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	2SB1580	P_C	2	W	∗2
	2SB1316		1		
			10	W(Tc=25°C)	
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	–55 to +150	°C	

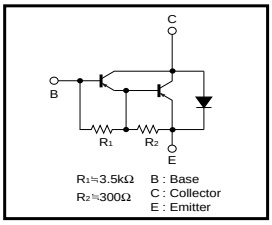
∗1 Single pulse Pw=100ms
∗2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and h_{FE}

Type	2SB1580	2SB1316
Package	MPT3	CPT3
h_{FE}	1k to 10k	1k to 10k
Marking	BN∗	–
Code	T100	TL
Basic ordering unit (pieces)	1000	2500

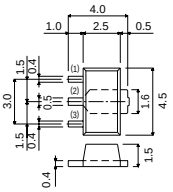
∗ Denotes h_{FE}

●Equivalent circuit



●External dimensions (Unit : mm)

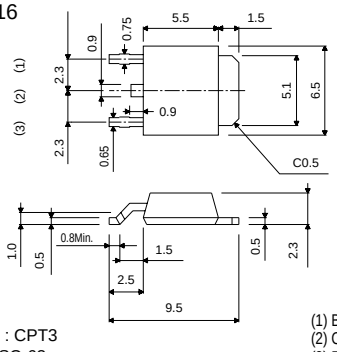
2SB1580



ROHM : MPT3
EIAJ : SC-62

(1) Base
(2) Collector
(3) Emitter

2SB1316



ROHM : CPT3
EIAJ : SC-63
TO-252(DPAK)

(1) Base
(2) Collector
(3) Emitter

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Collector-base breakdown voltage	BV_{CBO}	–100	–	–	V	I_C = –50μA	
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_B= –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	Cob	–	35	–	pF	V_{CB} = –10V , I_E = 0A , f = 1MHz	

∗ Measured using pulse current.

●Electrical characteristics curve

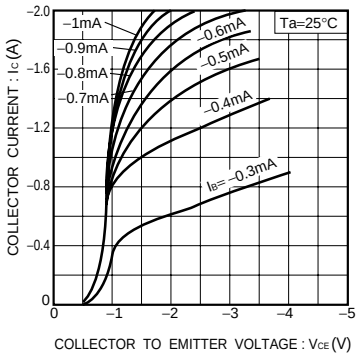


Fig.1 Grounded emitter output characteristics

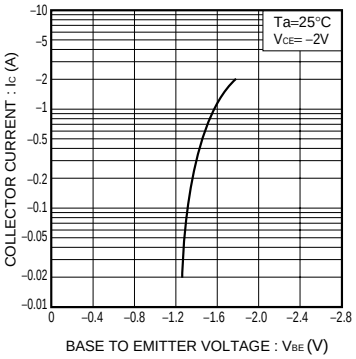


Fig.2 Grounded emitter propagation characteristics

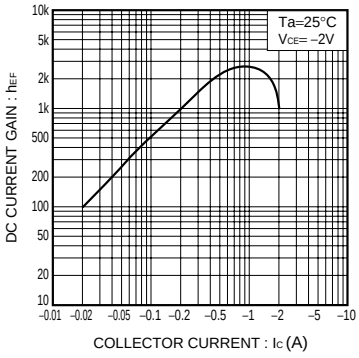


Fig.3 DC current gain vs. collector current

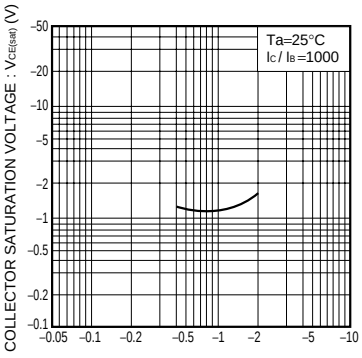


Fig.4 Collector-emitter saturation voltage vs. collector current

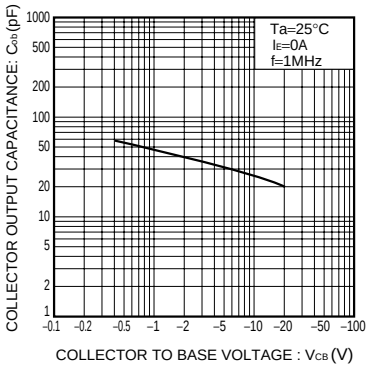


Fig.5 Collector output capacitance vs. collector-base voltage

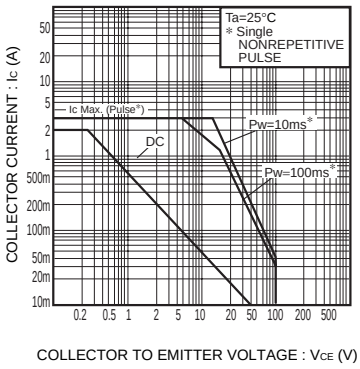


Fig.6 Safe Operating area (2SB1580)

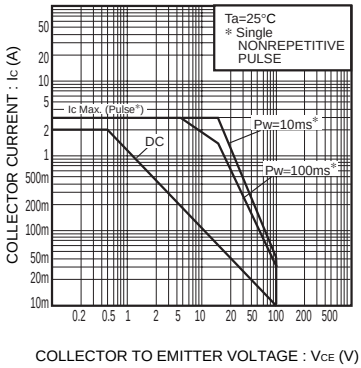


Fig.7 Safe Operating area (2SB1316)

Notes

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