

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_{CBO}	−100	V
Collector-emitter voltage	V_{CEO}	−100	V
Emitter-base voltage	V_{EBO}	−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.

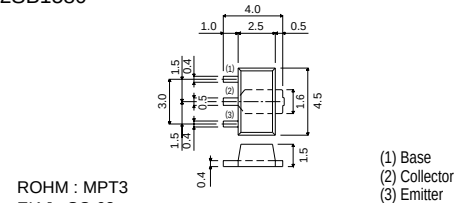
●Packaging specifications and hFE

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

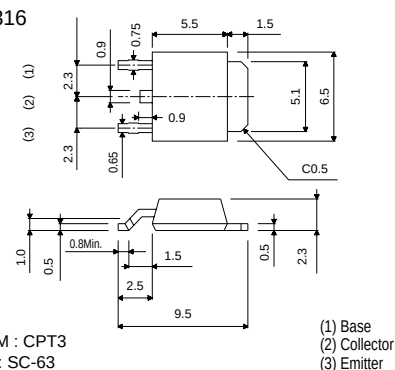
* Denotes hFE

●External dimensions (Unit : mm)

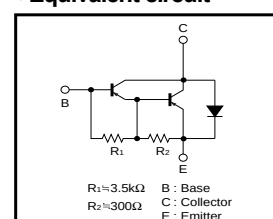
2SB1580



2SB1316



●Equivalent circuit



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−100	—	—	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	−100	—	—	V	$I_C = -5mA$
Emitter-base breakdown voltage	BV_{EBO}	−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

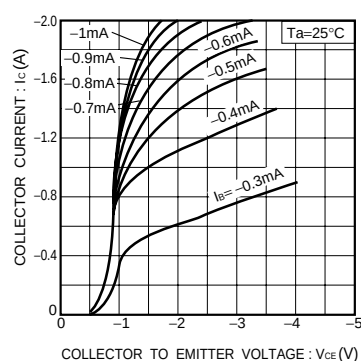


Fig.1 Grounded emitter output characteristics

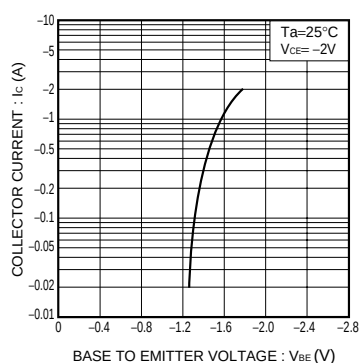


Fig.2 Grounded emitter propagation characteristics

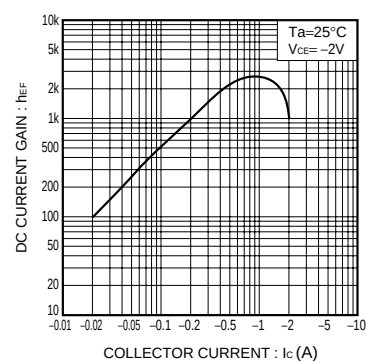


Fig.3 DC current gain vs. collector current

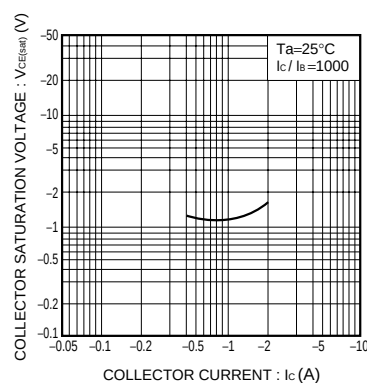


Fig.4 Collector-emitter saturation voltage vs. collector current

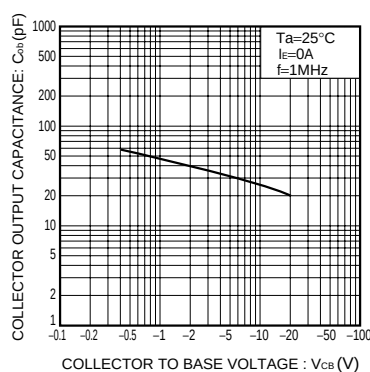


Fig.5 Collector output capacitance vs. collector-base voltage

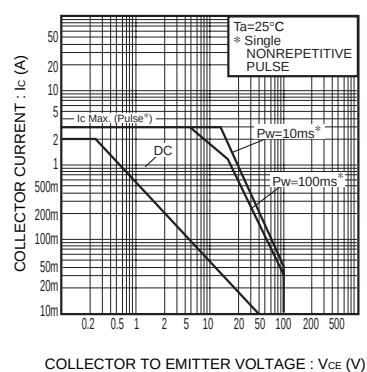


Fig.6 Safe Operating area (2SB1580)

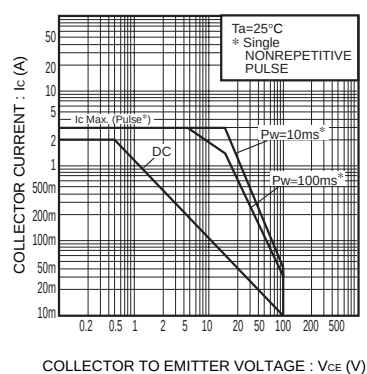


Fig.7 Safe Operating area (2SB1316)

Notes

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