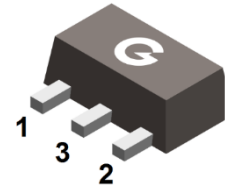
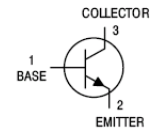


Features

- Low Collector-Emitter saturation voltage $V_{CE(sat)}$ and corresponding low $R_{CE(sat)}$
- High collector current capability
- High collector current gain
- Improved efficiency due to reduced heat generation

HF



SOT-89

Mechanical Data

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
GT43100E	SOT-89	1000 pcs / Tape & Reel	T43100

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	140	V
Collector-Emitter Breakdown Voltage	V_{CEO}	100	V
Emitter-Base Breakdown Voltage	V_{EBO}	7	V
Collector Current (Continuous)	I_C	3	A
Collector Current (Pulse)	I_{CM}	5	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	550	mW
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	204	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	105	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead *1	$R_{\theta JL}$	46	$^\circ\text{C/W}$
Junction Temperature Range	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 minimum recommended FR-4 board

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 0.1\text{mA}$, $I_E = 0$	140	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	100	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 0.1\text{mA}$, $I_C = 0$	7	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 140\text{V}$, $I_E = 0$	-	-	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 7\text{V}$, $I_C = 0$	-	-	50	nA
DC Current Gain	h_{FE}	$V_{CE} = 2\text{V}$, $I_C = 10\text{mA}$	150	-	-	-
		$V_{CE} = 2\text{V}$, $I_C = 500\text{mA}$	120	-	360	-
		$V_{CE} = 2\text{V}$, $I_C = 1\text{A}$	80	-	-	-
		$V_{CE} = 2\text{V}$, $I_C = 2\text{A}$	40	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 10\text{mA}$	-	-	30	mV
		$I_C = 500\text{mA}$, $I_B = 50\text{mA}$	-	-	60	
		$I_C = 1\text{A}$, $I_B = 0.1\text{A}$	-	-	90	
		$I_C = 2\text{A}$, $I_B = 0.2\text{A}$	-	-	150	
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1\text{A}$, $I_B = 0.1\text{A}$	-	-	0.95	V
Base-emitter Voltage	$V_{BE(on)}$	$I_C = 1\text{A}$, $V_{CE} = 2\text{V}$	-	-	0.85	V
Transition Frequency	f_T	$V_{CE} = 5\text{V}$, $I_C = 100\text{mA}$ $f = 100\text{MHz}$	-	110	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = I_C = 0$ $f = 1\text{MHz}$	-	14	-	pF

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

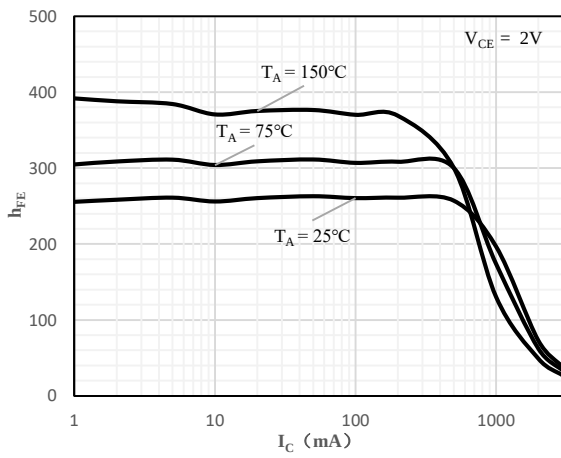


Fig 1 h_{FE} vs. I_C

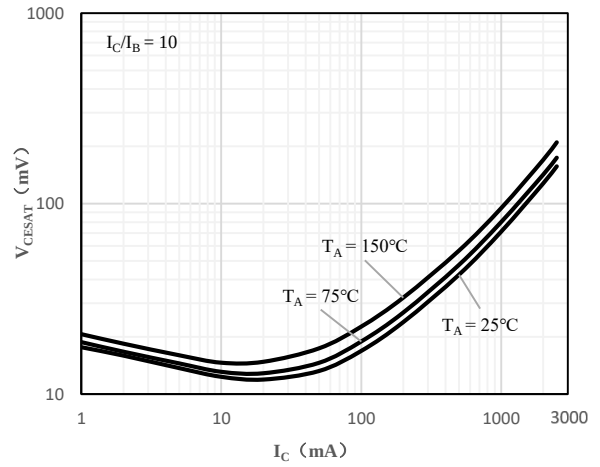


Fig 2 $V_{CE(sat)}$ vs. I_C

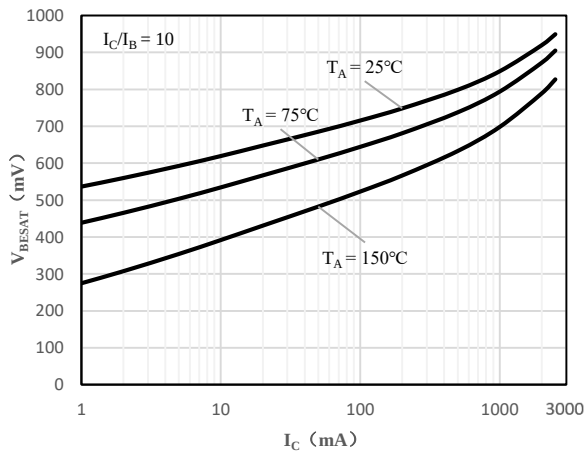


Fig 3 $V_{BE(sat)}$ vs. I_C

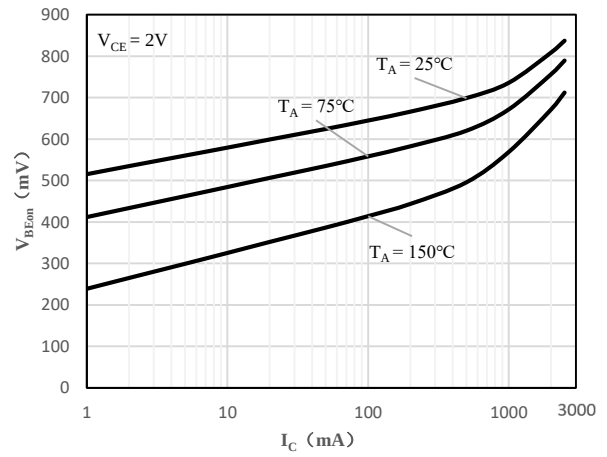
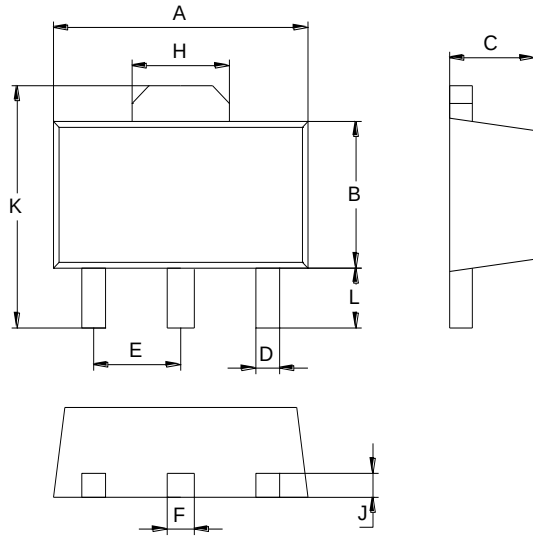


Fig 4 $V_{BE(ON)}$ vs. I_C

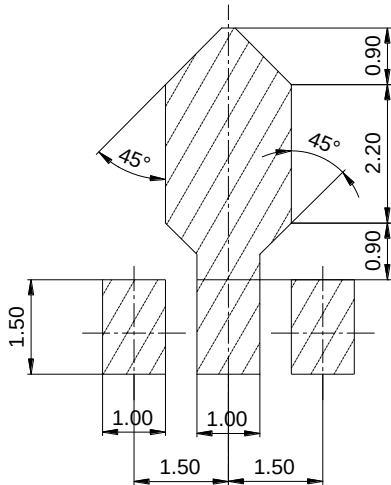
Package Outline Dimensions (Unit: mm)



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



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