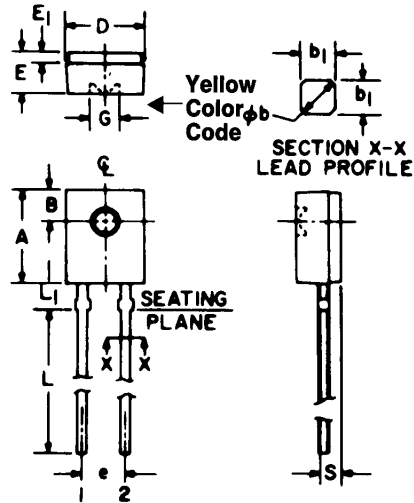


**PACKAGE DIMENSIONS**



**DESCRIPTION**

The L14R1 is a silicon photodarlington encapsulated in a clear, wide angle, sidelooper package.

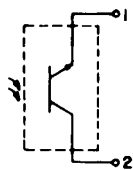
**FEATURES**

- Good optical to mechanical alignment
- Mechanically and wavelength matched to the F5F LED
- Plastic package with a color stripe for easy recognition from LED

ST1335

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	5.59	5.80	.220	.228	
B	1.78	NOM.	.070	NOM.	2
⊕b	.60	.75	.024	.030	1
b <sub>1</sub>	.51	NOM.	.020	NOM.	1
D	4.45	4.70	.175	.185	
E	2.41	2.67	.095	.105	
E <sub>1</sub>	.58	.69	.023	.027	
e	2.41	2.67	.095	.105	3
G	1.98	NOM.	.078	NOM.	
L	12.7	—	.500	—	
L <sub>1</sub>	1.40	1.65	.055	.065	
S	.83	.94	.033	.037	3

**PACKAGE OUTLINE**



ST1608

NOTES:

1. TWO LEADS. LEAD CROSS SECTION DIMENSIONS UNCONTROLLED WITHIN 1.27mm (.050") OF SEATING PLANE.
2. CENTERLINE OF ACTIVE ELEMENT LOCATED WITHIN .25mm (.010") OF TRUE POSITION.
3. AS MEASURED AT THE SEATING PLANE.
4. INCH DIMENSIONS DERIVED FROM MILLIMETERS.



## PLASTIC SILICON PHOTODARLINGTON

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Storage Temperature .....	$-55^\circ\text{C}$ to $+100^\circ\text{C}$
Operating Temperature .....	$-55^\circ\text{C}$ to $+100^\circ\text{C}$
Soldering:	
Lead Temperature (Iron) .....	$240^\circ\text{C}$ for 5 sec. <sup>(2,3,4,5)</sup>
Lead Temperature (Flow) .....	$260^\circ\text{C}$ for 10 sec. <sup>(2,3,5)</sup>
Collector-Emitter Breakdown Voltage .....	30 Volts
Emitter-Collector Breakdown Voltage .....	7 Volts
Power Dissipation .....	150 mW <sup>(1)</sup>

### 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	$BV_{CEO}$	30	—	—	V	$I_C = 10\text{ mA}$ , $E_e = 0$
Emitter-Collector Breakdown	$BV_{ECO}$	7.0	—	—	V	$I_E = 100\ \mu\text{A}$ , $E_e = 0$
Collector-Emitter Leakage	$I_{CEO}$	—	—	100	nA	$V_{CE} = 25$ , $E_e = 0$
Reception Angle at $\frac{1}{2}$ Sensitivity	$\theta$	—	$\pm 35$	—	Degrees	
On-State Collector Current	$I_{C(ON)}$	5.0	—	—	mA	$E_e = 0.3\text{ mW/cm}^2$ , $V_{CE} = 1.5\text{ V}$ <sup>(6,7)</sup>
Turn-On Time	$t_{on}$	—	45	—	$\mu\text{S}$	$I_F = 10\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 750\ \Omega$
Turn-Off Time	$t_{off}$	—	250	—	$\mu\text{S}$	$I_F = 10\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 750\ \Omega$
Saturation Voltage	$V_{CE(SAT)}$	—	—	1.2	V	$I_C = 20\text{ mA}$ , $E_e = .60\text{ mW/cm}^2$ <sup>(6,7)</sup>

### NOTES

- Derate power dissipation linearly  $2.00\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$  ambient.
- RMA flux is recommended.
- Methanol or Isopropyl alcohols are recommended as cleaning agents.
- Soldering iron tip  $\frac{1}{16}$ " (1.6 mm) minimum from housing.
- As long as leads are not under any stress or spring tension.
- Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.
- Figure 1 and figure 2 use light source of tungsten lamp at  $2870^\circ\text{K}$  color temperature. A GaAs source of  $3.0\text{ mW/cm}^2$  is approximately equivalent to a tungsten source, at  $2870^\circ\text{K}$ , of  $10\text{ mW/cm}^2$ .

**TYPICAL CHARACTERISTICS**

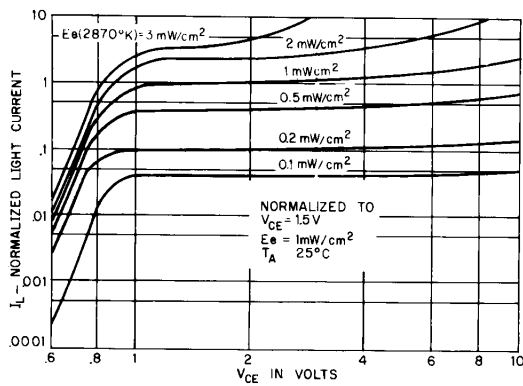


Fig. 1. Light Current vs. Collector-Emitter Voltage ST1118-11

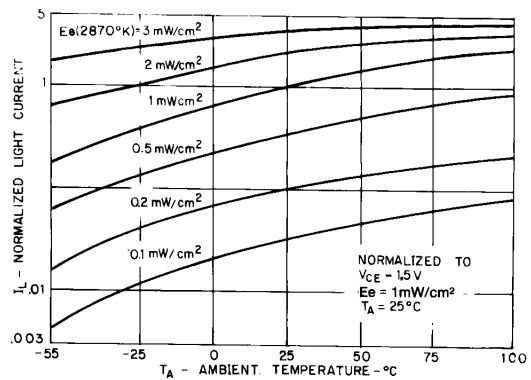


Fig. 2. Light Current vs. Ambient Temperature ST1123-11

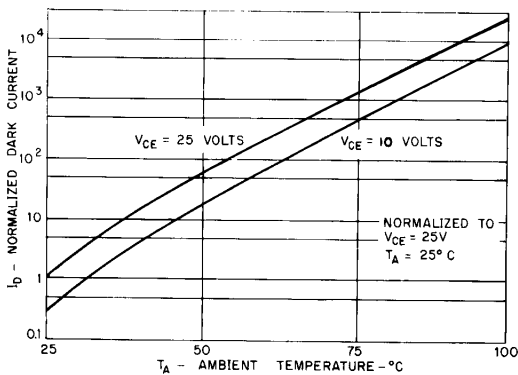


Fig. 3. Leakage Current vs. Temperature ST1119-11

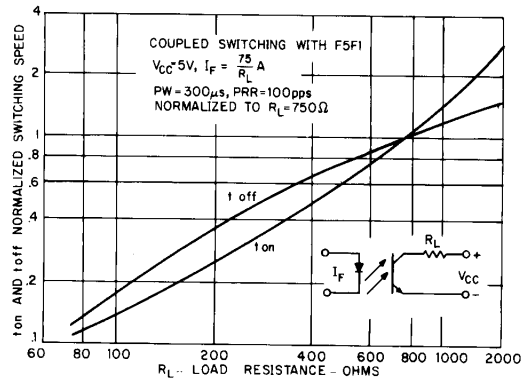


Fig. 4. Switching Time vs. Load Resistance ST1122-11

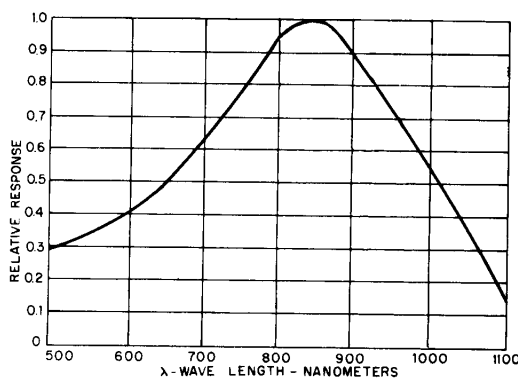


Fig. 5. Spectral Response ST1120-11

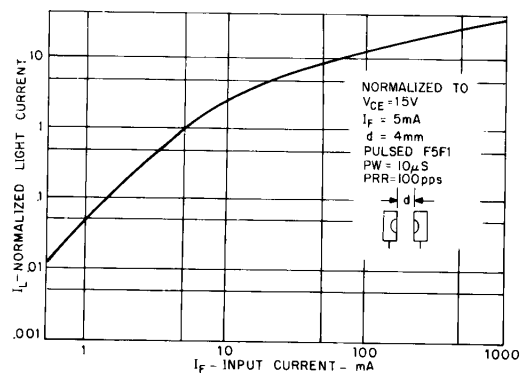


Fig. 6. Coupled Light Current vs. F5F1 Input Current ST1121-11