

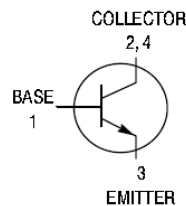
Features

- Epitaxial planar die construction
- High continuous collector current
- Low saturation voltage $V_{CE(SAT)}$

HF

Mechanical Data

- Case: SOT-223
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-223

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
FZT851	SOT-223	4000 pcs / Tape & Reel	FZT851

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	150	V
Collector-Emitter Breakdown Voltage	V_{CEO}	60	V
Emitter-Base Breakdown Voltage	V_{EBO}	7	V
Collector Current (Continuous)	I_C	6	A
Collector Current (Pulse)	I_{CM}	20	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	1.6	W
Thermal Resistance (Junction-to-Ambient) ^{*1}	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance (Junction-to-Case) ^{*1}	$R_{\theta JC}$	20	$^\circ\text{C/W}$
Thermal Resistance (Junction-to-Lead) ^{*1}	$R_{\theta JL}$	15	$^\circ\text{C/W}$
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	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E = 0$	150	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	60	-	-	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}	$V_{CB} = 120\text{V}$, $I_E = 0$	-	-	50	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 6\text{V}$, $I_C = 0$	-	-	10	nA
DC Current Gain	h_{FE}	$V_{CE} = 1\text{V}$, $I_C = 10\text{mA}$	100	-	-	-
		$V_{CE} = 1\text{V}$, $I_C = 2\text{A}$	300	-	600	-
		$V_{CE} = 1\text{V}$, $I_C = 5\text{A}$	75	-	-	-
		$V_{CE} = 1\text{V}$, $I_C = 10\text{A}$	25	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 5\text{mA}$	-	-	0.05	V
		$I_C = 1\text{A}$, $I_B = 50\text{mA}$	-	-	0.1	-
		$I_C = 2\text{A}$, $I_B = 50\text{mA}$	-	-	0.17	-
		$I_C = 6\text{A}$, $I_B = 300\text{mA}$	-	-	0.375	-
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 6\text{A}$, $I_B = 300\text{mA}$	-	-	1.2	V
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	$I_C = 6\text{A}$, $V_{CE} = 1\text{V}$	-	-	1.15	V
Output Capacitance	C_{OBO}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	-	35	-	pF
Transition Frequency	f_T	$I_C = 100\text{mA}$, $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$	-	130	-	MHZ
Turn-on Time	t_{on}	$V_{CC} = 10\text{V}$, $I_C = 1\text{A}$,	-	45	-	ns
Turn-off Time	t_{off}	$I_{B1} = -I_{B2} = 100\text{mA}$	-	1100	-	ns

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

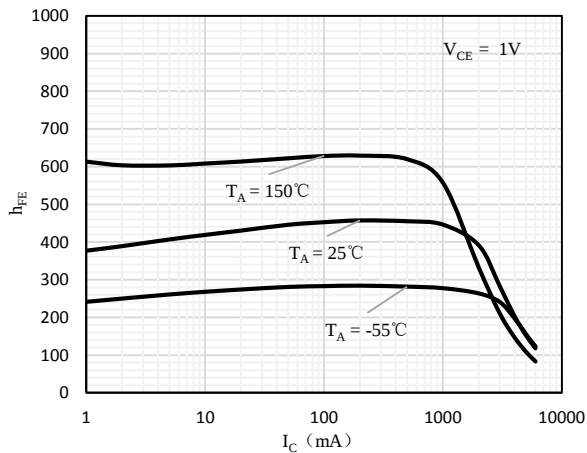


Fig 1 h_{FE} vs. I_C

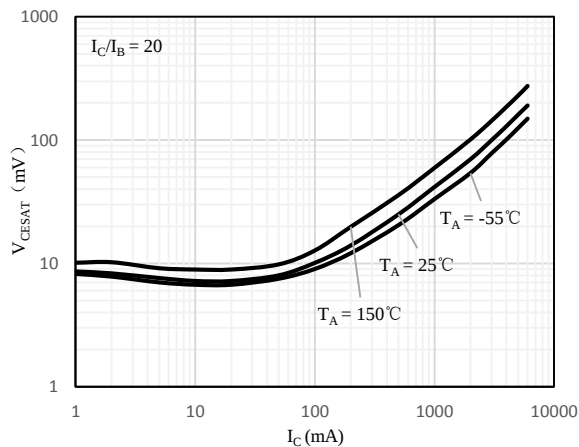


Fig 2 $V_{CE(sat)}$ vs. I_C

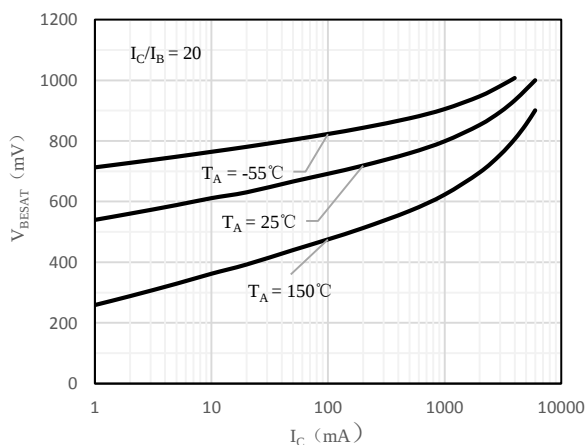


Fig 3 $V_{BE(sat)}$ vs. I_C

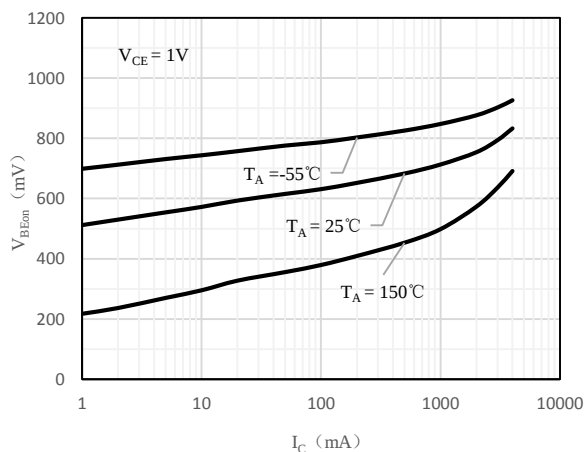


Fig 4 $V_{BE(on)}$ vs. I_C

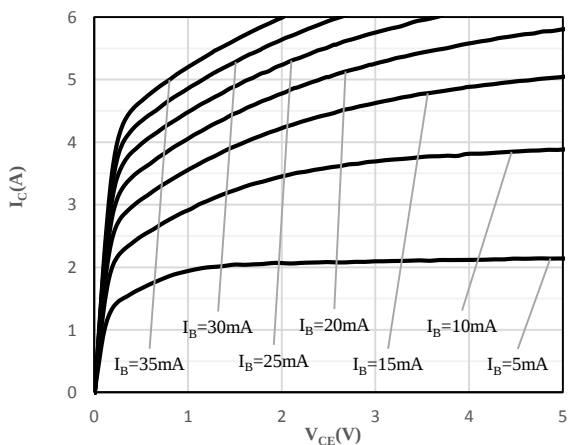


Fig 5 I_C vs. V_{CE}

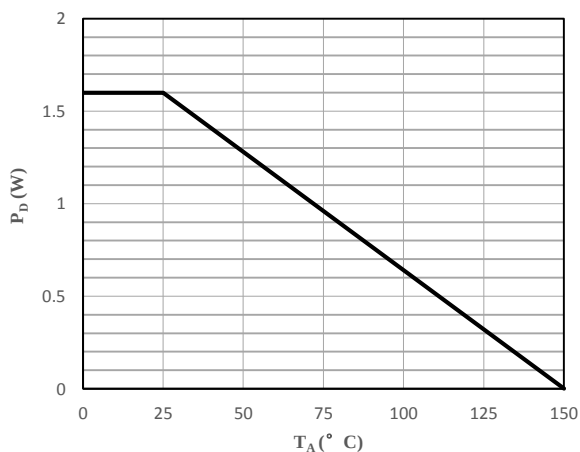


Fig 6 P_D vs. T_A

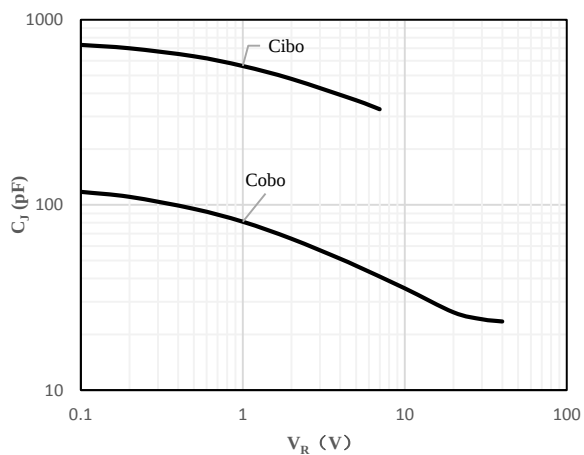
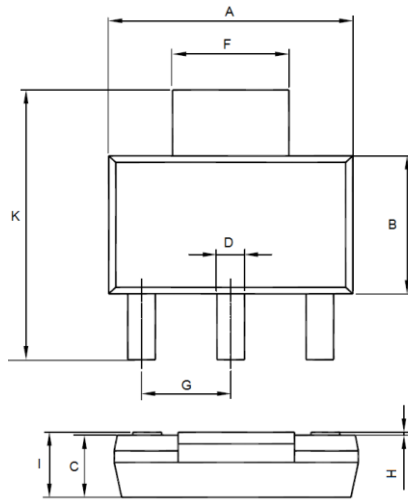


Fig 7 C_J vs. V_R

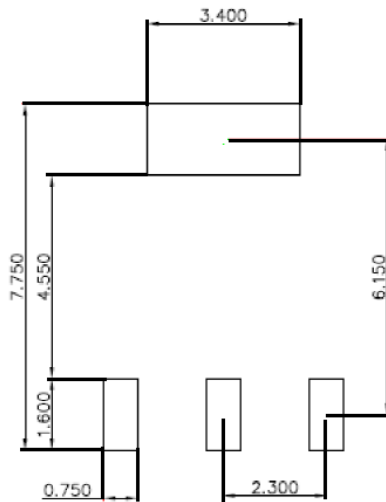
Package Outline Dimensions (Unit: mm)



SOT-223		
Dimension	Min.	Max.
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30

Mounting Pad Layout (Unit: mm)

SOT-223



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