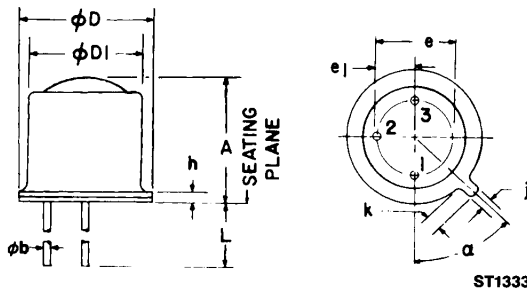


PACKAGE DIMENSIONS



ST1333

DESCRIPTION

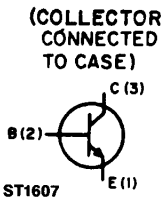
The L14P series is a silicon phototransistor mounted in a narrow angle, TO-18 package.

FEATURES

- Hermetically sealed package
- Narrow reception angle
- Devices can be used as a photodiode by wiring the collector and base leads.

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.225	.255	5.71	6.47	
ϕb	.016	.021	.407	.533	
ϕD	.209	.230	5.31	5.84	
ϕDI	.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



NOTES:

1. MEASURED FROM MAXIMUM DIAMETER OF DEVICE.
2. LEADS HAVING MAXIMUM DIAMETER .021" (.533mm) MEASURED IN GAUGING PLANE .054" + .001" - .000 (1.37 + .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. ^(2,3,6)
Collector-Emitter Breakdown Voltage	30 Volts
Collector-Base Breakdown Voltage	40 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}	30		—	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}	40		—	V	$I_C = 100\ \mu\text{A}$, $E_e = 0$
Collector-Emitter Leakage	I_{CEO}	—		100	nA	$V_{CE} = 10\text{ V}$, $E_e = 0$
Collector-Base Leakage	I_{CBO}	—		25	nA	$V_{CB} = 25\text{ V}$, $E_e = 0$
Reception Angle at $\frac{1}{2}$ Sensitivity	θ		± 12		Degrees	
On-State Collector Current L14P1	$I_{C(ON)}$	4.0		—	mA	$E_e = 0.3\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
On-State Collector Current L14P2	$I_{C(ON)}$	8.0		—	mA	$E_e = 0.3\text{ mW/cm}^2$, $V_{CE} = 5\text{ V}$ ^(7,8)
On-State Photodiode Current	$I_{CB(ON)}$		6.0		μA	$E_e = 0.3\text{ mW/cm}^2$, $V_{CB} = 5\text{ V}$
Rise Time	t_r		10		μS	$I_C = 10\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 100\ \Omega$
Fall Time	t_f		12		μS	$I_C = 10\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 100\ \Omega$
Saturation Voltage L14P1	$V_{CE(SAT)}$	—		0.40	V	$I_C = 0.8\text{ mA}$, $E_e = .6\text{ mW/cm}^2$ ^(7,8)
Saturation Voltage L14P2	$V_{CE(SAT)}$	—		0.40	V	$I_C = 1.6\text{ mA}$, $E_e = .6\text{ mW/cm}^2$ ^(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 $\frac{1}{16}$ " (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

