

Power Transistor (−100V , −2A)

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 _{CB0}	−100	V
Collector-emitter voltage	V _{CE0}	−100	V
Emitter-base voltage	V _{EB0}	−8	V
Collector current	I _c	−2	A(DC)
		−3	A(Pulse) *1
Collector power dissipation	P _c	2	W
		1	W
		10	W(Tc=25°C)
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55 to +150	°C

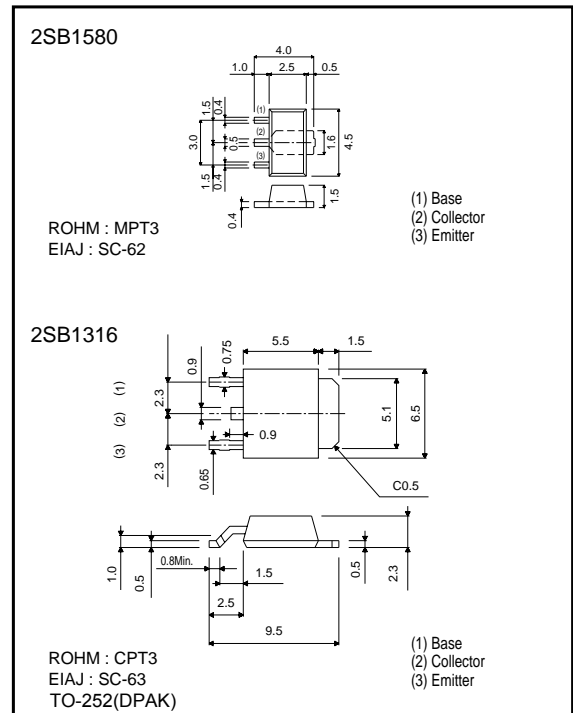
*1 Single pulse Pw=100ms
*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and hFE

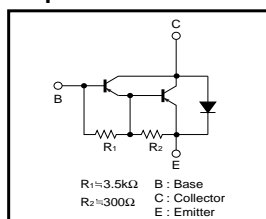
Type	2SB1580	2SB1316
Package	MPT3	CPT3
hFE	1k to 10k	1k to 10k
Marking	BN*	—
Code	T100	TL
Basic ordering unit (pieces)	1000	2500

* Denotes hFE

●External dimensions (Unit : mm)



●Equivalent circuit



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	−100	—	—	V	I _c = −50μA
Collector-emitter breakdown voltage	BV _{CE0}	−100	—	—	V	I _c = −5mA
Emitter-base breakdown voltage	BV _{EB0}	−10	—	—	V	I _E = −5mA
Collector cutoff current	I _{cbo}	—	—	−10	μA	V _{CB} = −100V
Emitter cutoff current	I _{ebo}	—	—	−3	mA	V _{EB} = −7V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	−1.5	V	I _c /I _E = −1A/−1mA
DC current transfer ratio	h _{FE}	1000	—	10000	—	V _{CE} = −2V, I _c = −1A
Transition frequency	f _T	—	50	—	MHz	V _{CE} = −5V, I _E = 0.1A, f = 30MHz
Output capacitance	C _{ob}	—	35	—	pF	V _{CB} = −10V, I _E = 0A, f = 1MHz

* Measured using pulse current.

Transistors

●Electrical characteristics curve

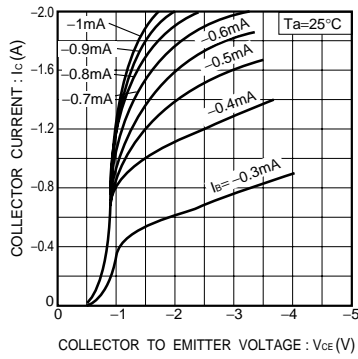


Fig.1 Grounded emitter output characteristics

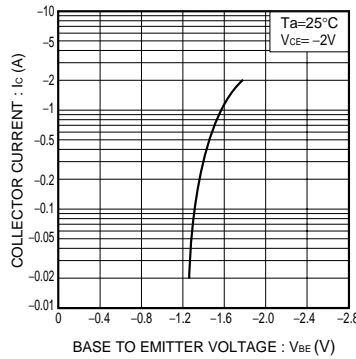


Fig.2 Grounded emitter propagation characteristics

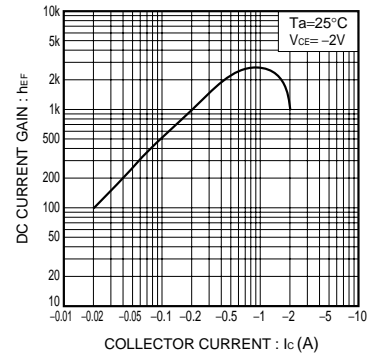


Fig.3 DC current gain vs. collector current

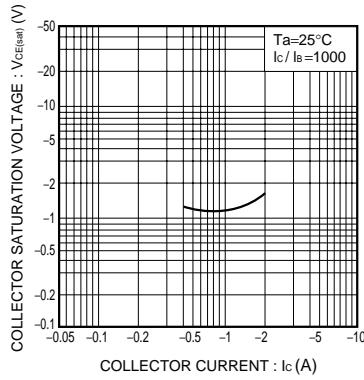


Fig.4 Collector-emitter saturation voltage vs. collector current

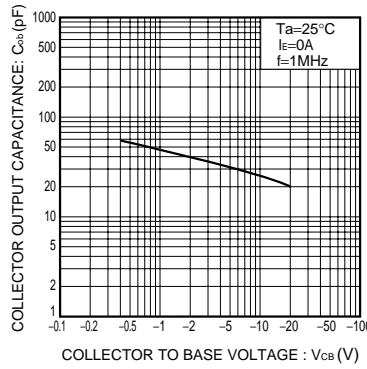


Fig.5 Collector output capacitance vs. collector-base voltage

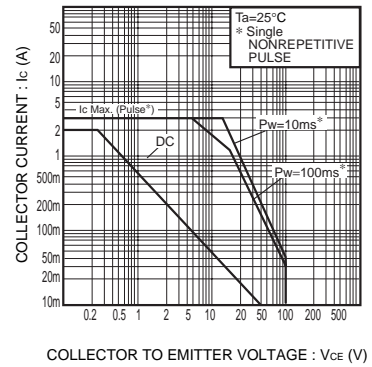


Fig.6 Safe Operating area (2SB1580)

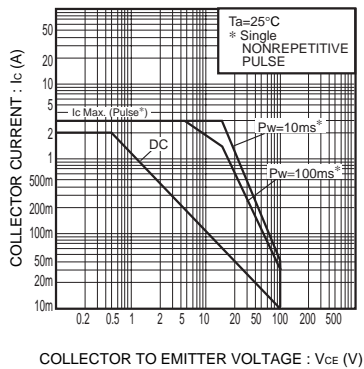


Fig.7 Safe Operating area (2SB1316)

Notes

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