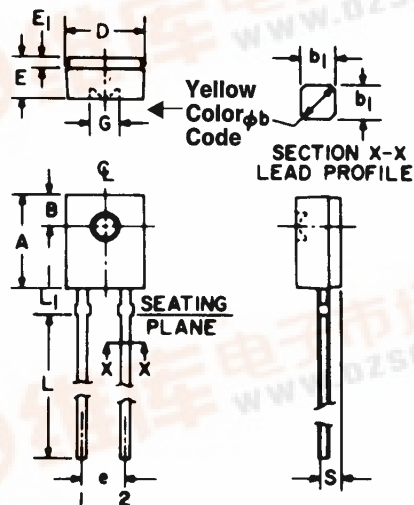




PLASTIC SILICON PHOTODARLINGTON

L14R1

PACKAGE DIMENSIONS



DESCRIPTION

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

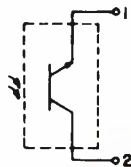
FEATURES

- 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 ₁	.51	NOM.	.020	NOM.	1
D	4.45	4.70	.175	.185	
E	2.41	2.67	.095	.105	
E ₁	.58	.69	.023	.027	
e	2.41	2.67	.095	.105	3
G	1.98	NOM.	.078	NOM.	
L	12.7	—	.500	—	
L ₁	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°C to $+100^\circ\text{C}$
Operating Temperature	-55°C to $+100^\circ\text{C}$
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(2,3,4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(2,3,5)
Collector-Emitter Breakdown Voltage	30 Volts
Emitter-Collector Breakdown Voltage	7 Volts
Power Dissipation	150 mW ⁽¹⁾

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

NOTES

1. Derate power dissipation linearly $2.00\text{ mW}/^\circ\text{C}$ above 25°C ambient.
2. RMA flux is recommended.
3. Methanol or Isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip $\frac{1}{16}$ " (1.6 mm) minimum from housing.
5. As long as leads are not under any stress or spring tension.
6. Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.
7. 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

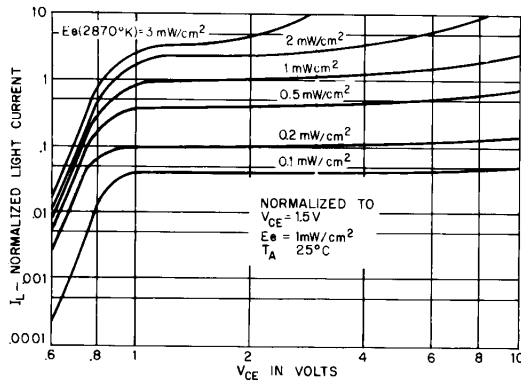


Fig. 1. Light Current vs. Collector-Emitter Voltage

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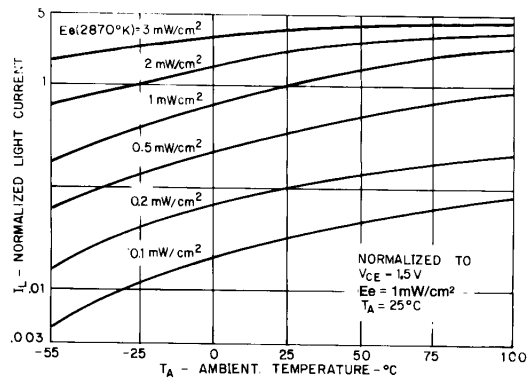


Fig. 2. Light Current vs. Ambient Temperature

ST1123-11

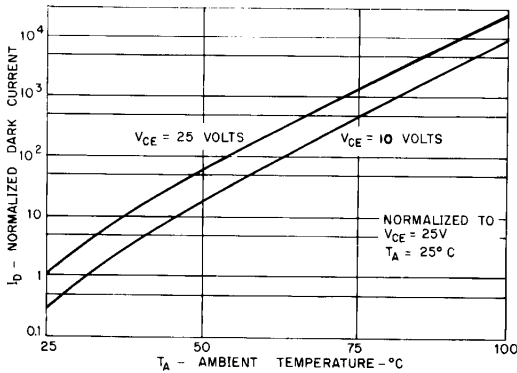


Fig. 3. Leakage Current vs. Temperature

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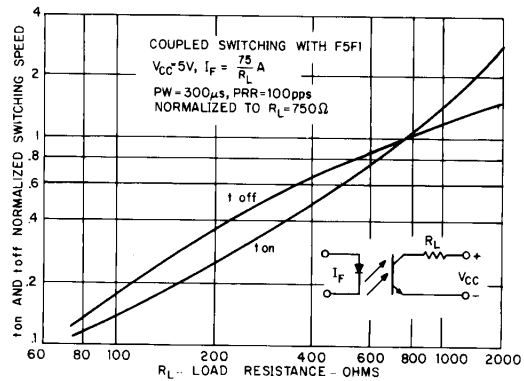


Fig. 4. Switching Time vs. Load Resistance

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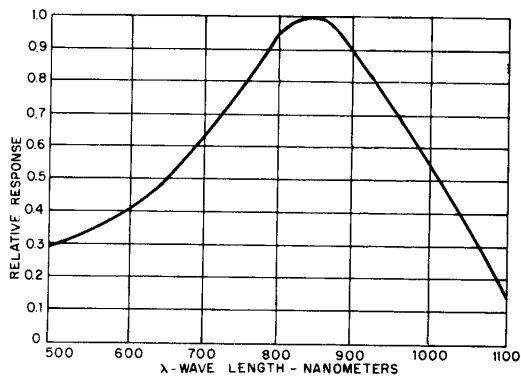


Fig. 5. Spectral Response

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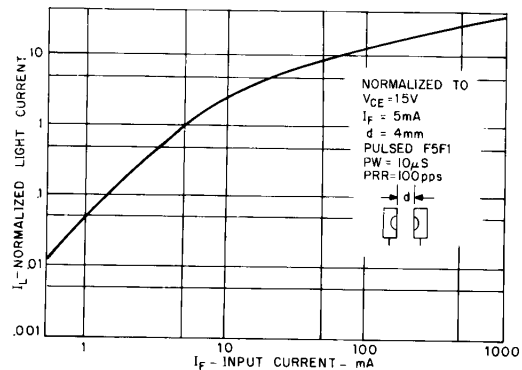


Fig. 6. Coupled Light Current vs.
F5F1 Input Current

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