

DESCRIPTION The 2SB1149 is a darlington transistor built-in 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 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

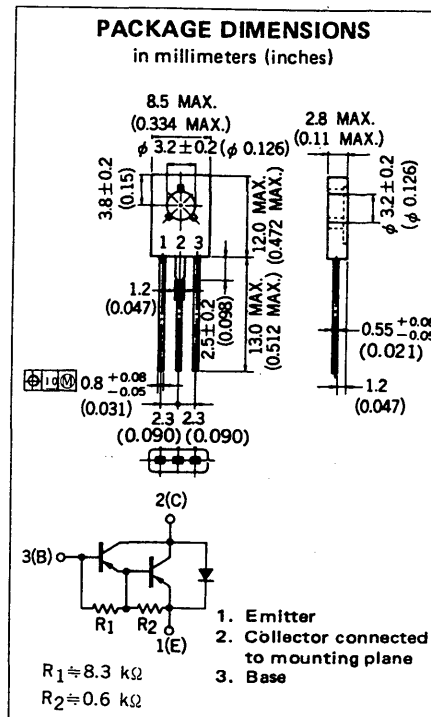
V_{CEO} Collector to Emitter Voltage -100 V

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

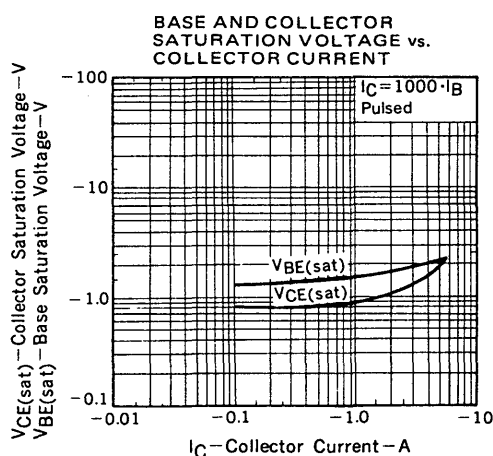
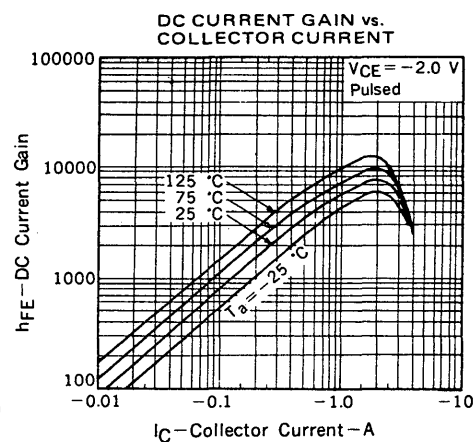
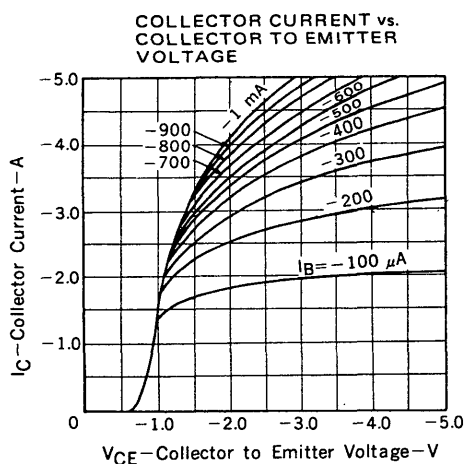
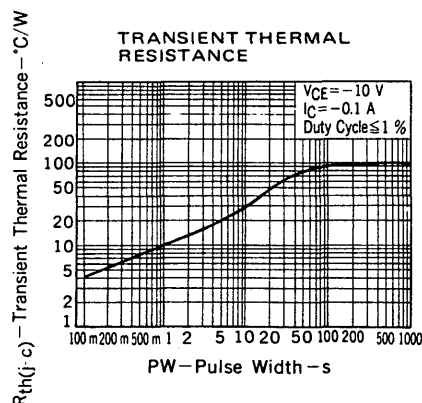
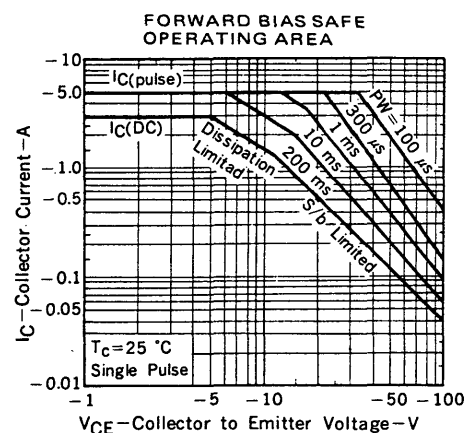
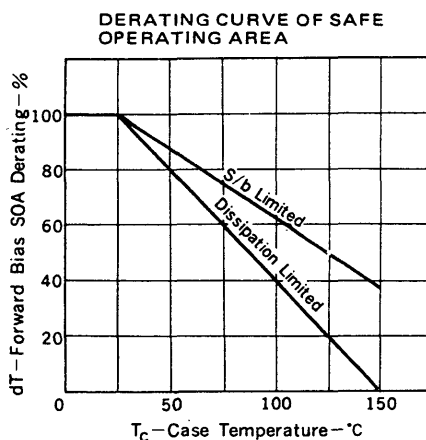
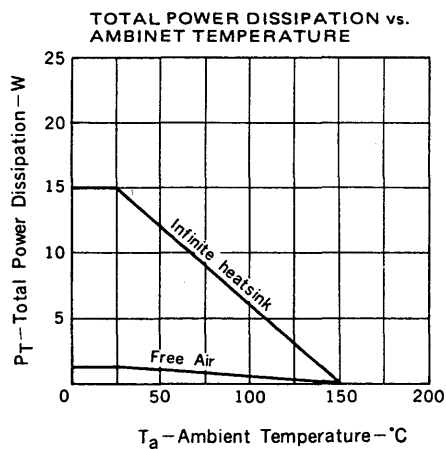
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE1}^{**}	DC Current Gain	2000		15000	—	$V_{CE} = -2.0 \text{ V}$, $I_C = -1.5 \text{ A}$
h_{FE2}^{**}	DC Current Gain	1000			—	$V_{CE} = -2.0 \text{ V}$, $I_C = -3.0 \text{ A}$
t_{on}	Turn On Time		0.5		μs	$I_C = -1.5 \text{ A}$, $R_L = 27 \Omega$ $I_{B1} = -I_{B2} = -1.5 \text{ mA}$, $V_{CC} = -40 \text{ V}$ 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