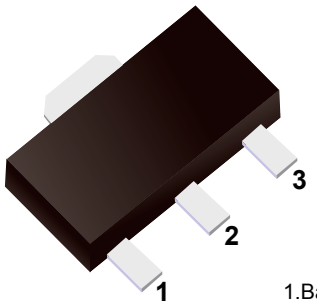
2SB1386

PNP Transistors



1.Base
2.Collector
3.Emitter

■ Simplified outline(SOT-89)

■ Features

- Low VCE(sat).
  $V_{CE(sat)}$ = -0.35V (Typ.)
  (I_C/I_B = -4A / -0.1A)
- Excellent DC current gain
- Epitaxial planar type
- PNP silicon transistor

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-30	V
Collector-emitter voltage	V_{CEO}	-20	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-5	A
Collector current(Pulse)	I_{CP} *	-10	A
Collector power dissipation	P_C	0.5	W
Junction temperature	Tj	150	℃
Storage temperature	Tstg	-55 to +150	℃

* Single pulse, Pw=10ms

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	I_C=-50 u A	-30			V
Collector-emitter breakdown voltage	BV_{CEO}	I_C=-1mA	-20			V
Emitter-base breakdown voltage	BV_{EBO}	I_E=-50 u A	-6			V
Collector cutoff current	I_{CBO}	V_{CB}=-20V			-0.5	u A
Emitter cutoff current	I_{EBO}	V_{EB}=-5V			-0.5	u A
DC current transfer ratio	$V_{CE(sat)}$	I_C=-4A,I_B=-0.1A		0.35	-1	V
Collector-emitter saturation voltage	hFE	V_{CE}=-2V, I_C=-0.5A	82		390	
Output capacitance	Cob	V_{CE}=-6V, I_E=50mA, f=30MHz		120		pF
Transition frequency	f_T	V_{CB}=-20V, I_E=0A, f=1MHz		60		MHz

■ hFE Classification

Type	2SB1386-P	2SB1386-Q	2SB1386-R
Range	82-180	120-270	180-390
Marking	BHP*	BHQ*	BHR*

■ Typical Characterisitics

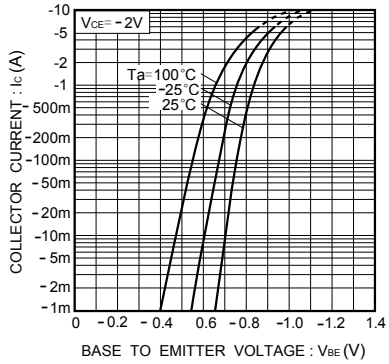


Fig.1 Grounded emitter propagation characteristics

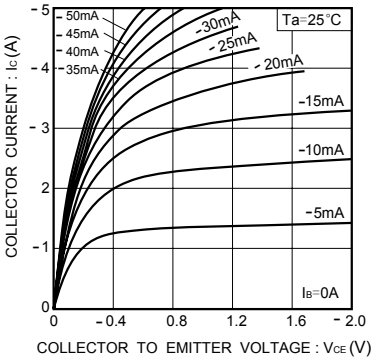


Fig.2 Grounded emitter output characteristics

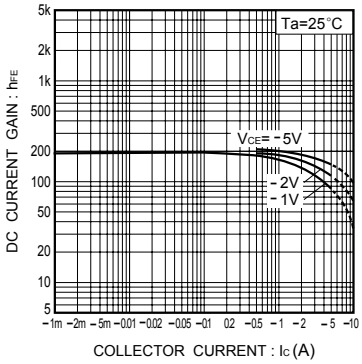


Fig.3 DC current gain vs. collector current (Ⅰ)

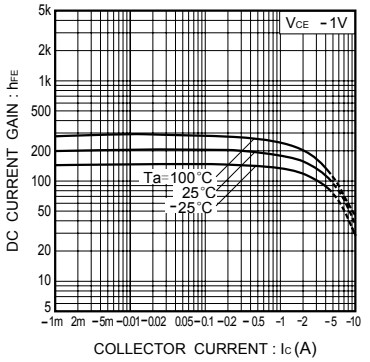


Fig.4 DC current gain vs. collector current (Ⅱ)

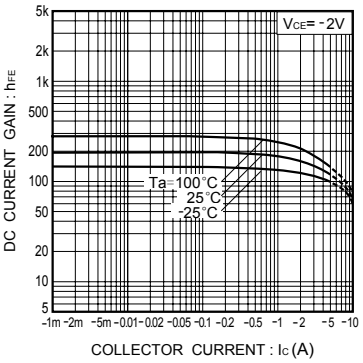


Fig.5 DC current gain vs. collector current (Ⅲ)

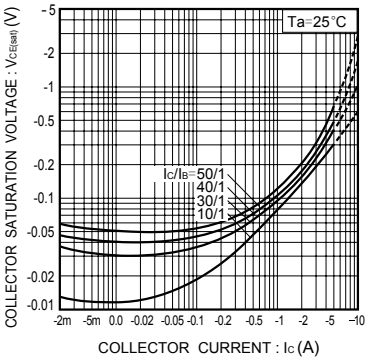


Fig.6 Collector-emitter saturation voltage vs. collector current (Ⅰ)

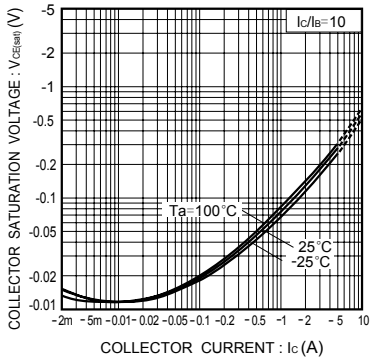


Fig.7 Collector-emitter saturation voltage vs. collector current (Ⅱ)

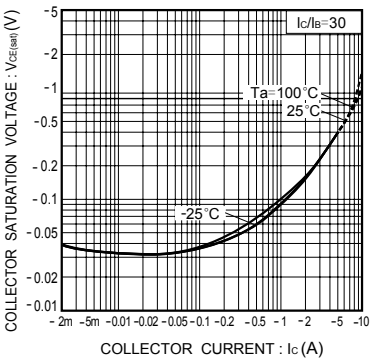


Fig.8 Collector-emitter saturation voltage vs. collector current (Ⅲ)

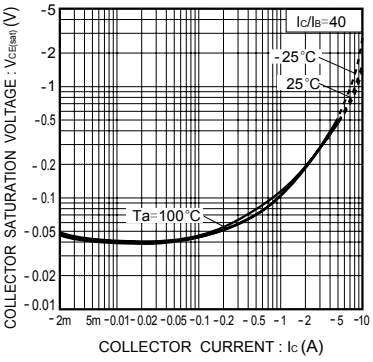


Fig.9 Collector-emitter saturation voltage vs. collector current (Ⅳ)

■ Typical Characterisitics

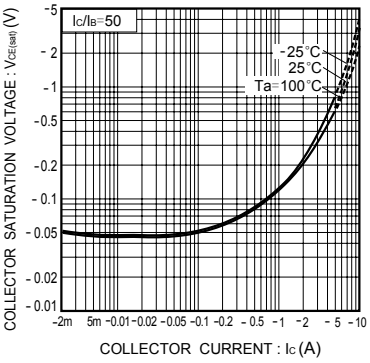


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

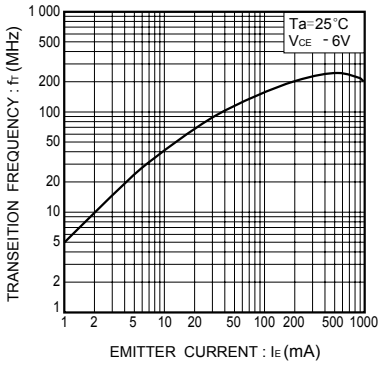


Fig.11 Gain bandwidth product vs. emitter current

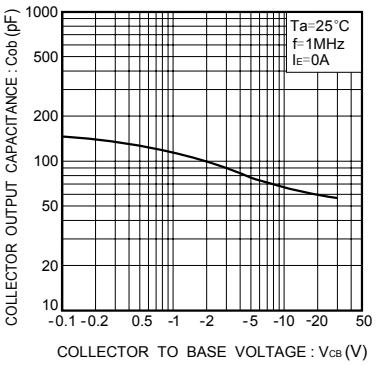


Fig.12 Collector output capacitance vs. collector-base voltage

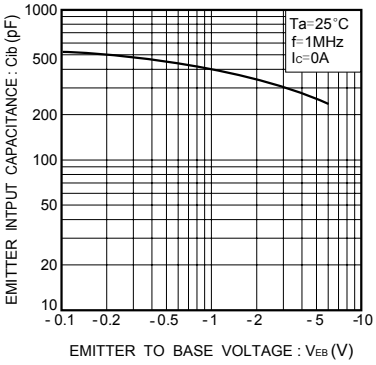


Fig.13 Emitter input capacitance vs. emitter-base voltage

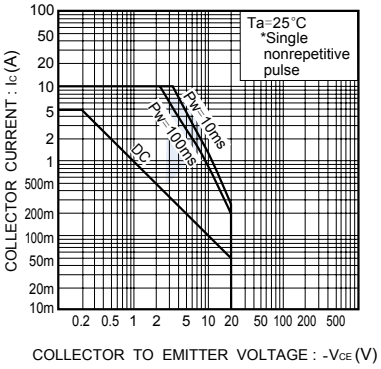
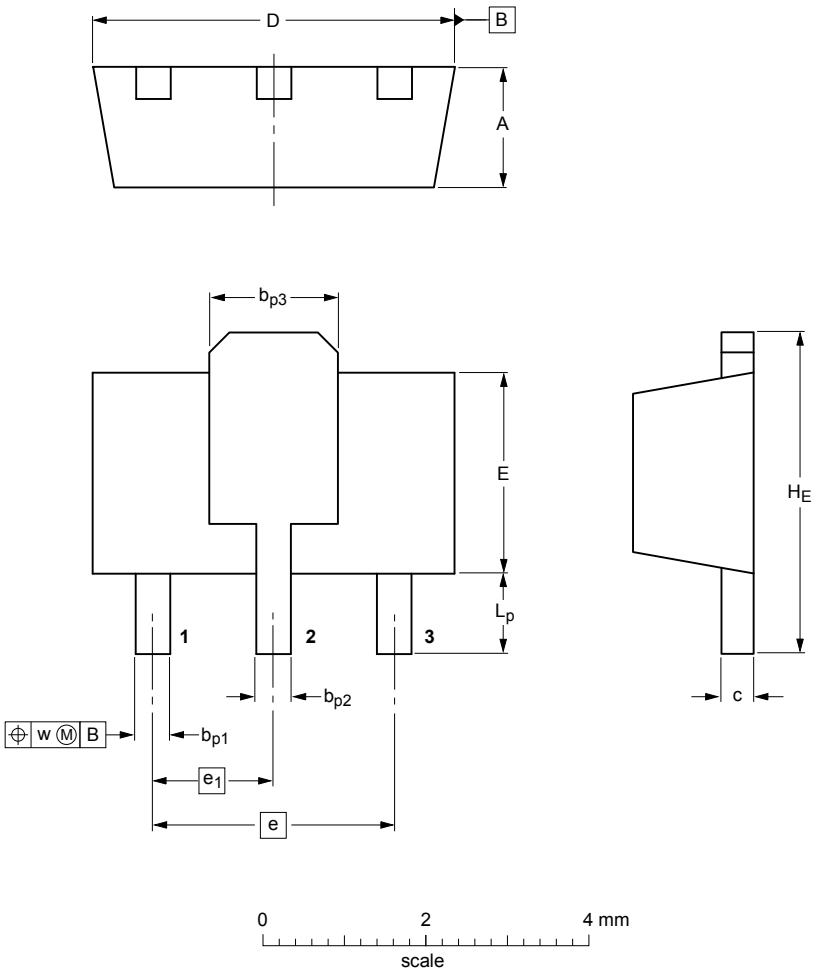


Fig.14 Safe operation area

■ SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13