

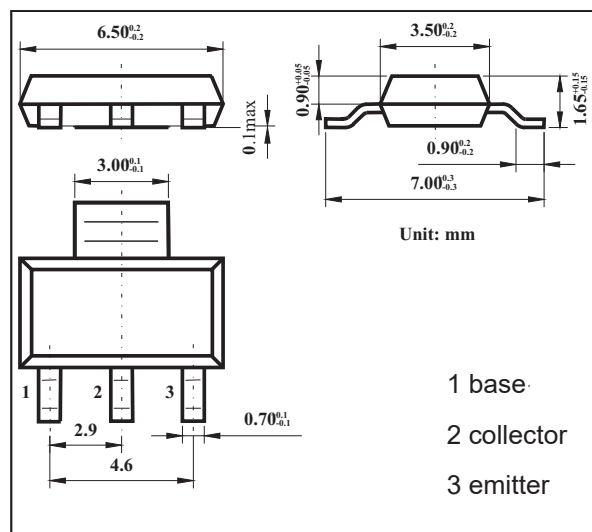
NPN Silicon Epitaxial Planar Transistor

Features

- $BV_{CEO} > 150V$
- $I_C = 1A$ continuous collector current
- $I_{CM} = 2A$ peak pulse current

Mechanical Data

- Case: SOT-223
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	170	V
Collector-Emitter Breakdown Voltage	V_{CEO}	150	V
Emitter-Base Breakdown Voltage	V_{EBO}	7	V
Collector Current (Continuous)	I_C	1	A
Peak Pulse Current	I_{CM}	2	A
Base Current	I_B	0.2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation *1	P_D	2.5	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	50	$^\circ C/W$
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	25	$^\circ C/W$
Junction Temperature	T_J	-55 ~ +150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ C$

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

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	170	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	150	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	7	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 150\text{V}, I_E = 0$	-	-	0.1	μA
Collector Cut-off Current	I_{CES}	$V_{CE} = 150\text{V}$	-	-	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}	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	100	-	-	-
		$V_{CE} = 10\text{V}, I_C = 250\text{mA}$	100	-	300	-
		$V_{CE} = 10\text{V}, I_C = 500\text{mA}$	50	-	-	-
		$V_{CE} = 10\text{V}, I_C = 1\text{A}$	10	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}, I_B = 25\text{mA}$	-	-	0.2	V
		$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	0.3	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	1.0	V
Base-emitter Voltage	$V_{BE(on)}$	$I_C = 500\text{mA}, V_{CE} = 10\text{V}$	-	-	1.0	V
Transition Frequency	f_T	$V_{CE} = 10\text{V}, I_C = 50\text{mA}$ $F = 100\text{MHz}$	100	-	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	-	10	pF

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

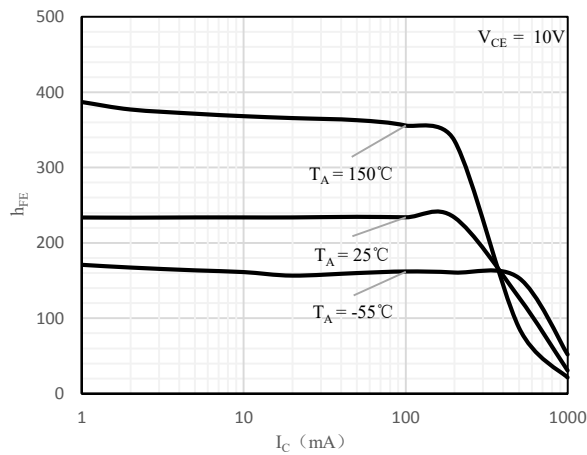


Fig 1 h_{FE} vs. I_C

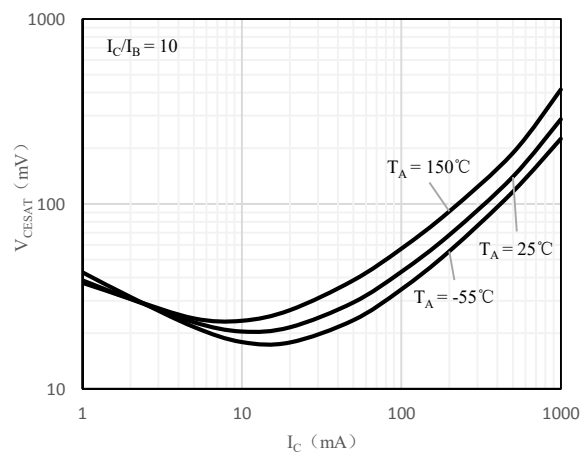


Fig 2 $V_{CE(sat)}$ vs. I_C

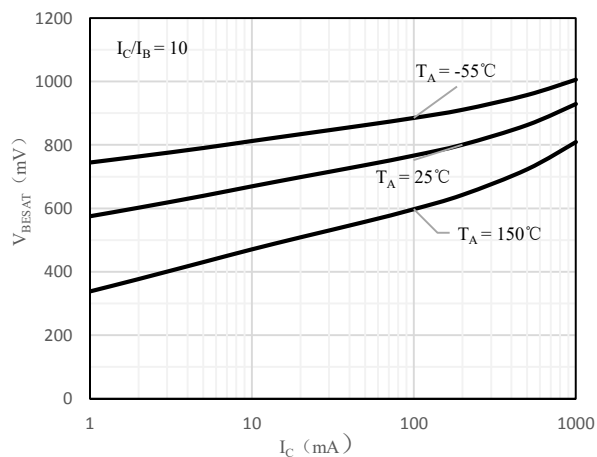


Fig 3 $V_{BE(sat)}$ vs. I_C

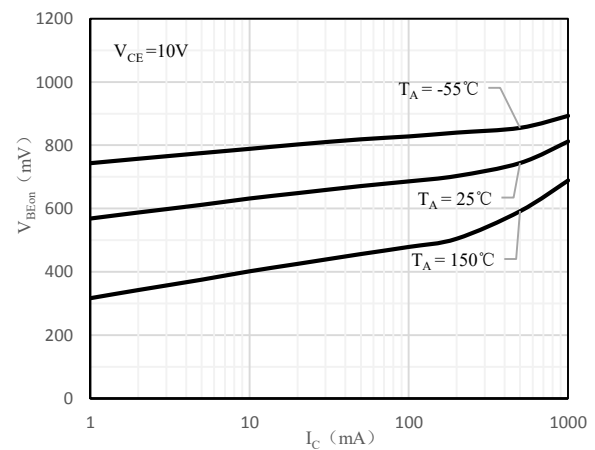


Fig 4 $V_{BE(ON)}$ vs. I_C

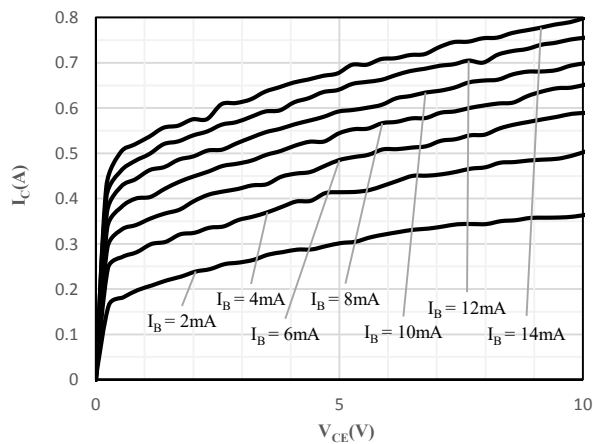


Fig 5 I_C vs. V_{CE}

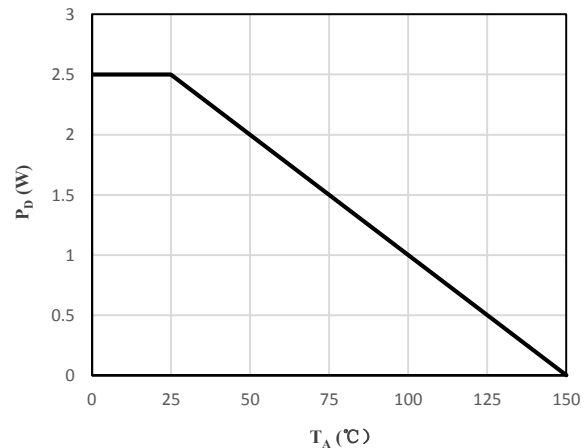


Fig 6 Steady State Power Derating

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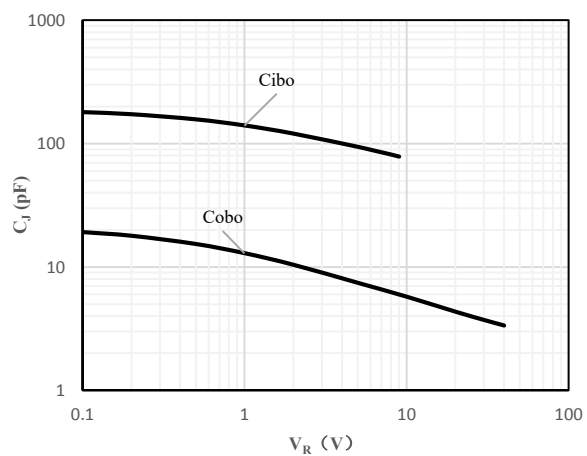


Fig 7 C_J vs. V_R