

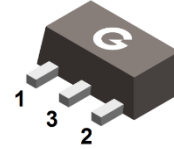
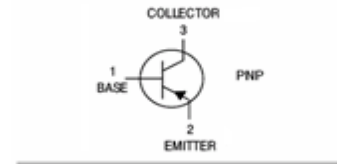
Features

- Low $V_{CE(SAT)}$
- Complement to 2SD1766
- RoHS compliant with Halogen-free

HF

Mechanical Data

- Case: SOT-89
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-89

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
2SB1188-P	SOT-89	1000 pcs / Tape & Reel	BCP
2SB1188-Q	SOT-89	1000 pcs / Tape & Reel	BCQ
2SB1188-R	SOT-89	1000 pcs / Tape & Reel	BCR

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Breakdown Voltage	V_{CEO}	-32	V
Emitter-Base Breakdown Voltage	V_{EBO}	-5	V
Collector Current (Continuous)	I_C	-2	A
Collector Current (Peak)	I_{CM}	-3	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.5	W
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	45	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	17	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*1}	$R_{\theta JL}$	7	$^\circ\text{C/W}$
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -50\mu\text{A}$, $I_E = 0$	-40	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}$, $I_B = 0$	-32	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -50\mu\text{A}$, $I_C = 0$	-5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -20\text{V}$, $I_E = 0$	-	-	-1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -4\text{V}$, $I_C = 0$	-	-	-1	μA
DC Current Gain	h_{FE}	$V_{CE} = -3\text{V}$, $I_C = -0.5\text{A}$	82	-	390	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -2\text{A}$, $I_B = -0.2\text{A}$	-	-0.5	-0.8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -2\text{A}$, $I_B = -0.2\text{A}$	-	-	-1.2	V
Output Capacity	C_{ob}	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$, $I_E = 0$	-	50	-	pF
Current-Gain—Bandwidth Product	f_T	$I_C = -0.5\text{A}$, $V_{CE} = -5\text{V}$ $f = 30\text{MHz}$	-	100	-	MHz

Classification of h_{FE}

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking	BCP	BCQ	BCR

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

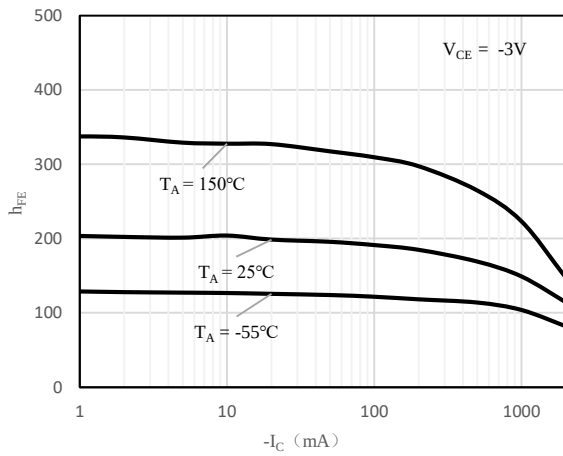


Fig 1 h_{FE} vs. I_C

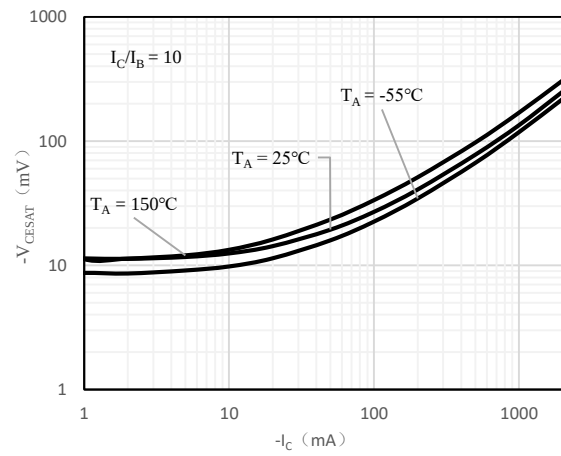


Fig 2 $V_{CE(sat)}$ vs. I_C

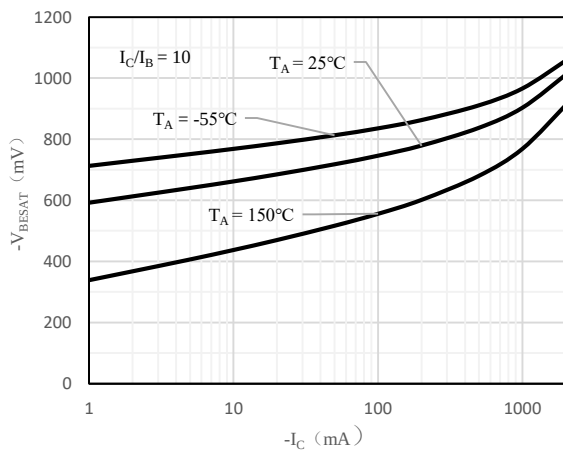


Fig 3 $V_{BE(sat)}$ vs. I_C

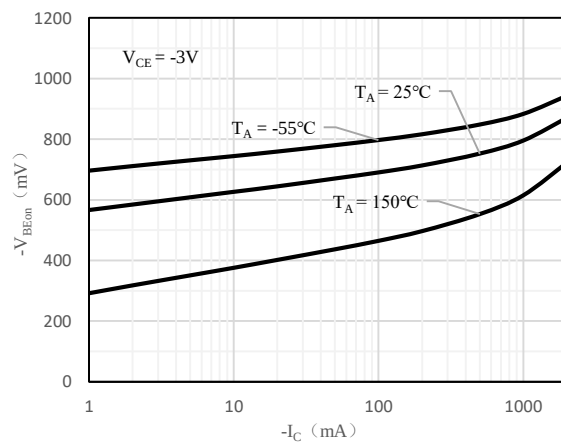


Fig 4 $V_{BE(on)}$ vs. I_C

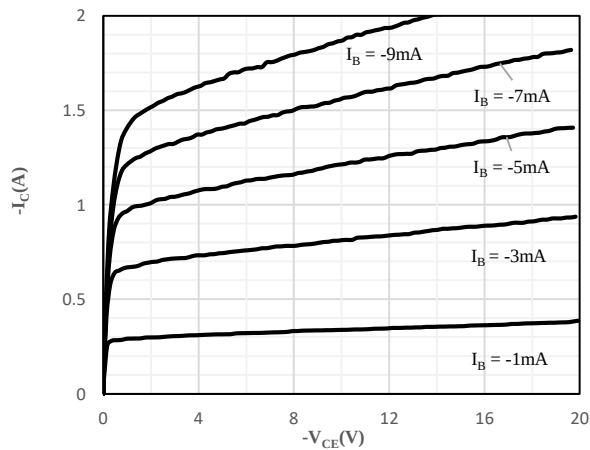


Fig 5 I_C vs. V_{CE}

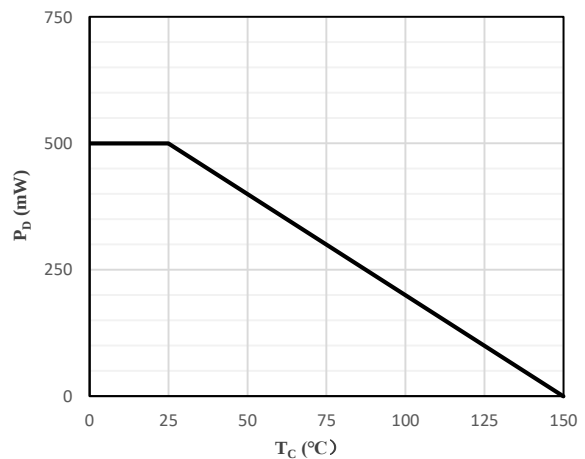


Fig 6 P_D vs. T_A

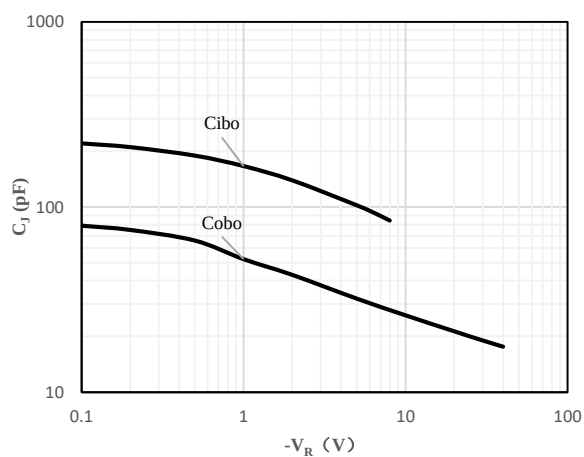
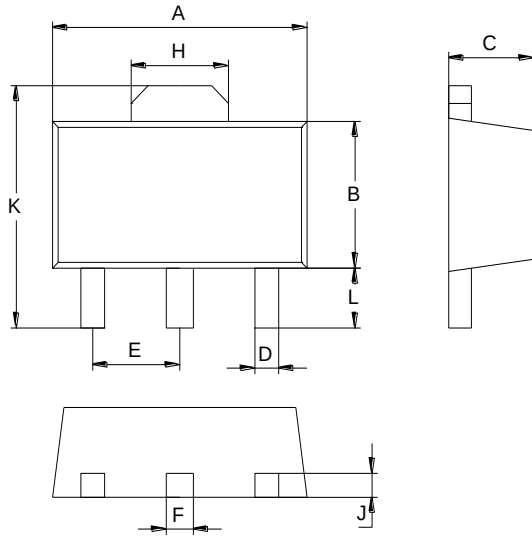


Fig 7 C_j vs. V_R

Package Outline Dimensions (Unit: mm)



SOT-89		
Dimension	Min.	Max.
A	4.30	4.70
B	2.25	2.65
C	1.30	1.70
D	0.30	0.50
E	1.40	1.60
F	0.38	0.58
H	1.60	1.80
J	0.30	0.50
L	0.90	1.10
K	3.95	4.35

Mounting Pad Layout (Unit: mm)

SOT-89

