

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_a = 25 °C)

Total Power Dissipation 1.0 W

Maximum Voltages and Currents (T_a = 25 °C)

V_{CBO} Collector to Base Voltage -100 V

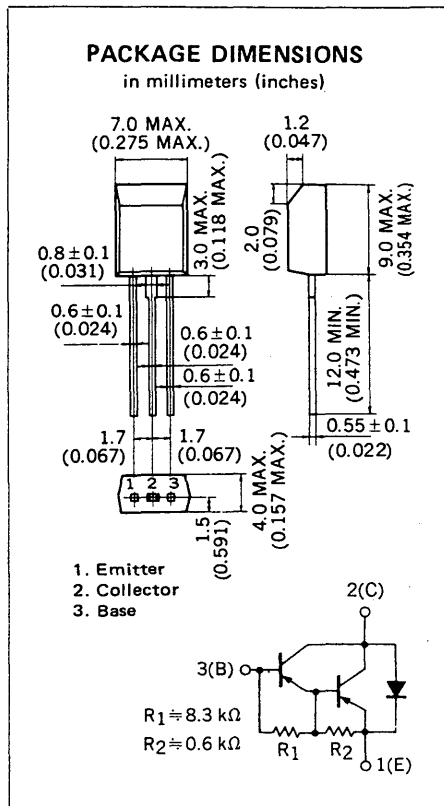
V_{CEO} Collector to Emitter Voltage -100 V

V_{EBO} Emitter to Base Voltage -8.0 V

I_C Collector Current (DC) ±3.0 A

I_C* Collector Current (pulse) ±5.0 A

*PW ≤ 10 ms, Duty Cycle ≤ 50 %



ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h _{FE1} **	DC Current Gain	2000		15000	-	V _{CE} = -2.0 V, I _C = -1.5 A
h _{FE2} **	DC Current Gain	1000			-	V _{CE} = -2.0 V, I _C = -3.0 A
t _{on}	Turn On Time		0.5		μs	I _C = -1.5 A, R _L = 27 Ω I _{B1} = -I _{B2} = -1.5 mA, V _{CC} ≐ -40 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 V, I _E = 0
I _{EBO}	Emitter Cutoff Current			-1.0	mA	V _{EB} = -5.0 V, I _C = 0
V _{CE(sat)} **	Collector Saturation Voltage		-0.9	-1.2	V	I _C = -1.5 A, I _B = -1.5 mA
V _{BE(sat)} **	Base Saturation Voltage		-1.5	-2.0	V	I _C = -1.5 A, I _B = -1.5 mA

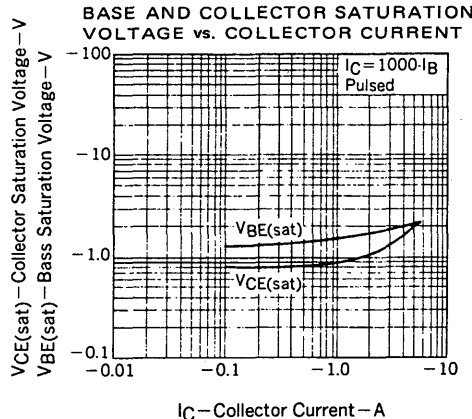
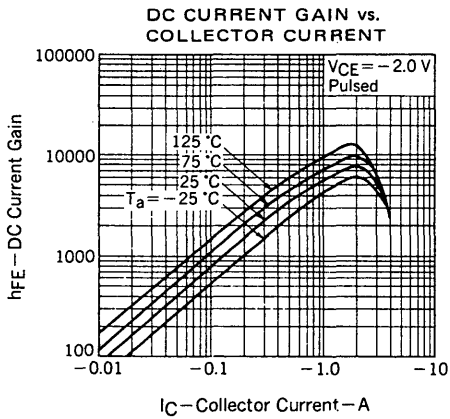
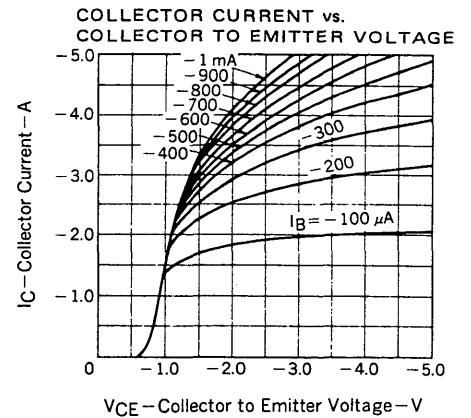
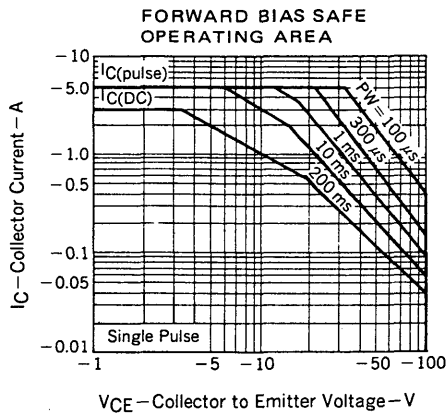
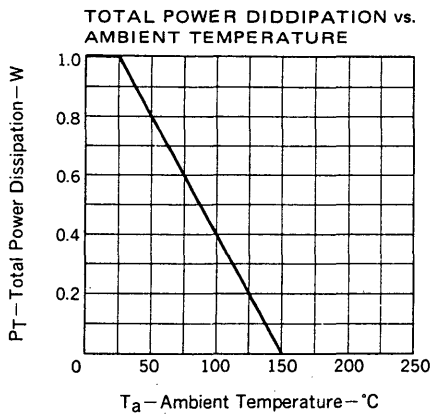
**PW ≤ 350 μs, Duty Cycle ≤ 2 %

Classification of h_{FE1}

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

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

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



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

