

DESCRIPTION The 2SB1149 is a darlington transistor built-in dumper diode at E-C.

It is suitable for use to operate from IC without predriver, such as hammer driver.

- FEATURES**
- High DC Current Gain.
 - Low Collector Saturation Voltage.
 - Built-in a dumper diode at E-C.
 - High Power Dissipation: $P_T = 1.3 \text{ W}$ (at $T_a = 25^\circ \text{C}$)

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to $+150^\circ \text{C}$
 Junction Temperature 150°C Maximum

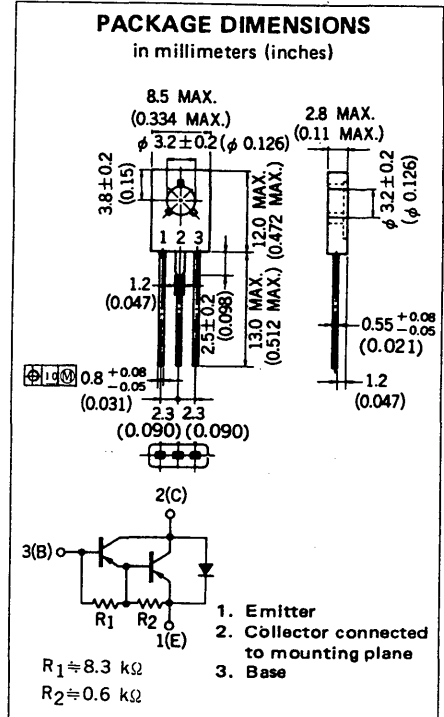
Maximum Power Dissipations

Total Power Dissipation ($T_a = 25^\circ \text{C}$) 1.3 W
 Total Power Dissipation ($T_c = 25^\circ \text{C}$) 15 W

Maximum Voltages and Currents ($T_a = 25^\circ \text{C}$)

V_{CBO} Collector to Base Voltage -100 V
 V_{CEO} Collector to Emitter Voltage -100 V
 V_{EBO} Emitter to Base Voltage -8.0 V
 $I_{C(DC)}$ Collector Current $\mp 3.0 \text{ A}$
 $I_{C(pulse)*}$ Collector Current $\mp 5.0 \text{ A}$

* $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50 \%$



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ \text{C}$)

| SYMBOL | CHARACTERISTIC | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|--------------------|------------------------------|------|------|-------|---------------|--|
| h_{FE1}^{**} | DC Current Gain | 2000 | | 15000 | - | $V_{CE} = -2.0 \text{ V}$, $I_C = -1.5 \text{ A}$ |
| h_{FE2}^{**} | DC Current Gain | 1000 | | | - | $V_{CE} = -2.0 \text{ V}$, $I_C = -3.0 \text{ A}$ |
| t_{on} | Turn On Time | | 0.5 | | μs | $I_C = -1.5 \text{ A}$, $R_L = 27 \Omega$ $I_{B1} = -I_{B2} = -1.5 \text{ mA}$, $V_{CC} \approx -40 \text{ V}$ See Test Circuit. |
| t_{stg} | Storage Time | | 2.0 | | μs | |
| t_f | Fall Time | | 1.0 | | μs | |
| I_{CBO} | Collector Cutoff Current | | | -10 | μA | $V_{CB} = -100 \text{ V}$, $I_E = 0$ |
| I_{EBO} | Emitter Cutoff Current | | | -1.0 | mA | $V_{EB} = -5.0 \text{ V}$, $I_C = 0$ |
| $V_{CE(sat)}^{**}$ | Collector Saturation Voltage | -0.9 | -1.2 | | V | $I_C = -1.5 \text{ A}$, $I_B = -1.5 \text{ mA}$ |
| $V_{BE(sat)}^{**}$ | Base Saturation Voltage | -1.5 | -2.0 | | V | $I_C = -1.5 \text{ A}$, $I_B = -1.5 \text{ mA}$ |

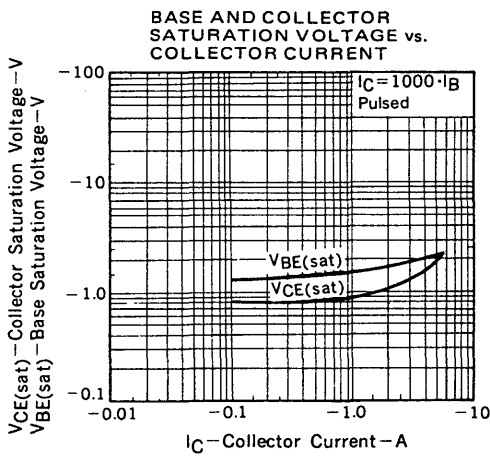
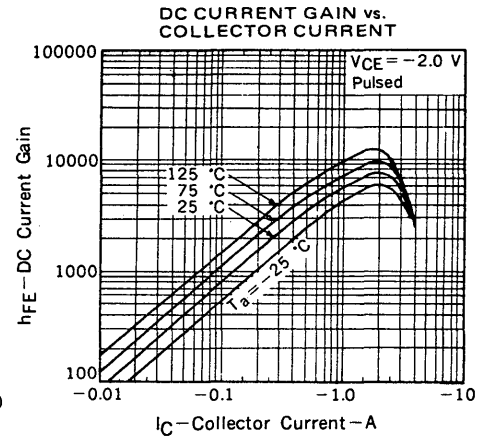
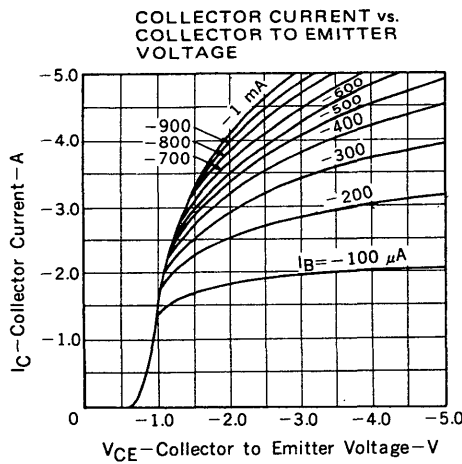
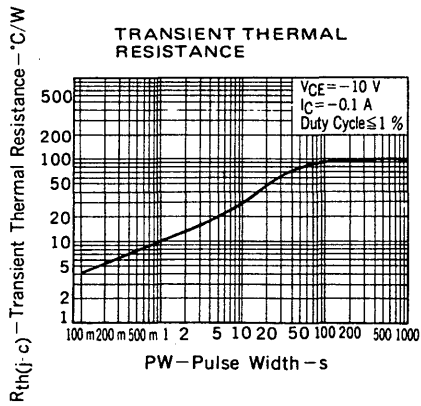
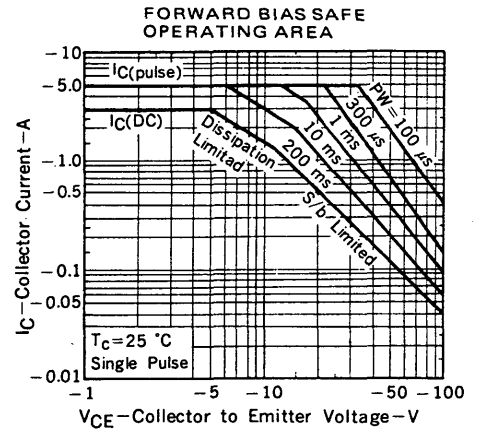
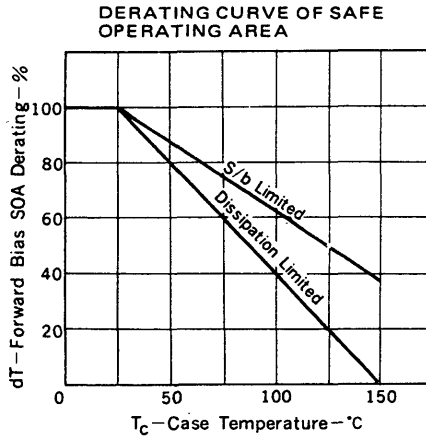
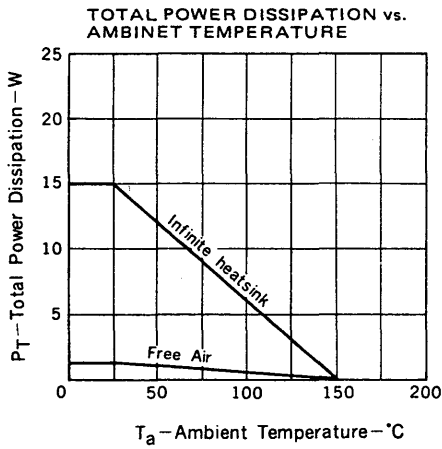
** Pulsed / $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2 \%$

Classification of h_{FE1}

| Rank | M | L | K |
|-------|--------------|--------------|---------------|
| Range | 2000 to 5000 | 3000 to 7000 | 5000 to 15000 |

Test Conditions: $V_{CE} = -2.0 \text{ V}$, $I_C = -1.5 \text{ A}$

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



SWITCHING TIME (t_{on} , t_{stg} , t_f) TEST CIRCUIT

