

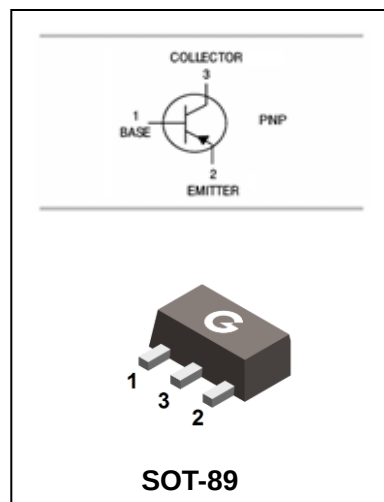
PNP Silicon Epitaxial Planar Transistor

2SB1386

FEATURES

- Low $V_{CE(sat)}$
- Excellent DC current gain characteristics
- Complementary: 2SD2098
- RoHS compliant with Halogen-free

HF



APPLICATIONS

- Low frequency transistor

ORDERING INFORMATION

Type No.	Marking	Package Code
2SB1386-P	BHP	SOT-89
2SB1386-Q	BHQ	SOT-89
2SB1386-R	BHR	SOT-89

MAXIMUM RATING @ $T_a=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-30	V
V_{CEO}	Collector-Emitter Voltage	-20	V
V_{EBO}	Emitter-Base Voltage	-6	V
I_C	Continuous Collector Current	-5	A
I_{CM}	Peak Collector Current	-10	A
P_C	Collector Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance Junction-to-Air ^{*1}	150	$^{\circ}\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-to-Case ^{*1}	80	$^{\circ}\text{C/W}$
$R_{\theta JL}$	Thermal Resistance Junction-to-Lead ^{*1}	90	$^{\circ}\text{C/W}$
T_J	Junction Temperature Range	-55 ~ +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range	-55 ~ +150	$^{\circ}\text{C}$

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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -50\mu A, I_E = 0$	-30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1.0mA, I_B = 0$	-20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -50\mu A, I_C = 0$	-6			V
Collector cut-off current	I_{CBO}	$V_{CB} = -20V, I_B = 0$			-0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5V, I_C = 0$			-0.5	μA
DC current gain	h_{FE}	$V_{CE} = -2V, I_C = -500mA$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -4A, I_B = -0.1A$		-	-1.0	V
Transition frequency	f_T	$V_{CE} = -6V, I_C = -50mA$ $F = 100MHz$		120		MHz
Collector output capacitance	C_{ob}	$V_{CB} = -20V, I_E = 0$ $f = 1MHz$		60		pF

CLASSIFICATION OF h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	BHP	BHQ	BHR

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper

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TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

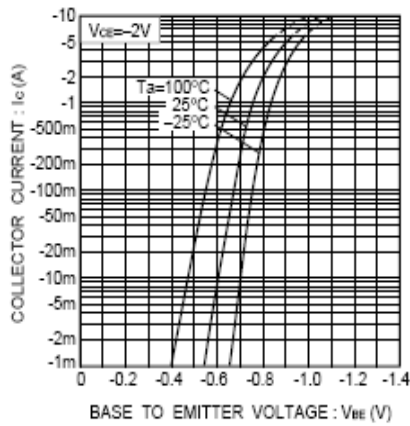


Fig.1 Grounded emitter propagation characteristics

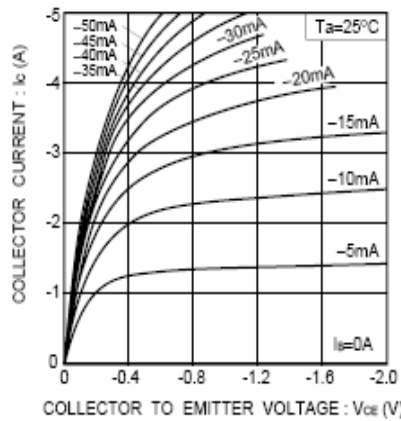


Fig.2 Grounded emitter output characteristics

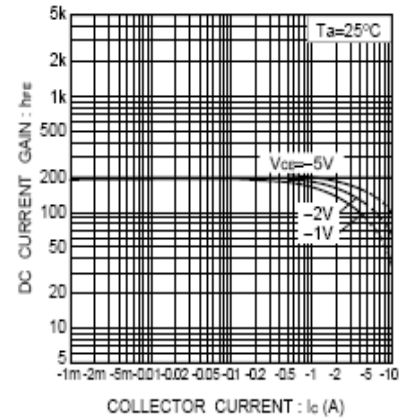


Fig.3 DC current gain vs. collector current (I)

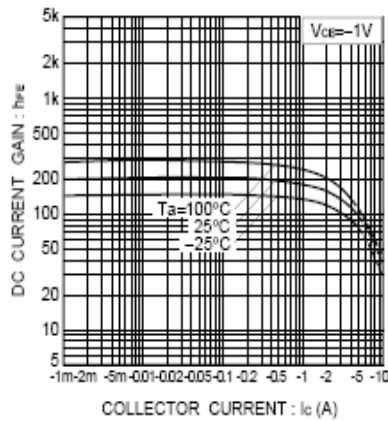


Fig.4 DC current gain vs. collector current (II)

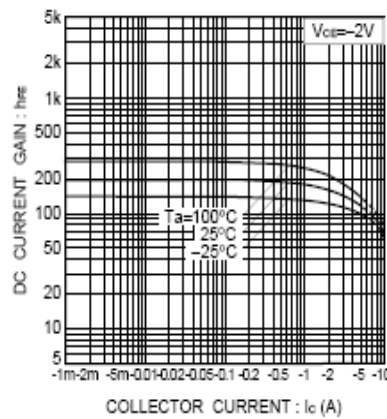


Fig.5 DC current gain vs. collector current (III)

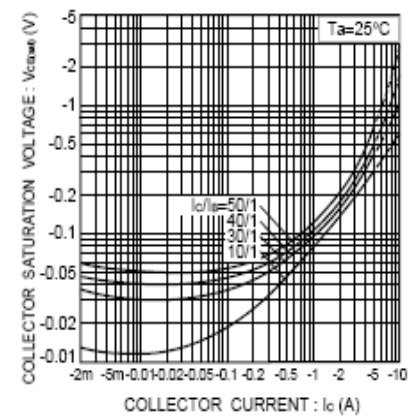


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

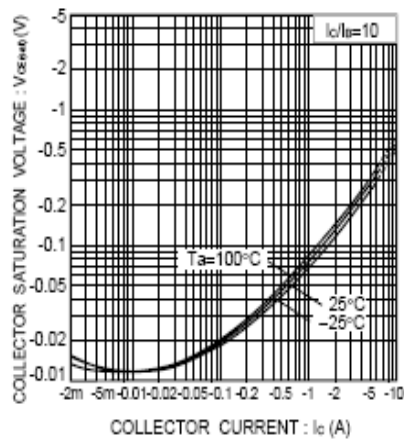


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

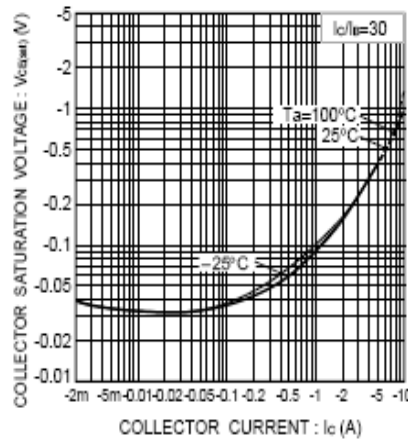


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

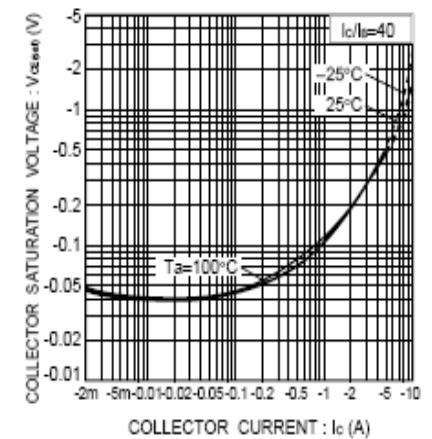


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

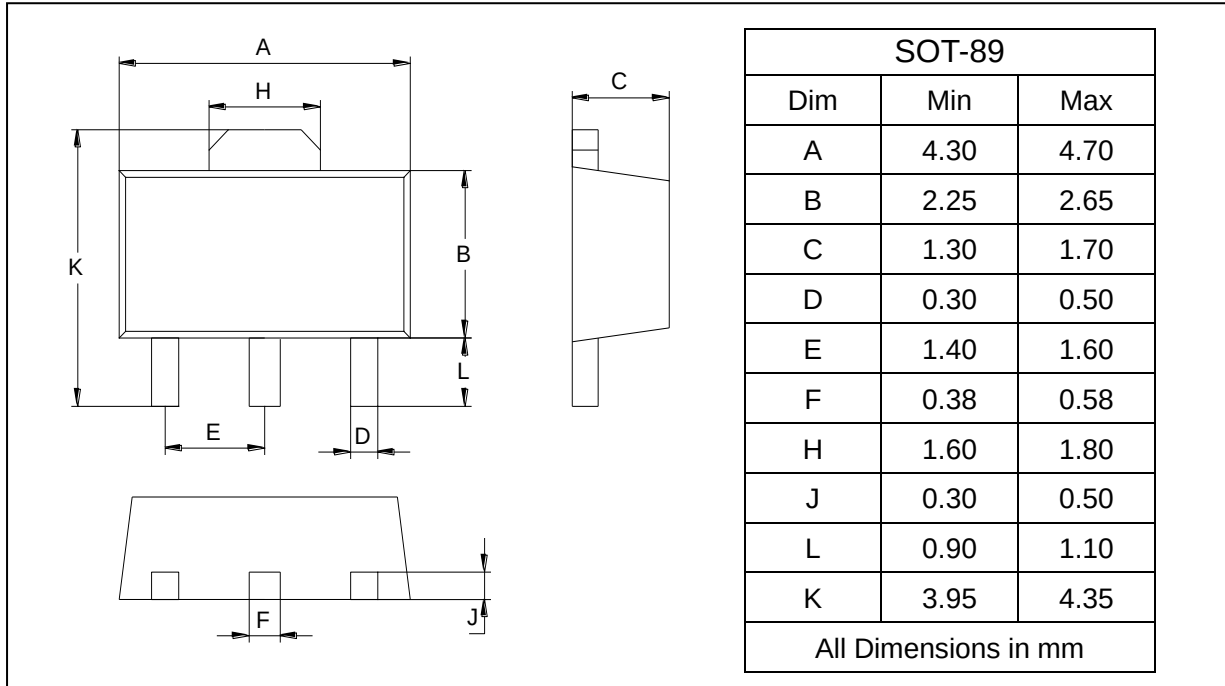
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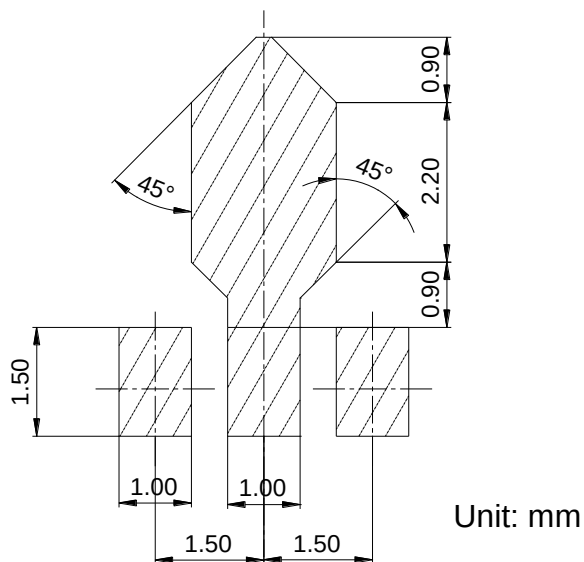
PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
2SB1386	SOT-89	1000 pcs / Tape & Reel