

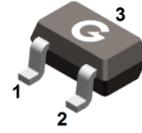
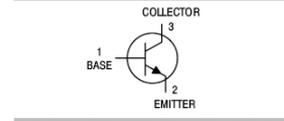
Features

- Excellent h_{FE} linearity
- RoHS compliant with Halogen-free

HF

Mechanical Data

- Case: SOT-323
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



SOT-323

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
2SC4102-P	SOT-323	3000 pcs / Tape & Reel	TP
2SC4102-R	SOT-323	3000 pcs / Tape & Reel	TR
2SC4102-S	SOT-323	3000 pcs / Tape & Reel	TS

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Breakdown Voltage	V_{CEO}	120	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	50	mA
Collector Current (Peak)	I_{CM}	100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.2	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 50\mu\text{A}, I_E = 0$	120	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	120	-	-	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}	$V_{CB} = 100\text{V}, I_E = 0$	-	-	0.5	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	-	-	0.5	μA
DC Current Gain	h_{FE}	$V_{CE} = 6\text{V}, I_C = 2\text{mA}$	120	-	560	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	0.5	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	1	V
Collector-base Output Capacitance	C_{OBO}	$V_{CB} = 12\text{V}, f = 1\text{MHz}, I_E = 0$	-	2.5	-	pF
Current-Gain— Bandwidth Product	f_T	$I_C = 2\text{mA}, V_{CE} = 12\text{V}$ $f = 100\text{MHz}$	-	140	-	MHz

Classification of h_{FE}

Rank	P	R	S
Range	120-270	180-390	270-560
Marking	TP	TR	TS

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

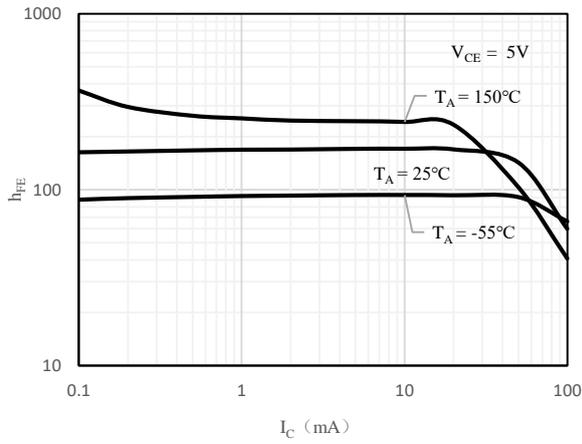


Fig 1 h_{FE} vs. I_C

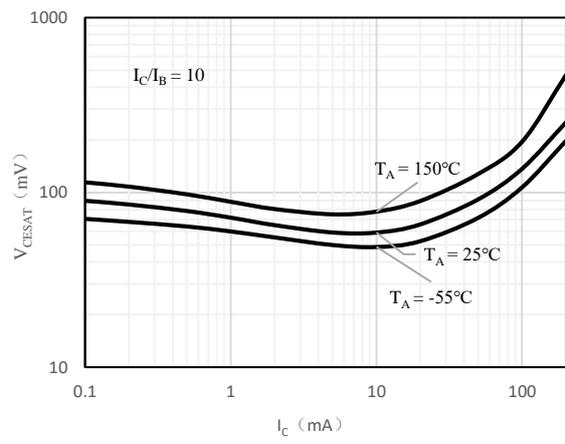


Fig 2 $V_{CE(sat)}$ vs. I_C

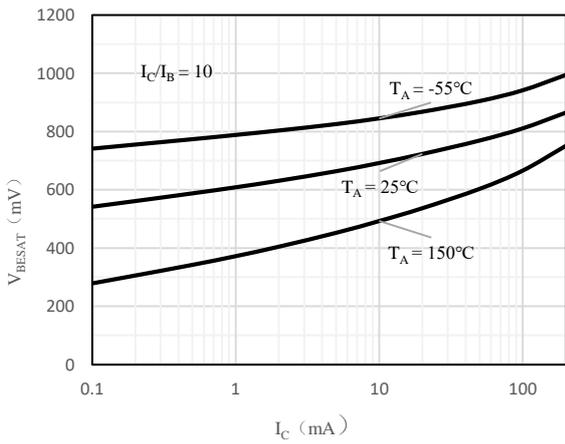


Fig 3 $V_{BE(sat)}$ vs. I_C

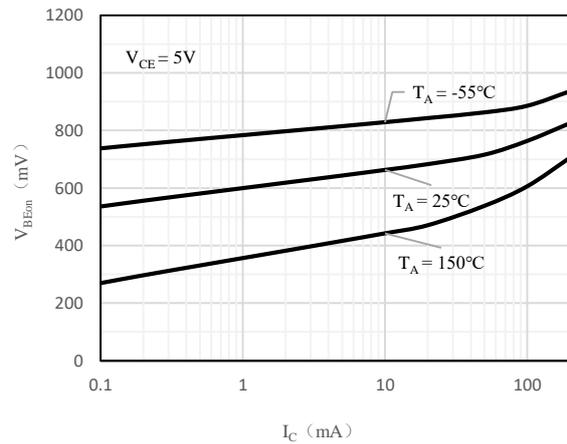


Fig 4 $V_{BE(on)}$ vs. I_C

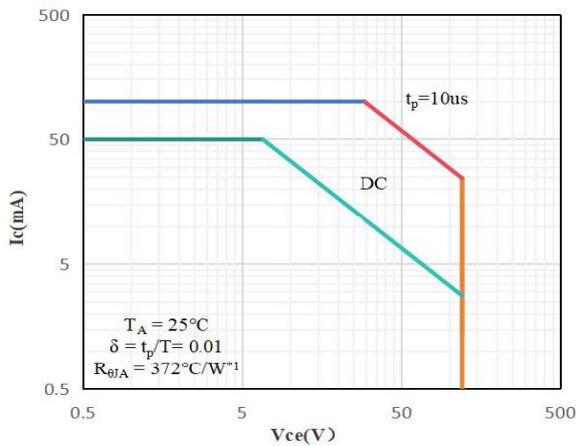
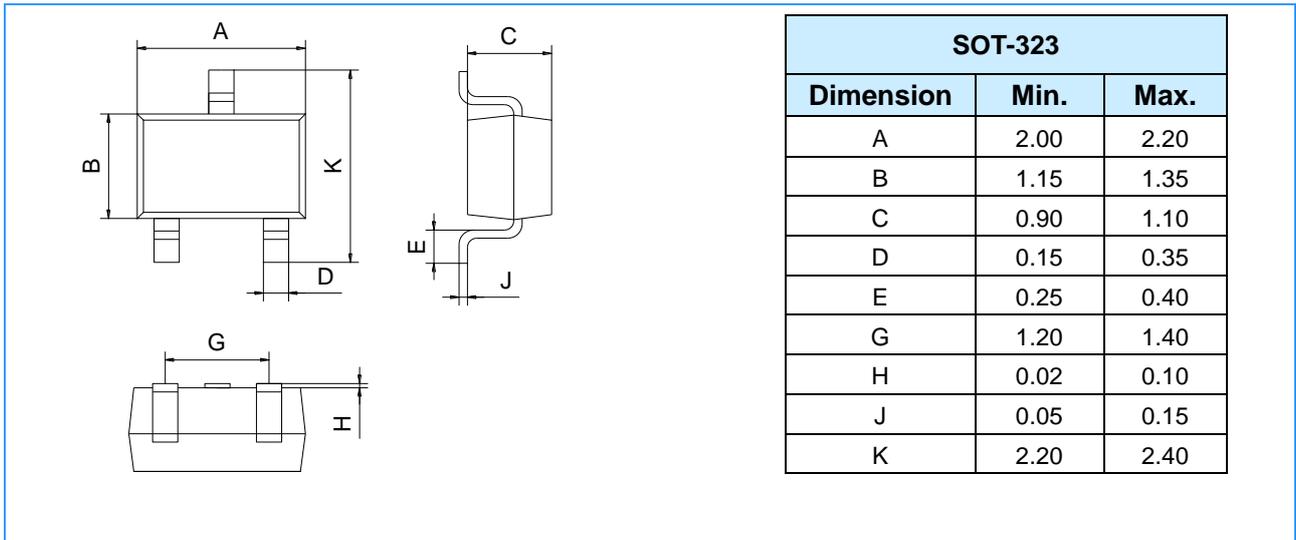


Fig 5 Safe Operating Area

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

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)

