

Medium power transistor(−80V, −0.7A)

2SB1189 / 2SB1238

●Features

- 1) High breakdown voltage, $V_{CE0}=-80V$, and high current, $I_c=-0.7A$.
- 2) Complements the 2SD1767 / 2SD1859.

●Absolute maximum ratings (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}	-5	V		
Collector current	I_c	-0.7	A		
Collector power dissipation	2SB1189	P_c	0.5	W	*1
			2		
			1		
2SB1238	P_c	1			*2
Junction temperature	T_j	150	°C		
Storage temperature	T_{stg}	-55 to +150	°C		

*1 When mounted on a 40×40×0.7 mm ceramic board.

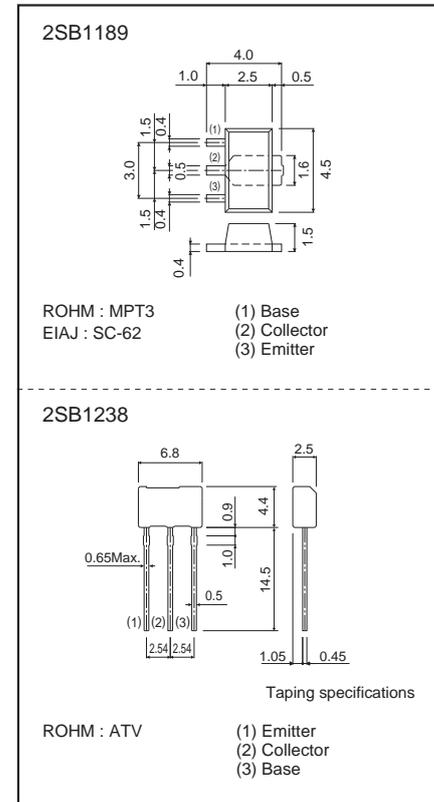
*2 Printed circuit board 1.7 mm thick, collector plating 1cm² or larger.

●Packaging specifications and h_{FE}

Type	2SB1189	2SB1238
Package	MPT3	ATV
h_{FE}	QR	QR
Marking	BD*	-
Code	T100	TV2
Basic ordering unit (pieces)	1000	2500

*Denotes h_{FE}

●Dimensions (Unit : mm)



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	V_{CBO}	-80	-	-	V	$I_c=-50\mu A$
Collector-emitter breakdown voltage	V_{CEO}	-80	-	-	V	$I_c=-2mA$
Emitter-base breakdown voltage	V_{EBO}	-5	-	-	V	$I_E=-50\mu A$
Collector cutoff current	I_{CBO}	-	-	-0.5	μA	$V_{CB}=-50V$
Emitter cutoff current	I_{EBO}	-	-	-0.5	μA	$V_{EB}=-4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-0.2	-0.4	V	$I_c/I_E=-500mA/-50mA$
DC current transfer ratio	h_{FE}	120	-	390	-	$V_{CE}/I_c=-3V/-0.1A$
Transition frequency	f_T	-	100	-	MHz	$V_{CE}=-10V, I_E=50mA, f=100MHz$
Output capacitance	C_{ob}	-	14	20	pF	$V_{CB}=-10V, I_E=0A, f=1MHz$

●Electrical characteristics curves

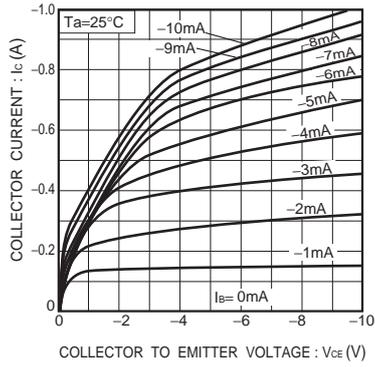


Fig.1 Ground emitter output characteristics

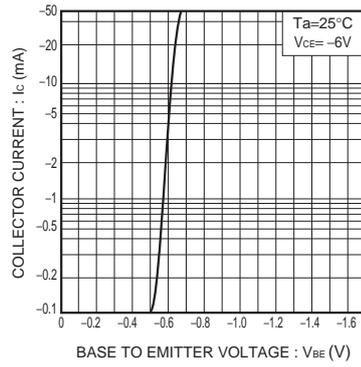


Fig.2 Ground emitter propagation characteristics

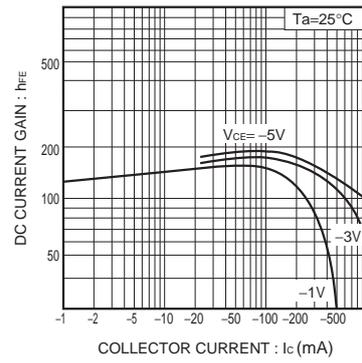


Fig.3 DC current gain vs. collector current

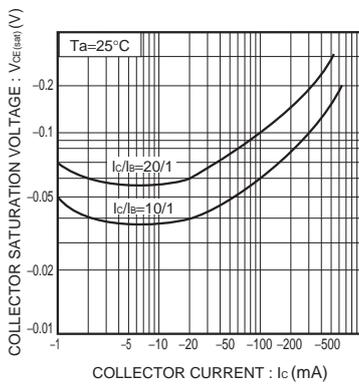


Fig.4 Collector-emitter saturation voltage vs. collector current

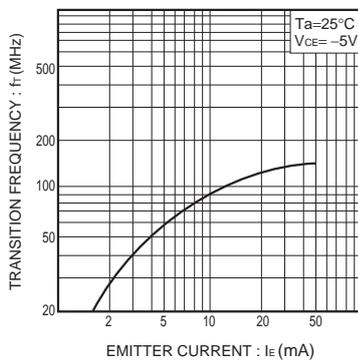


Fig.5 Gain bandwidth product vs. emitter current

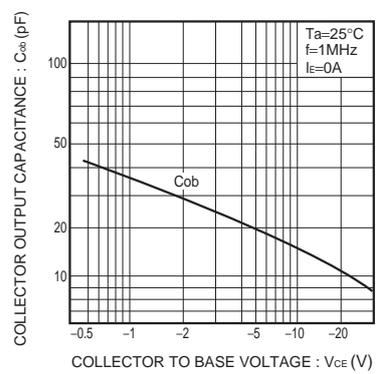


Fig.6 Collector output capacitance vs. collector-base voltage

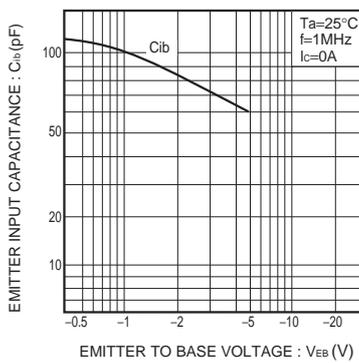


Fig.7 Emitter input capacitance vs. emitter-base voltage

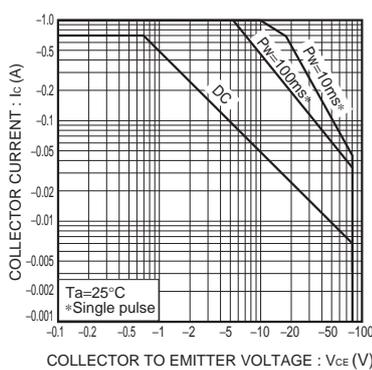


Fig.8 Safe operating area (2SB1189)

Notes

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