO}	—	—	100	nA	$V_{CE} = 10\text{ V}$, $E_e = 0$
Reception Angle at 1/2 Sensitivity	θ	—	± 10	—	Degrees	
On-State Collector Current L14G1	$I_{C(ON)}$	6.0	—	—	mA	$E_e = 3.0\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
On-State Collector Current L14G2	$I_{C(ON)}$	3.0	—	—	mA	$E_e = 3.0\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
On-State Collector Current L14G3	$I_{C(ON)}$	12.0	—	—	mA	$E_e = 3.0\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
Turn-On Time	t_{on}	—	8	—	μS	$I_C = 2\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\ \Omega$
Turn-Off Time	t_{off}	—	7	—	μS	$I_C = 2\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\ \Omega$
Saturation Voltage	$V_{CE(SAT)}$	—	—	0.40	V	$I_C = 1.0\text{ mA}$, $E_e = 3.0\text{ mW/cm}^2$ ^(7,8)

NOTES
1. Derate power dissipation linearly $3.00\text{ mW}/^\circ\text{C}$ above 25°C ambient.
2. Derate power dissipation linearly $6.00\text{ mW}/^\circ\text{C}$ above 25°C case.
3. RMA flux is recommended.
4. Methanol or Isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip $1/16"$ (1.6 mm) minimum from housing.
6. As long as leads are not under any stress or spring tension.
7. Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.
8. Figure 1 and figure 2 use light source of tungsten lamp at 2870°K color temperature. A GaAs source of 3.0 mW/cm^2 is approximately equivalent to a tungsten source, at 2870°K of 10 mW/cm^2 .

TYPICAL CHARACTERISTICS

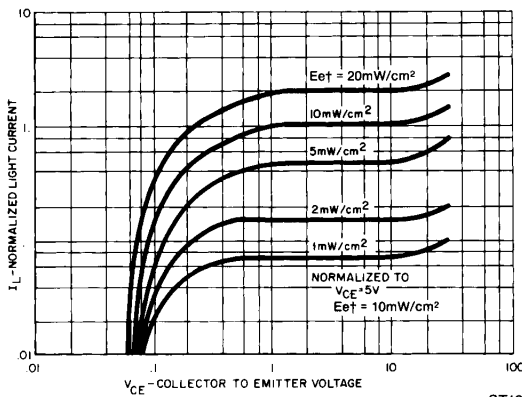


Fig. 1. Light Current vs. Collector to Emitter Voltage ST1082

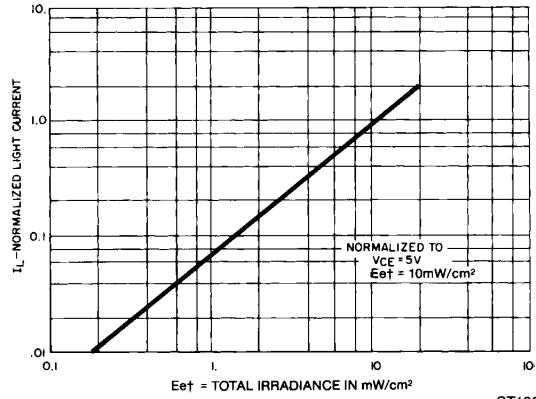


Fig. 2. Normalized Light Current vs. Radiation ST1087

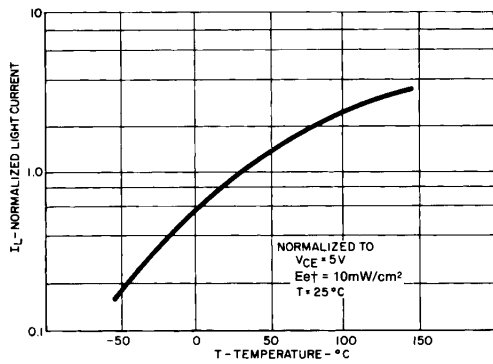


Fig. 3. Normalized Light Current vs. Temperature ST1083

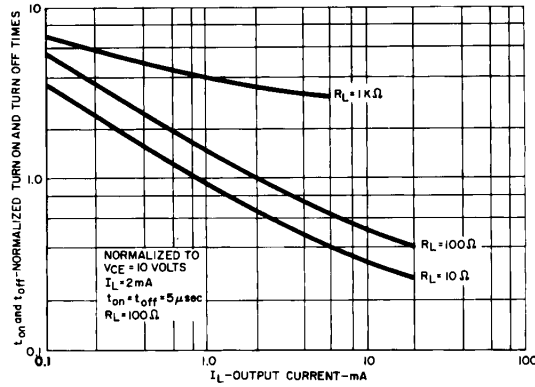


Fig. 4. Switching Times vs. Output Current ST1086

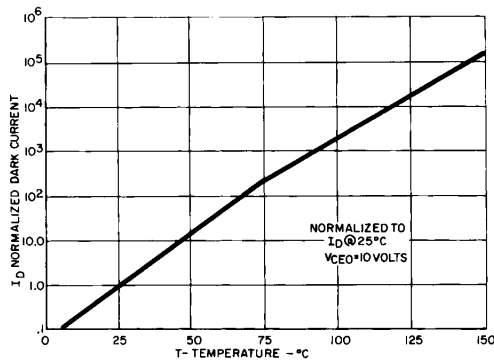


Fig. 5. Dark Current vs. Temperature ST1084

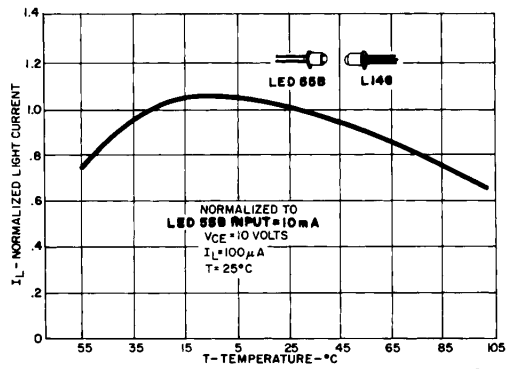


Fig. 6. Normalized Light Current vs. Temperature Both Emitter (LED55B) and Detector (L14G) at Same Temperature ST1085