

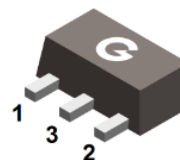
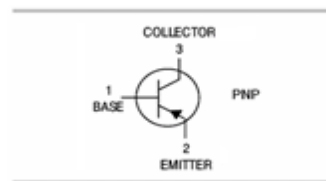
Features

- Low saturation voltage
- High speed switching time
- Small flat package
- Complementary to 2SC2873
- 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
2SA1213-O	SOT-89	1000 pcs / Tape & Reel	NO
2SA1213-Y	SOT-89	1000 pcs / Tape & Reel	NY

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V _{CB0}	-50	V
Collector-Emitter Breakdown Voltage	V _{CE0}	-50	V
Emitter-Base Breakdown Voltage	V _{EB0}	-5	V
Continuous Collector Current	I _C	-2	A
Peak Collector Current	I _{CM}	-2	A
Continuous Base Current	I _B	-0.4	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	0.5	W
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	70	°C/W
Thermal Resistance Junction-to-Case ^{*1}	R _{θJC}	35	°C/W
Thermal Resistance Junction-to-Lead ^{*1}	R _{θJL}	25	°C/W
Operating junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°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	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}$, $I_E = 0$	-50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}$, $I_B = 0$	-50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}$, $I_C = 0$	-5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -50\text{V}$, $I_E = 0$	-	-	-0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -5\text{V}$, $I_C = 0$	-	-	-0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = -2\text{V}$, $I_C = -0.5\text{A}$	70	-	240	-
		$V_{CE} = -2\text{V}$, $I_C = -2\text{A}$	20	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1\text{A}$, $I_B = -0.05\text{A}$	-	-	-0.5	V
Base-Emitter Voltage	$V_{BE(on)}$	$I_C = -1\text{A}$, $I_B = -0.05\text{A}$	-	-	-1.2	V
Transition Frequency	f_T	$I_C = -0.5\text{A}$, $V_{CE} = -2\text{V}$	-	120	-	MHz
Collector Output Capacitance	C_{OBO}	$V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	-	25	-	pF

Classification of h_{FE}

Rank	O	Y
Range	70-140	120-240
Marking	NO	NY

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

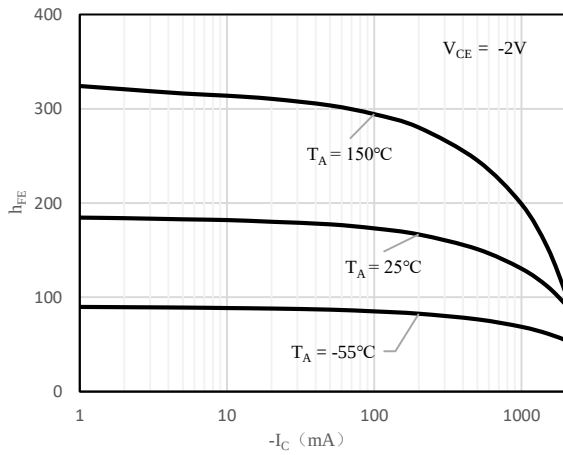


Fig 1 h_{FE} vs. I_C

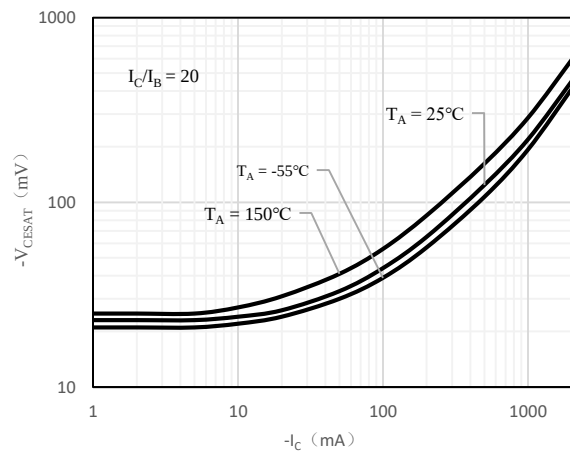


Fig 2 $V_{CE(sat)}$ vs. I_C

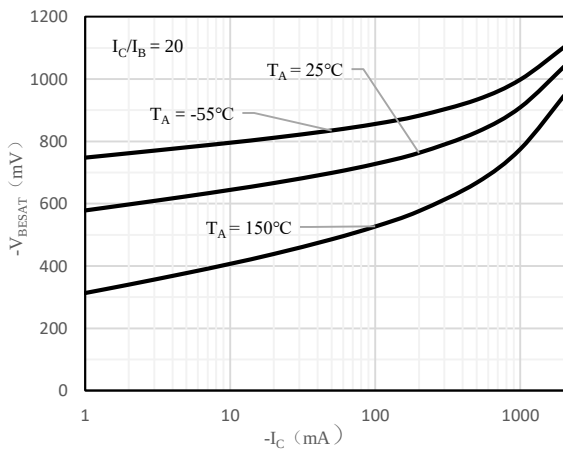


Fig 3 $V_{BE(sat)}$ vs. I_C

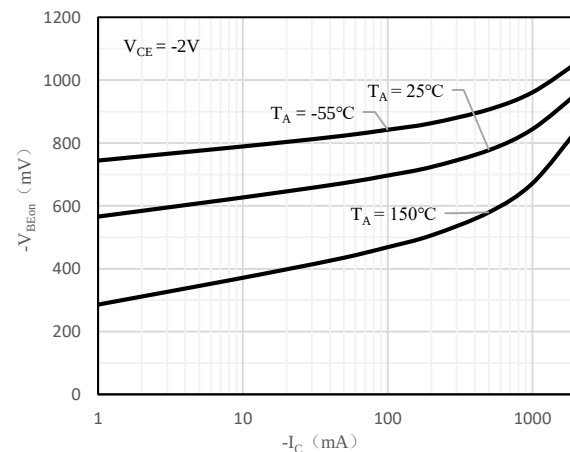


Fig 4 $V_{BE(on)}$ vs. I_C

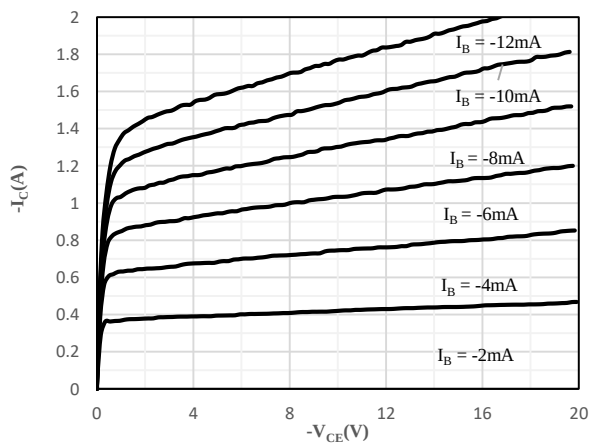


Fig 5 I_C vs. V_{CE}

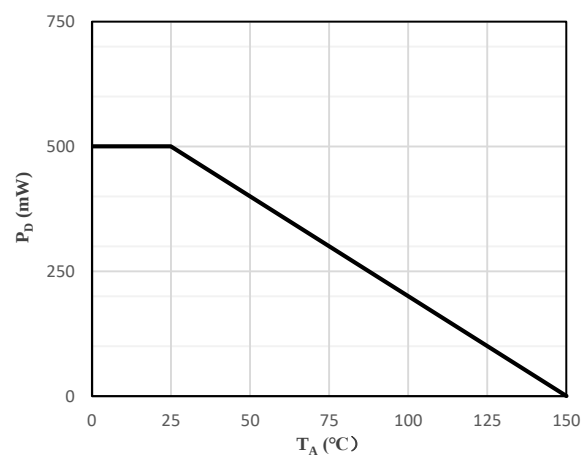


Fig 6 P_D vs. T_A

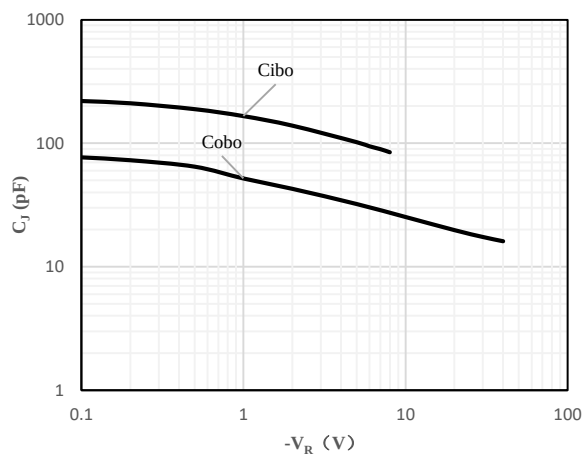
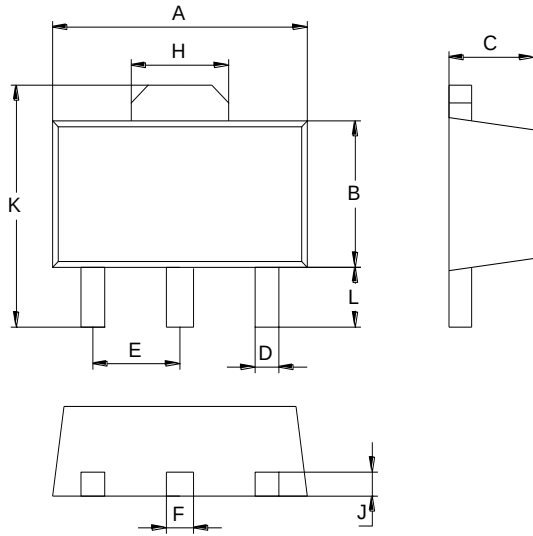


Fig 7 C_J vs. V_R

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

