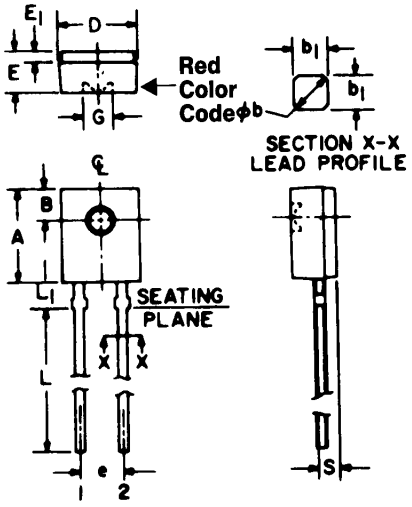
FAIRCHILD
SEMICONDUCTOR™

PLASTIC SILICON PHOTOTRANSISTOR

L14Q1

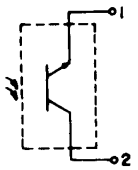
PACKAGE DIMENSIONS



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.

DESCRIPTION

The L14Q1 is a silicon phototransister encapsulated is a clear, wide angle, sidelooker 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

FAIRCHILD
SEMICONDUCTOR™

PLASTIC SILICON PHOTOTRANSISTOR

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

Storage Temperature ..... −55°C to +100°C
Operating Temperature ..... −55°C to +100°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 ..... 6 Volts
Power Dissipation ..... 150 mW[1]

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}	30		—	V	I_C = 10 mA, Ee = 0
Emitter-Collector Breakdown	BV_{ECO}	6.0		—	V	I_E = 100 μA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 25 V, Ee = 0
Reception Angle at ½ Sensitivity	θ		±35		Degrees	
On-State Collector Current	$I_{C(ON)}$	1.0		—	mA	Ee = 1.5 mW/cm², V_{CE} = 5 V[6,7]
Turn-On Time	t_{on}		8		μS	I_F = 30 mA, V_{CC} = 5 V, R_L = 2.5 KΩ
Turn-Off Time	t_{off}		50		μS	I_C = 30 mA, V_{CC} = 5 V, R_L = 2.5 KΩ
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	I_C = .5 mA, Ee = .60 mW/cm²[6,7]

NOTES

1. *Derate power dissipation linearly 2.00mW/°C above 25°C ambient.*
2. *RMA flux is recommended.*
3. *Methanol or Isopropyl alcohols are recommended as cleaning agents.*
4. *Soldering iron tip 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/cm² is approximately equivalent to a tungsten source, at 2870°K, of 10 mW/cm².*

TYPICAL CHARACTERISTICS

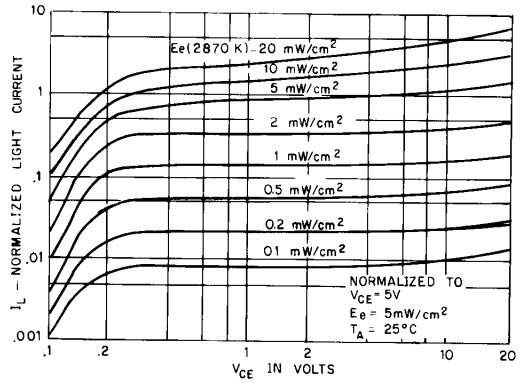


Fig. 1. Light Current vs. Collector to Emitter Voltage ST1110-11

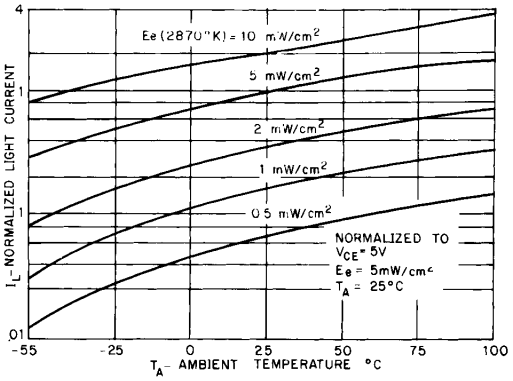


Fig. 2. Light Current vs. Ambient Temperature ST1113-11

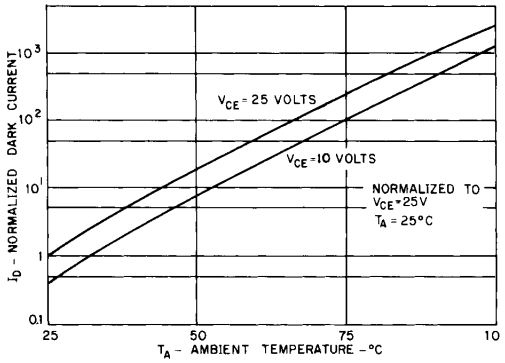


Fig. 3. Leakage Current vs. Temperature ST1111-11

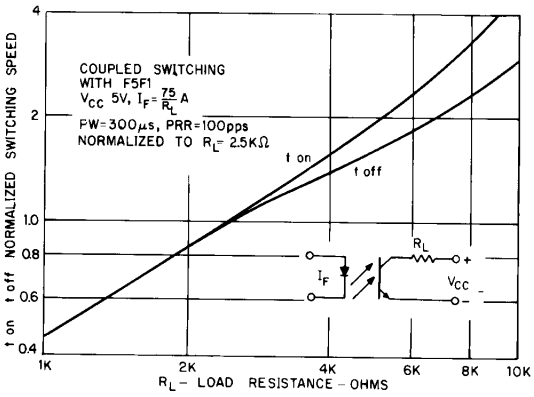


Fig. 4. Switching Time vs. Load Resistance ST1114-11

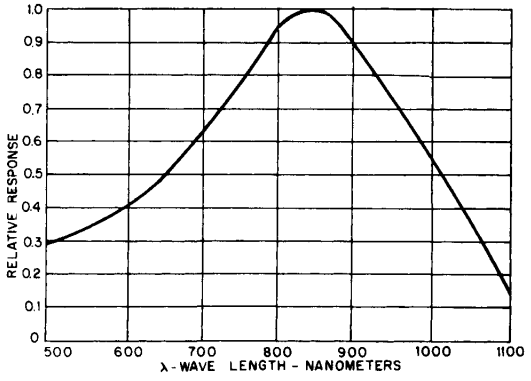


Fig. 5. Spectral Response ST1112-11

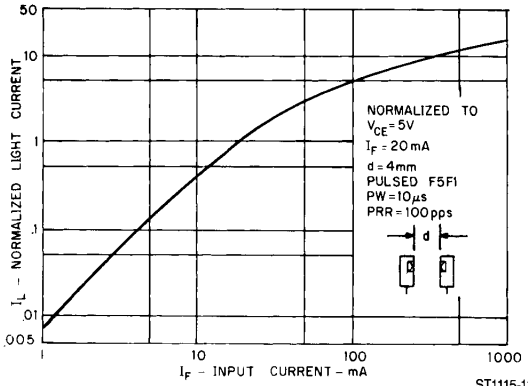


Fig. 6. Coupled Light Current vs. F5F1 Input Current ST1115-11

FAIRCHILD
SEMICONDUCTOR™

HERMETIC SILICON PHOTOTRANSISTOR

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.