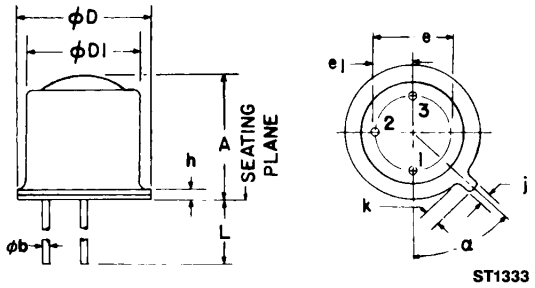
QT OPTOELECTRONICS

HERMETIC SILICON PHOTOTRANSISTOR

L14G1/2/3

PACKAGE DIMENSIONS

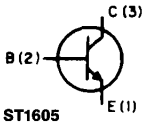


ST1333

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	
ⓂD1	.178	.195	4.52	4.96	
e	.100 NOM		2.54 NOM		2
e1	.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.

DESCRIPTION

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

FEATURES

- Hermetically sealed package
- Narrow reception angle

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature ..... −65°C to +150°C
Operating Temperature ..... −65°C to +125°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°C) ..... 300 mW[1]
Power Dissipation (T_C = 25°C) ..... 600 mW[2]

ELECTRICAL CHARACTERISTICS (T_A = 25°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 mA, Ee = 0
Emitter-Base Breakdown	BV_{EBO}	5.0		—	V	I_E = 100 μA, Ee = 0
Collector-Base Breakdown	BV_{CBO}	45		—	V	I_C = 100 μA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10 V, Ee = 0
Reception Angle at ½ Sensitivity	θ		±10		Degrees	
On-State Collector Current L14G1	$I_{C(ON)}$	6.0		—	mA	Ee = 3.0 mW/cm², V_{CE} = 5 V[7,8]
On-State Collector Current L14G2	$I_{C(ON)}$	3.0		—	mA	Ee = 3.0 mW/cm², V_{CE} = 5 V[7,8]
On-State Collector Current L14G3	$I_{C(ON)}$	12.0		—	mA	Ee = 3.0 mW/cm², V_{CE} = 5 V[7,8]
Turn-On Time	t_{on}		8		μS	I_C = 2 mA, V_{CC} = 10 V, R_L = 100Ω
Turn-Off Time	t_{off}		7		μS	I_C = 2 mA, V_{CC} = 10 V, R_L = 100Ω
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	I_C = 1.0 mA, Ee = 3.0 mW/cm²[7,8]

NOTES

1. *Derate power dissipation linearly 3.00mW/°C above 25°C ambient.*
2. *Derate power dissipation linearly 6.00mW/°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/cm² is approximately equivalent to a tungsten source, at 2870°K of 10 mW/cm².*

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TYPICAL CHARACTERISTICS

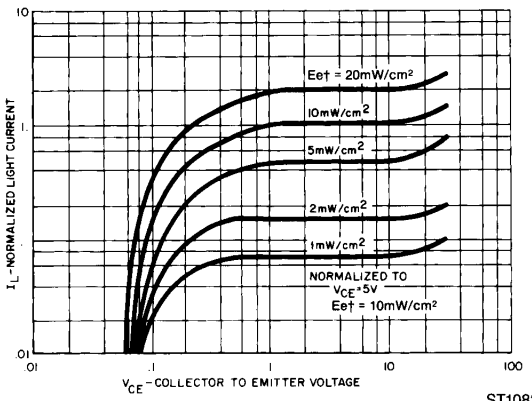

Fig. 1. Light Current vs. Collector to Emitter Voltage ST1082

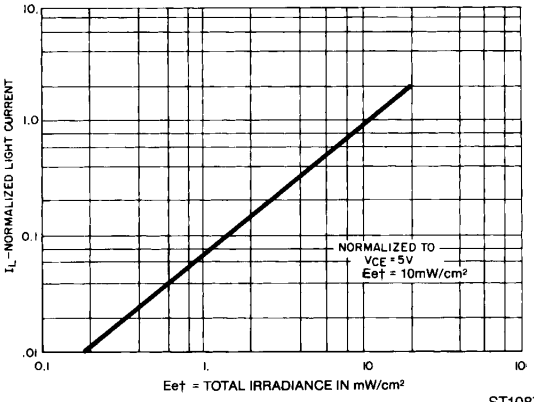

Fig. 2. Normalized Light Current vs. Radiation ST1087

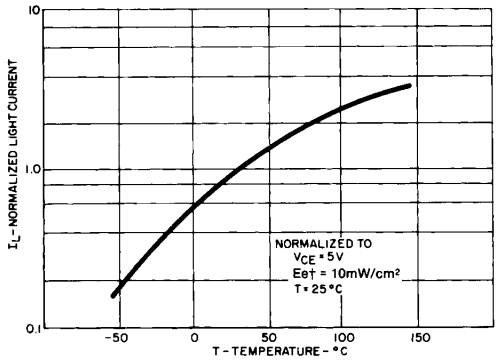

Fig. 3. Normalized Light Current vs. Temperature ST1083

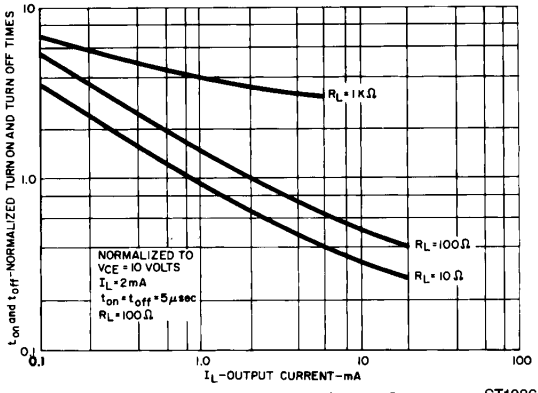

Fig. 4. Switching Times vs. Output Current ST1086

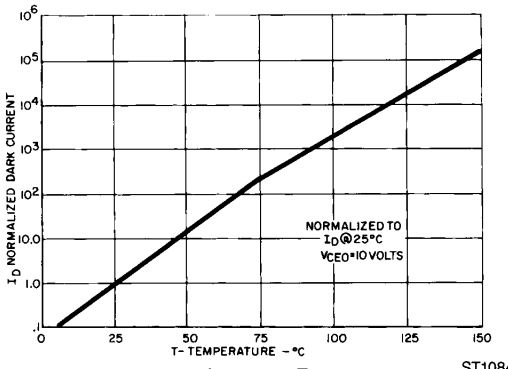

Fig. 5. Dark Current vs. Temperature ST1084

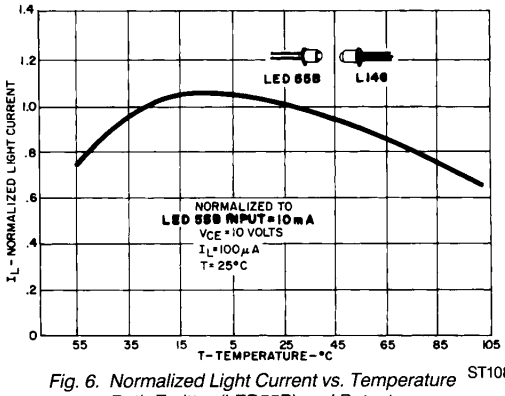

Fig. 6. Normalized Light Current vs. Temperature Both Emitter (LED55B) and Detector (L14G) at Same Temperature ST1085