

# Power Transistor (-100V , -2A)

## 2SB1580 / 2SB1316

●Features

- 1) Darlington connection for high DC current gain.
- 2) Built-in resistor between base and emitter.
- 3) Built-in damper diode.
- 4) Complements the 2SD2195 / 2SD1980.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	-100	V
Collector-emitter voltage	V <sub>CE0</sub>	-100	V
Emitter-base voltage	V <sub>EB0</sub>	-8	V
Collector current	I <sub>c</sub>	-2	A(DC)
		-3	A(Pulse) *1
Collector power dissipation	P <sub>c</sub>	2SB1580	2
		2SB1316	1
		10	W(Tc=25°C) *2
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

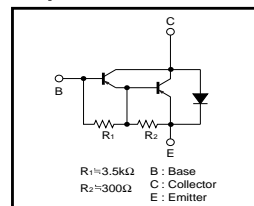
\*1 Single pulse Pw=100ms  
\*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and hFE

Type	2SB1580	2SB1316
Package	MPT3	CPT3
hFE	1k to 10k	1k to 10k
Marking	BN*	-
Code	T100	TL
Basic ordering unit (pieces)	1000	2500

\* Denotes hFE

●Equivalent circuit

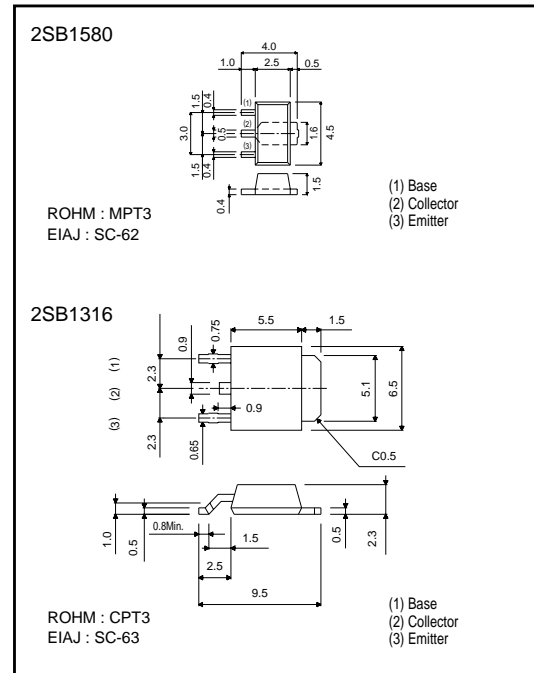


●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	-100	-	-	V	I <sub>c</sub> = -50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-100	-	-	V	I <sub>c</sub> = -5mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-10	-	-	V	I <sub>E</sub> = -5mA
Collector cutoff current	I <sub>CB0</sub>	-	-	-10	μA	V <sub>CB</sub> = -100V
Emitter cutoff current	I <sub>EB0</sub>	-	-	-3	mA	V <sub>EB</sub> = -7V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-1.5	V	I <sub>c</sub> /I <sub>B</sub> = -1A/-1mA *
DC current transfer ratio	h <sub>FE</sub>	1000	-	10000	-	V <sub>CE</sub> = -2V, I <sub>c</sub> = -1A *
Transition frequency	f <sub>T</sub>	-	50	-	MHz	V <sub>CE</sub> = -5V, I <sub>E</sub> = 0.1A, f = 30MHz
Output capacitance	C <sub>ob</sub>	-	35	-	pF	V <sub>CB</sub> = -10V, I <sub>E</sub> = 0A, f = 1MHz

\* Measured using pulse current.

●External dimensions (Unit : mm)



Transistors

●Electrical characteristics curve

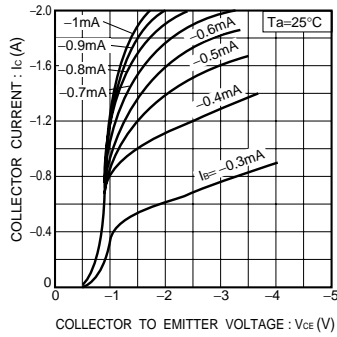


Fig.1 Grounded emitter output characteristics

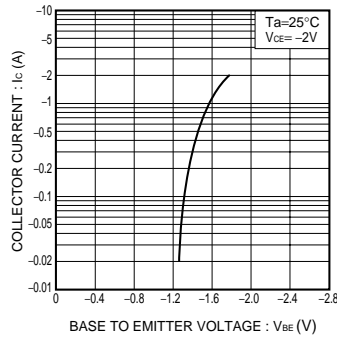


Fig.2 Grounded emitter propagation characteristics

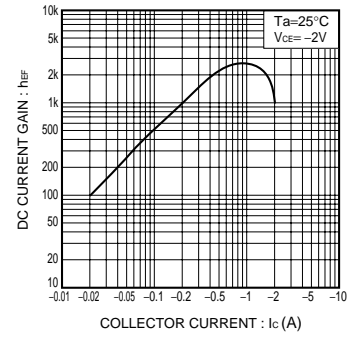


Fig.3 DC current gain vs. collector current

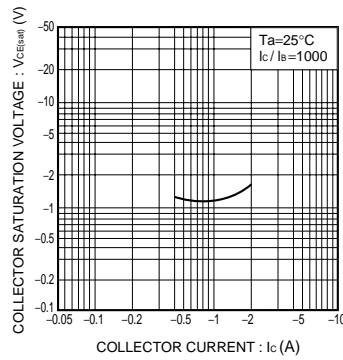


Fig.4 Collector-emitter saturation voltage vs. collector current

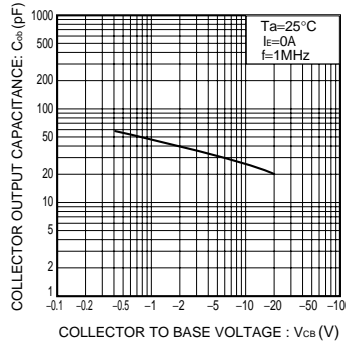


Fig.5 Collector output capacitance vs. collector-base voltage

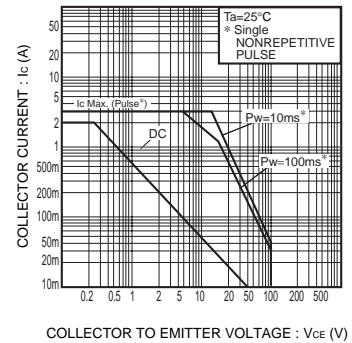


Fig.6 Safe Operating area (2SB1580)

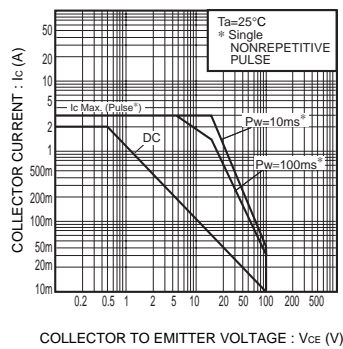


Fig.7 Safe Operating area (2SB1316)

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