

Medium power transistor($-80V$, $-0.7A$)

2SB1189 / 2SB1238

●Features

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

●Absolute maximum ratings (Ta=25°C)

Absolute Maximum Ratings (TA = 25 °C)					
Parameter		Symbol	Limits	Unit	
Collector-base voltage		V _{CB0}	-80	V	
Collector-emitter voltage		V _{CE0}	-80	V	
Emitter-base voltage		V _{EB0}	-5	V	
Collector current		I _c	-0.7	A	
Collector power dissipation	2SB1189	P _c	0.5	W	+1
			2		
	2SB1238		1		
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

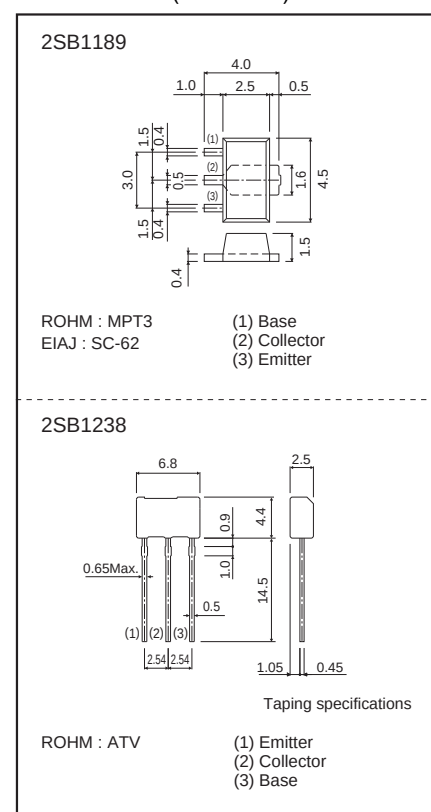
*2 Printed circuit board 1.7 mm thick, collector plating 1cm² or larger.

●Packaging specifications and h_{FE}

Type	2SB1189	2SB1238
Package	MPT3	ATV
hFE	QR	QR
Marking	BD*	—
Code	T100	TV2
Basic ordering unit (pieces)	1000	2500

*Denotes h_{EE}

●Dimensions (Unit : mm)



●Electrical characteristics (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	$I_C = -2mA$
Emitter-base breakdown voltage	BV_{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	-	$V_{CE}/I_{C2} = -3V/-0.1A$
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

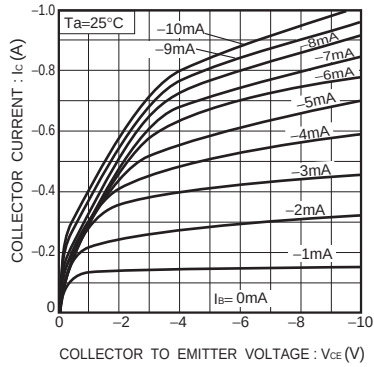


Fig.1 Ground emitter output characteristics

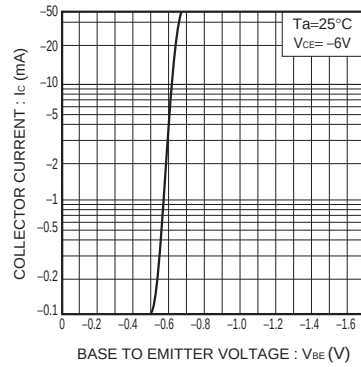


Fig.2 Ground emitter propagation characteristics

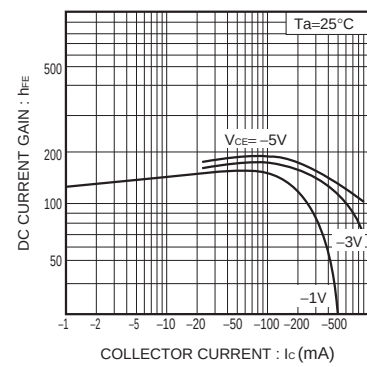


Fig.3 DC current gain vs. collector current

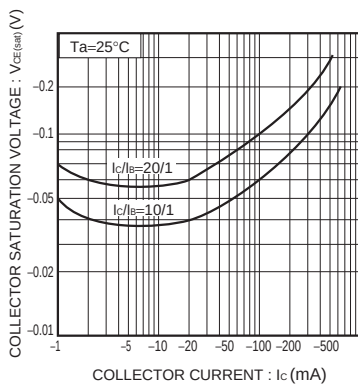


Fig.4 Collector-emitter saturation voltage vs. collector current

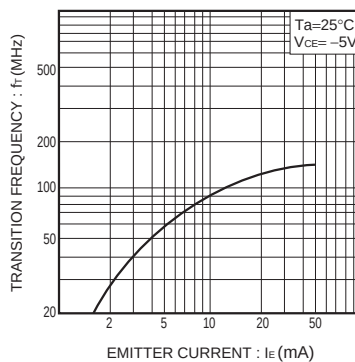


Fig.5 Gain bandwidth product vs. emitter current

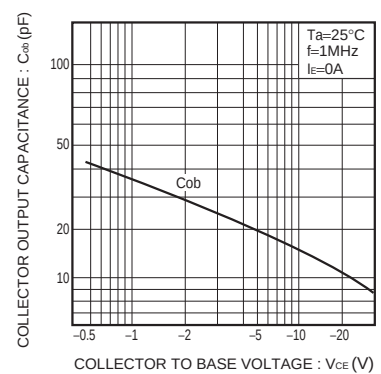


Fig.6 Collector output capacitance vs. collector-base voltage

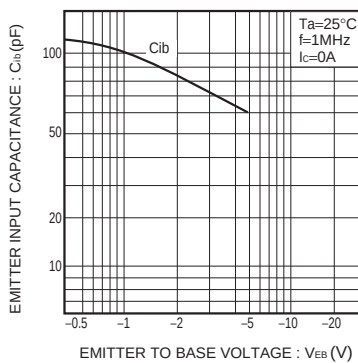


Fig.7 Emitter input capacitance vs. emitter-base voltage

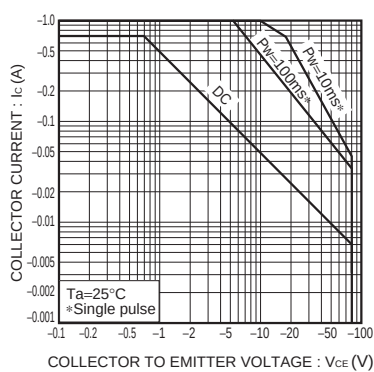


Fig.8 Safe operating area (2SB1189)

Notes

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