# 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) Symb Collector-base voltage Collector-emitter voltage Emitter-base voltage Vcbo Vceo Vebo -100 V -100 tage A(DC) Collector current lc A(Pulse) \*1 Collector 2SB1580 w \*2 power dissipation 2SB1316 Pc 10 W(Tc=25°C) Junction temperature Ti 150 °C -55 Storage temperature Tstg to +150

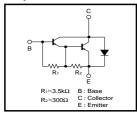
\*1 Single pulse Pw=100ms
 \*2 When mounted on a 40 x 40 x 0.7 mm ceramic board

#### Packaging specifications and hFE

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

\* Denotes hre

#### Equivalent circuit



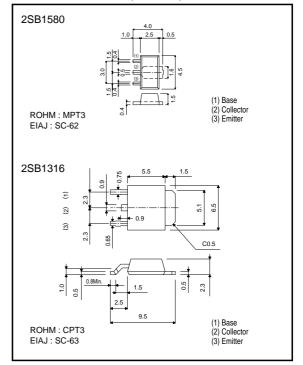
#### •Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Collector-base breakdown voltage	ВVсво	-100	-	-	V	$Ic = -50\mu A$	
Collector-emitter breakdown voltage	BVCEO	-100	-	-	V	Ic = -5mA	
Emitter-base breakdown voltage	BVEBO	-10	-	-	V	$I_E = -5mA$	
Collector cutoff current	Ісво	-	-	-10	μΑ	$V_{CB} = -100V$	
Emitter cutoff current	<b>I</b> EBO	-	-	-3	mA	$V_{EB} = -7V$	
Collector-emitter saturation voltage	VCE(sat)	-	-	-1.5	V	Ic/IB=-1A/-1mA	*
DC current transfer ratio	hfe	1000	-	10000	-	$V_{CE} = -2V$ , $I_C = -1A$	*
Transition frequency	f⊤	-	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.



#### •External dimensions (Unit : mm)



Rev.A 1/2

### Transistors

#### •Electrical characteristics curve

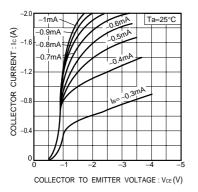


Fig.1 Grounded emitter output characteristics

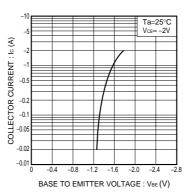


Fig.2 Grounded emitter propagation characteristics

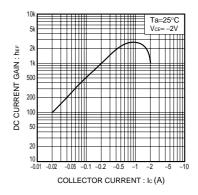


Fig.3 DC current gain vs. collector current

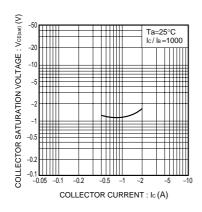


Fig.4 Collector-emitter saturation voltage vs. collector current

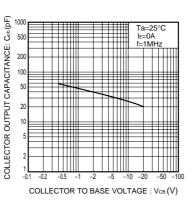


Fig.5 Collector output capacitance vs. collector-base voltage

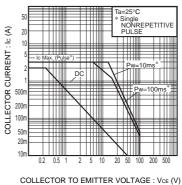
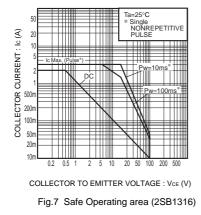


Fig.6 Safe Operating area (2SB1580)



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