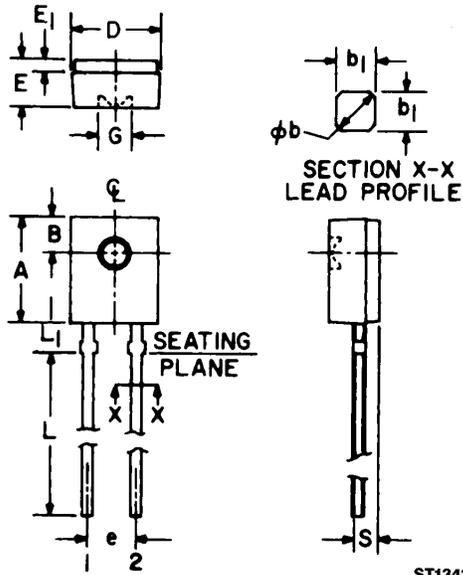
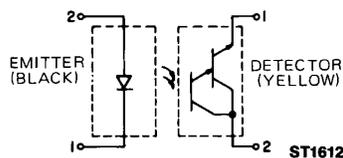


PACKAGE DIMENSIONS



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	5.59	5.80	.220	.228	
B	1.78	NOM.	.070	NOM.	2
φb	.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



NOTES

- TWO LEADS. LEAD CROSS SECTION DIMENSIONS UNCONTROLLED WITHIN 1.27 mm (0.50") OF SEATING PLANE.
- CENTERLINE OF ACTIVE ELEMENT LOCATED WITHIN .25 mm (.010") OF TRUE POSITION.
- AS MEASURED AT THE SEATING PLANE.
- INCH DIMENSIONS DERIVED FROM MILLIMETERS.

DESCRIPTION

The H23B1 is a matched emitter-detector pair which consists of a gallium arsenide infrared emitting diode and a silicon photodarlington. The clear epoxy packaging system is designed to optimize the mechanical resolution, coupling efficiency, cost, and reliability. The devices are marked with a color dot for easy identification of the emitter and detector.

FEATURES

- Good optical to mechanical alignment
- Color dot for easy recognition of LED and phototransistor
- Low cost

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. ^(3,4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(3,4)
INPUT DIODE	
Continuous Forward Current	60 mA
Reverse Voltage	6.0 Volts
Power Dissipation	100mW ⁽¹⁾
OUTPUT DARLINGTON	
Collector-Emitter Voltage	30 Volts
Emitter-Collector Voltage	7 Volts
Power Dissipation	150 mW ⁽²⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	—	—	1.7	V	$I_F = 60\text{ mA}$
Reverse Leakage Current	I_R	—	—	1.0	μA	$V_R = 3\text{ V}$
Reverse Breakdown Voltage	V_R	6.0	—	—	V	$I_R = 10\mu\text{A}$
OUTPUT DARLINGTON						
Emitter-Collector Breakdown	BV_{ECO}	7.0	—	—	V	$I_E = 100\mu\text{A}$, $E_e=0$
Collector-Emitter Breakdown	BV_{CEO}	30	—	—	V	$I_C = 1\text{ mA}$, $E_e=0$
Collector-Emitter Leakage	I_{CEO}	—	—	100	nA	$V_{CE} = 25\text{ V}$, $E_e=0$
COUPLED						
On-State Collector Current	$I_{C(ON)}$	7.5	—	—	mA	$I_F = 10\text{ mA}$, $V_{CE} = 1.5\text{ V}$ ⁽⁶⁾
Saturation Voltage	$V_{CE(SAT)}$	—	—	1.0	V	$I_F = 10\text{ mA}$, $I_C = 1.8\text{ mA}$ ⁽⁶⁾
Turn-On Time	t_{on}	—	8	—	μS	$I_F = 30\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 2.5\text{ k}\Omega$ ⁽⁶⁾
Turn-Off Time	t_{off}	—	50	—	μS	$I_F = 30\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 2.5\text{ k}\Omega$ ⁽⁶⁾

NOTES
1. Derate power dissipation linearly 1.33mW/°C above 25°C.
2. Derate power dissipation linearly 2.00mW/°C above 25°C.
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. Coupled characteristics are measured at a separation distance of .155" (4 mm) with the lenses of the emitter and detector on a common axis within 0.1mm and parallel within 5°.

TYPICAL CHARACTERISTICS

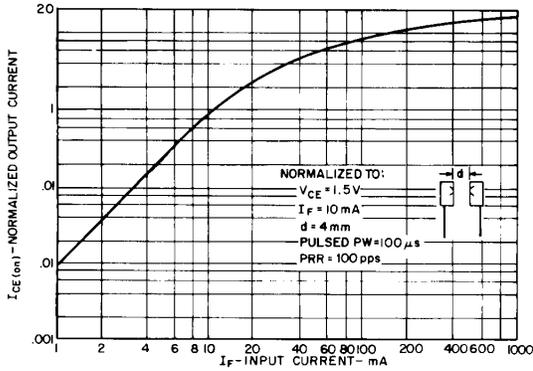


Fig. 1. Output Current vs. Input Current

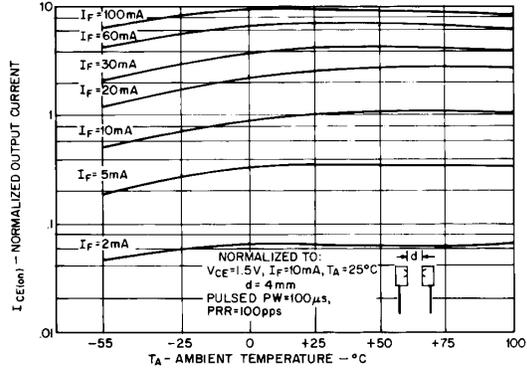


Fig. 2. Output Current vs. Temperature

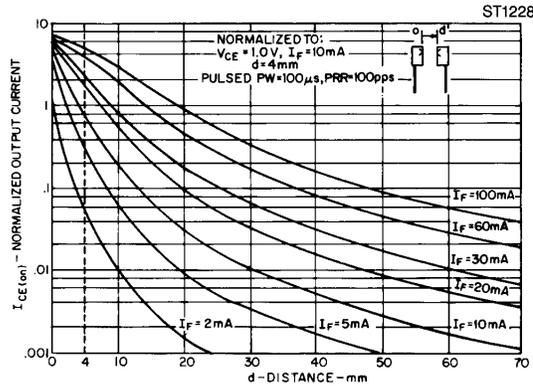


Fig. 3. Output Current vs. Distance

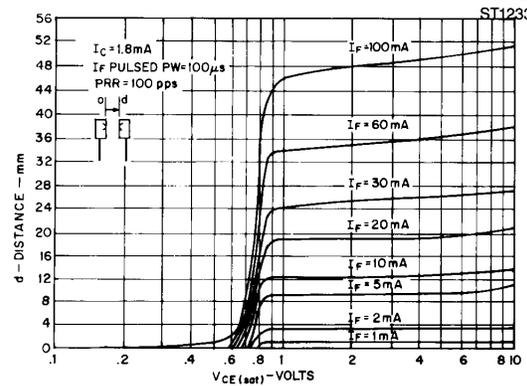


Fig. 4. $V_{CE(sat)}$ vs. Distance

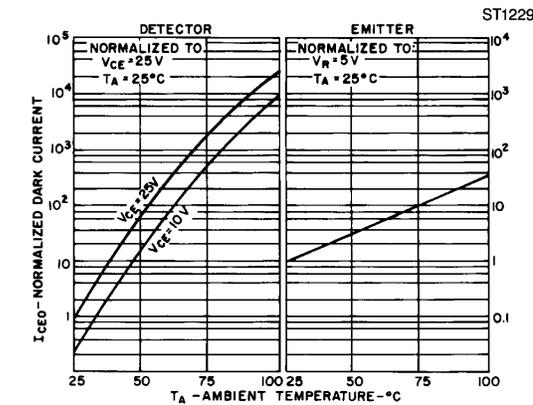


Fig. 5. Leakage Currents vs. Temperature

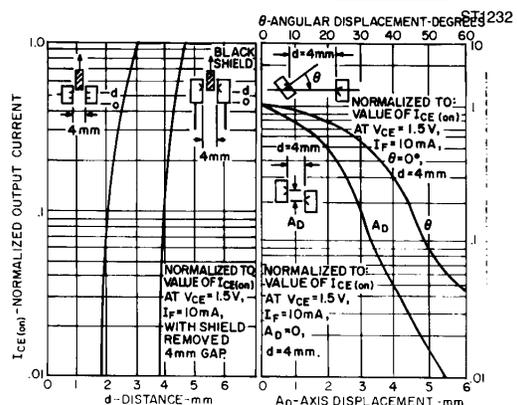


Fig 6A. Output Current vs. Shield Distance

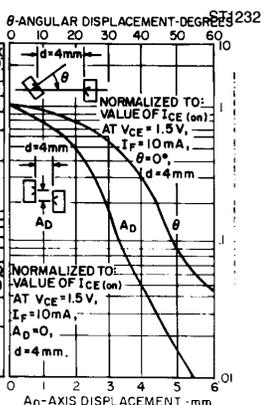


Fig 6B. Output Current vs. Displacement (Angular & Axis)



PLASTIC SIDELOOKER PAIR

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