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)

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
	2SB1238		2	W *2
			1	W *1
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–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.

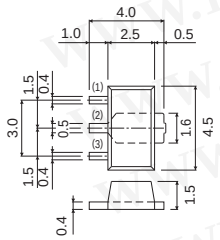
●Packaging specifications and h_{FE}

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)

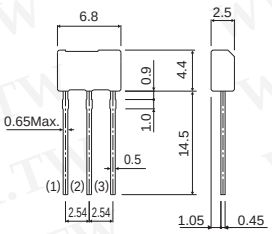
2SB1189



ROHM : MPT3
EIAJ : SC-62

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

2SB1238



Taping specifications

ROHM : ATV

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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–80	–	–	V	I_C=–50μA
Collector-emitter breakdown voltage	BV_{CEO}	–80	–	–	V	I_C=–2mA
Emitter-base breakdown voltage	BV_{EBO}	–5	–	–	V	I_E=–50μA
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_B=–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	Cob	–	14	20	pF	V_{CB}=–10V, I_E=0A, f=1MHz

●Electrical characteristics curves

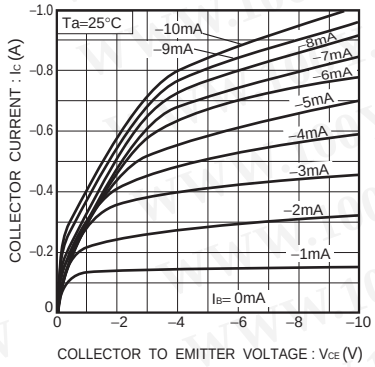


Fig.1 Ground emitter output characteristics

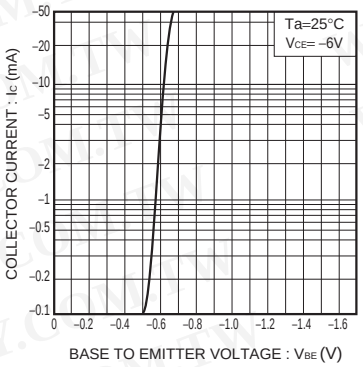


Fig.2 Ground emitter propagation characteristics

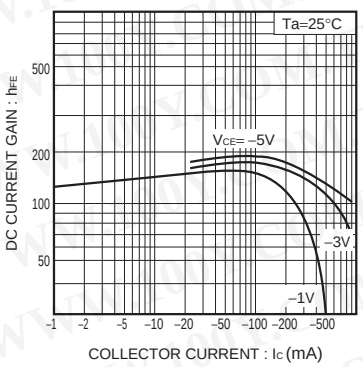


Fig.3 DC current gain vs. collector current

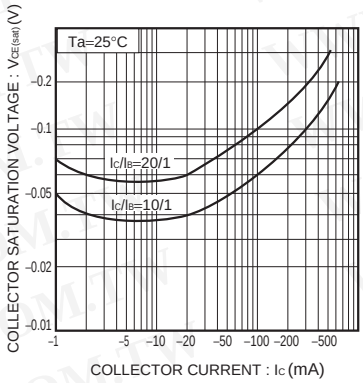


Fig.4 Collector-emitter saturation voltage vs.collector current

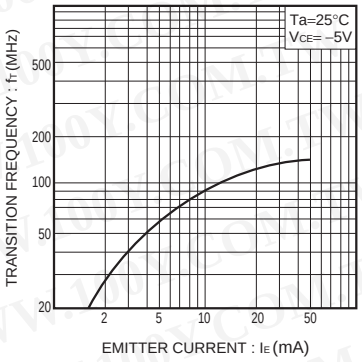


Fig.5 Gain bandwidth product vs. emitter current

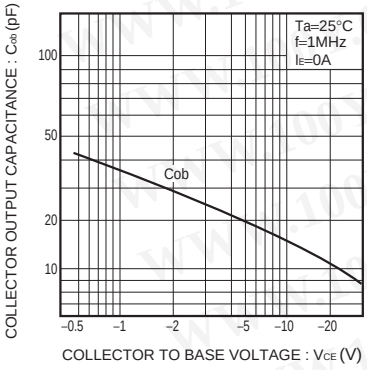


Fig.6 Collector output capacitance vs. collector-base voltage

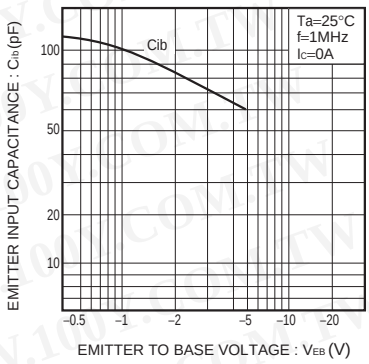


Fig.7 Emitter input capacitance vs. emitter-base voltage

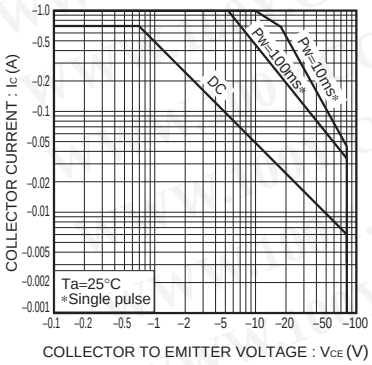


Fig.8 Safe operating area (2SB1189)

Notes

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