

**DESCRIPTION** The 2SB1318 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.

**ABSOLUTE MAXIMUM RATINGS**

Maximum Temperatures

Storage Temperatures . . . . . -55 to +150 °C

Junction Temperature . . . . . 150 °C Maximum

Maximum Power Dissipation (T<sub>a</sub> = 25 °C)

Total Power Dissipation . . . . . 1.0 W

Maximum Voltages and Currents (T<sub>a</sub> = 25 °C)

V<sub>CBO</sub> Collector to Base Voltage . . . . . -100 V

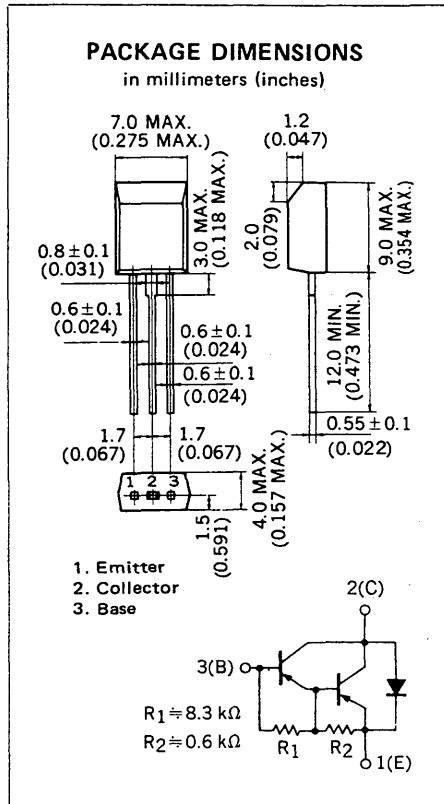
V<sub>CEO</sub> Collector to Emitter Voltage . . . . . -100 V

V<sub>EBO</sub> Emitter to Base Voltage . . . . . -8.0 V

I<sub>C</sub> Collector Current (DC) . . . . . ±3.0 A

I<sub>C</sub>\* Collector Current (pulse) . . . . . ±5.0 A

\*PW ≤ 10 ms, Duty Cycle ≤ 50 %



**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C)**

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h <sub>FE1</sub> **	DC Current Gain	2000		15000	-	V <sub>CE</sub> = -2.0 V, I <sub>C</sub> = -1.5 A
h <sub>FE2</sub> **	DC Current Gain	1000			-	V <sub>CE</sub> = -2.0 V, I <sub>C</sub> = -3.0 A
t <sub>on</sub>	Turn On Time		0.5		μs	I <sub>C</sub> = -1.5 A, R <sub>L</sub> = 27 Ω I <sub>B1</sub> = -I <sub>B2</sub> = -1.5 mA, V <sub>CC</sub> ≐ -40 V See Test Circuit.
t <sub>stg</sub>	Storage Time		2.0		μs	
t <sub>f</sub>	Fall Time		1.0		μs	
I <sub>CBO</sub>	Collector Cutoff Current			-10	μA	V <sub>CB</sub> = -100 V, I <sub>E</sub> = 0
I <sub>EBO</sub>	Emitter Cutoff Current			-1.0	mA	V <sub>EB</sub> = -5.0 V, I <sub>C</sub> = 0
V <sub>CE(sat)</sub> **	Collector Saturation Voltage		-0.9	-1.2	V	I <sub>C</sub> = -1.5 A, I <sub>B</sub> = -1.5 mA
V <sub>BE(sat)</sub> **	Base Saturation Voltage		-1.5	-2.0	V	I <sub>C</sub> = -1.5 A, I <sub>B</sub> = -1.5 mA

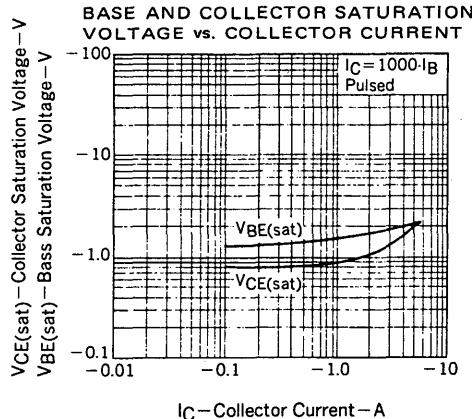
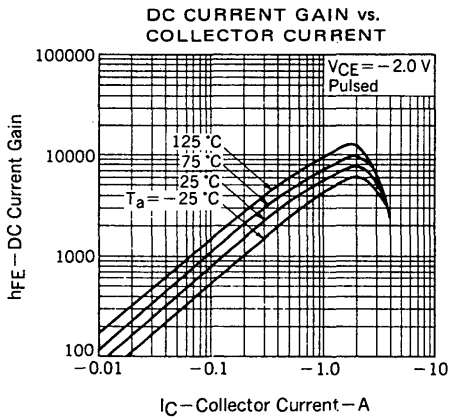
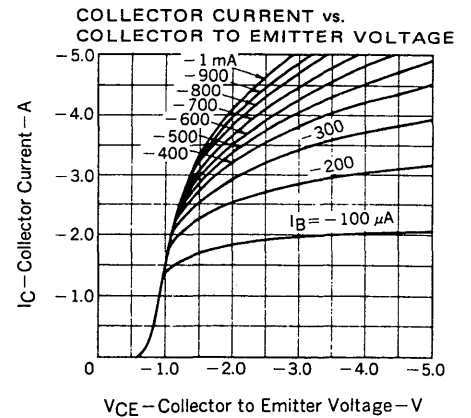
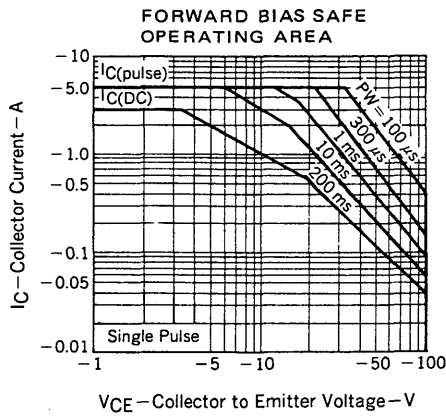
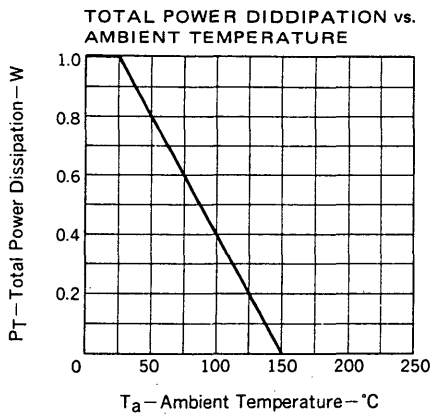
\*\*PW ≤ 350 μs, Duty Cycle ≤ 2 %

**Classification of h<sub>FE1</sub>**

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

Test Conditions: V<sub>CE</sub> = -2.0 V, I<sub>C</sub> = -1.5 A

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



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

