

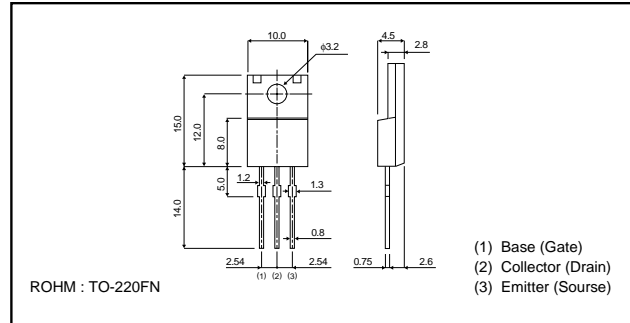
# Power Transistor (−80V, −4A)

## 2SB1568

**● Features**

- 1) Available in TO-220 FN package
- 2) Darling connection provides high dc current gain ( $h_{FE}$ )
- 3) Damper diode is incorporated
- 4) Built in resistors between base and emitter
- 5) Two millimeters lower than TO-220 FP which allows higher density mounting
- 6) Complementary pair with 2SD2399

**● External dimensions (Unit : mm)**



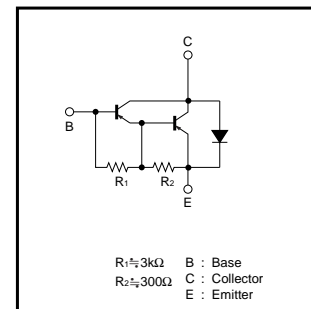
**● Applications**

Power amplifier

**● Absolute maximum rating (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	−80	V
Collector-emitter voltage	$V_{CEO}$	−80	V
Emitter-base voltage	$V_{EBO}$	−7	V
Collector current	$I_C$	−4	A(DC)
	$I_{CP}$	−6	A(Pulse)*
Collector dissipation	$P_C$	2	W(Ta=25°C)
		30	W(Tc=25°C)
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	−55 to +150	°C

**● Equivalent circuit**



**● Electrical characteristics (unless otherwise noted, Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	−80	−	−	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	−80	−	−	V	$I_C = -1mA$
Collector cutoff current	$BV_{EBO}$	−7	−	−	V	$I_E = -5mA$
Emitter cutoff current	$I_{CBO}$	−	−	−100	$\mu A$	$V_{CB} = -80V$
DC current gain	$I_{EBO}$	−	−	−3	mV	$V_{EB} = -5V$
Collector-emitter breakdown voltage	$h_{FE}^{*1}$	1000	5000	−3	−	$V_{CE} = -3V, I_C = -2A$
Collector-emitter saturation voltage	$V_{CE(sat)}^{*1}$	−	−1.0	10000	V	$I_C/I_B = -2A/-4mA$
Transition frequency	$f_T^{*1*2}$	−	12	−1.5	MHz	$V_{CE} = -5V, I_E = 0.5A, f = 10MHz$
Output capacitance	$C_{ob}$	−	35	−	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

\*1 Measured using pulse current.  
 \*2 Transition frequency of the device.

Transistors

●Packaging specifications

Type	hFE	Packaging	Bulk
		Code	
		Basic ordering unit(pieces)	500
2SB1568	1000 to 10000		○

●Electrical characteristics

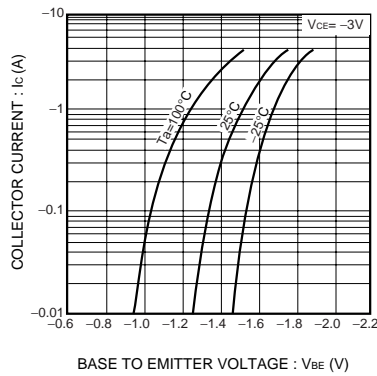


Fig.1 Grounded emitter propagation characteristics

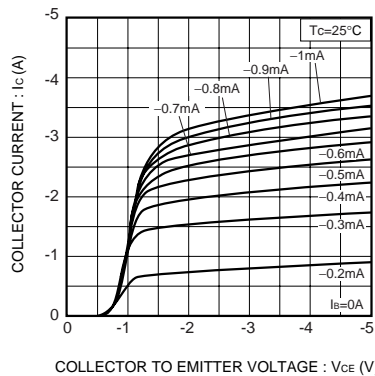


Fig.2 Grounded emitter output characteristics ( I )

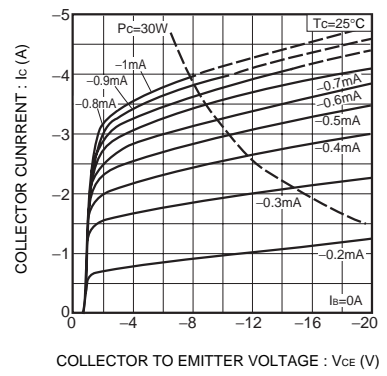


Fig.3 Grounded emitter output characteristics ( II )

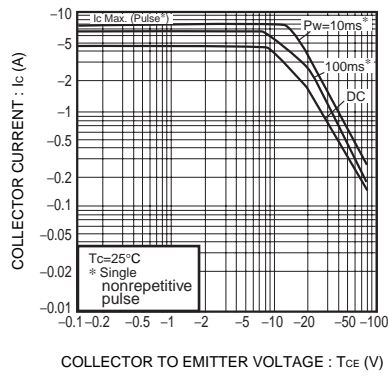


Fig.4 Safe operating area

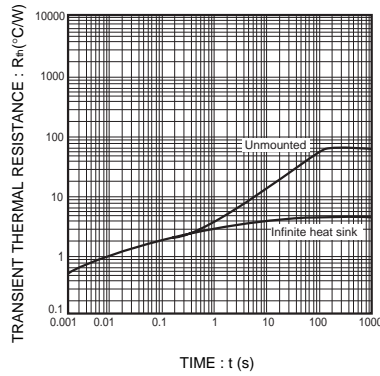


Fig.5 Transient thermal resistance

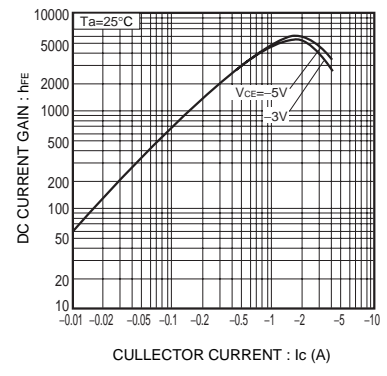


Fig.6 DC current gain vs. collector current ( I )

Transistors

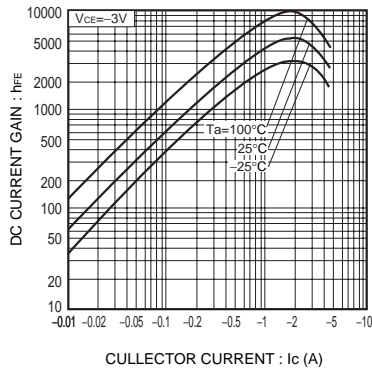


Fig.7 DC current gain vs. collector current ( II )

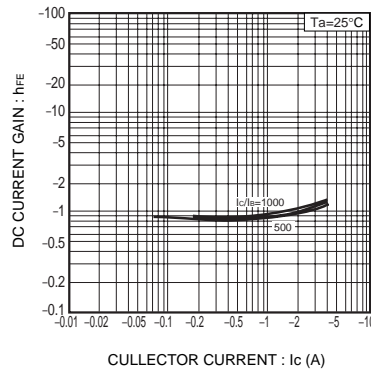


Fig.8 Collector-Emitter saturation voltage vs. collector current ( I )

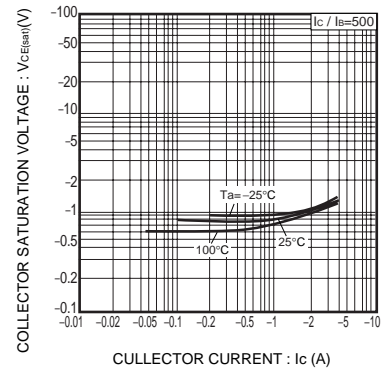


Fig.9 Collector-Emitter saturation voltage vs. collector current ( II )

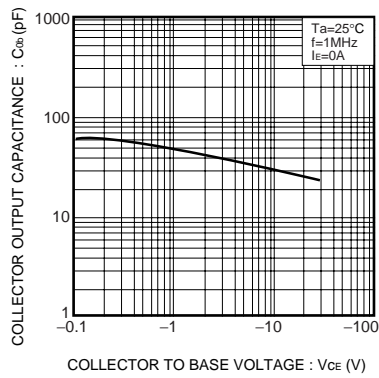


Fig.10 Collector output capacitance vs. collector-base voltage

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