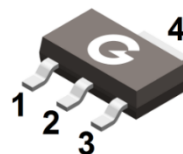
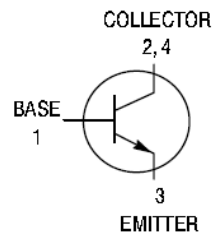


Features

- 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
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 standards for high reliability

HF



SOT-223

Mechanical Data

- Case: SOT-223
- 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
TGT4350R	SOT-223	4000 pcs / Tape & Reel	T4350

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	50	V
Collector-Emitter Breakdown Voltage	V_{CEO}	50	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	3	A
Collector Current (Peak)	I_{CM}	5	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ^{*1}	P_D	1.15	W
Thermal Resistance Junction-to-Air ^{*2}	$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*2}	$R_{\theta JC}$	25	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*2}	$R_{\theta JL}$	20	$^\circ\text{C/W}$
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	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 50\text{V}, I_E = 0, T_J = 25^\circ\text{C}$	-	-	0.1	μA
		$V_{CB} = 50\text{V}, I_E = 0, T_J = 150^\circ\text{C}$	-	-	50	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	-	-	100	nA
DC Current Gain	h_{FE}	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$	300	-	-	-
		$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	300	-	-	-
		$V_{CE} = 2\text{V}, I_C = 1\text{A}$	300	-	-	-
		$V_{CE} = 2\text{V}, I_C = 2\text{A}$	200	-	-	-
		$V_{CE} = 2\text{V}, I_C = 3\text{A}$	100	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	80	mV
		$I_C = 1\text{A}, I_B = 50\text{mA}$	-	-	160	
		$I_C = 2\text{A}, I_B = 100\text{mA}$	-	-	280	
		$I_C = 2\text{A}, I_B = 200\text{mA}$	-	-	260	
		$I_C = 3\text{A}, I_B = 300\text{mA}$	-	-	370	
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2\text{A}, I_B = 100\text{mA}$	-	-	1.1	V
		$I_C = 3\text{A}, I_B = 300\text{mA}$	-	-	1.2	
Base-emitter Voltage	$V_{BE(on)}$	$I_C = 1\text{A}, V_{CE} = 2\text{V}$	-	-	1.2	V
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 100\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = I_C = 0$ $f = 1\text{MHz}$	-	-	25	pF

Notes:

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm²
2. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper

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

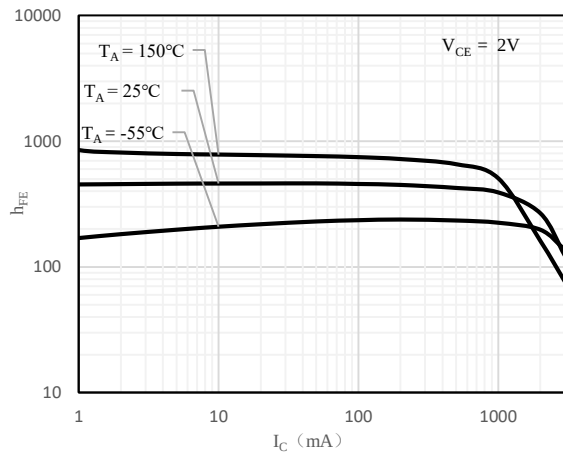


Fig 1 h_{FE} vs. I_C

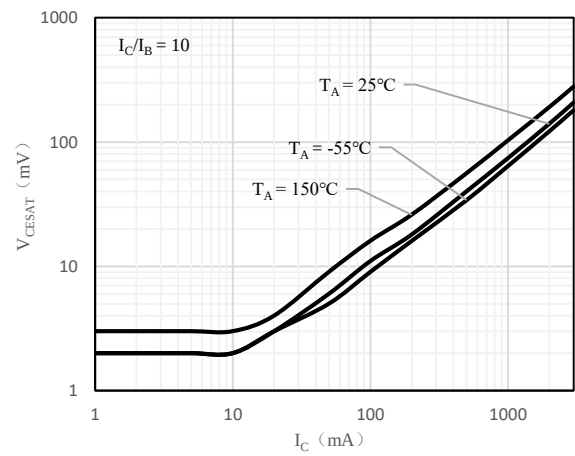


Fig 2 $V_{CE(sat)}$ vs. I_C

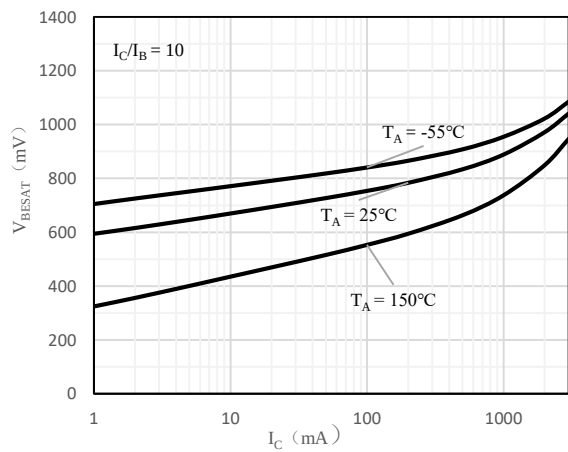


Fig 3 $V_{BE(sat)}$ vs. I_C

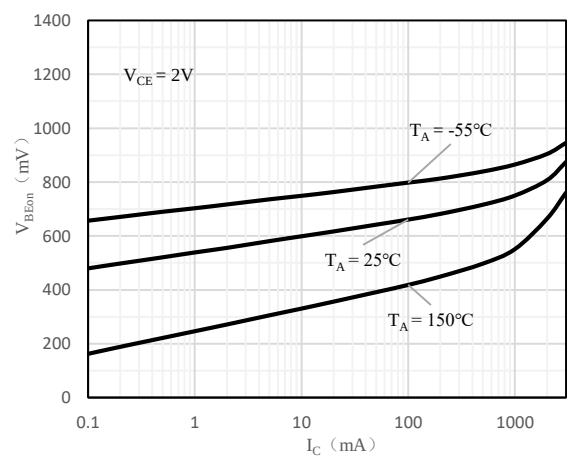


Fig 4 $V_{BE(on)}$ vs. I_C

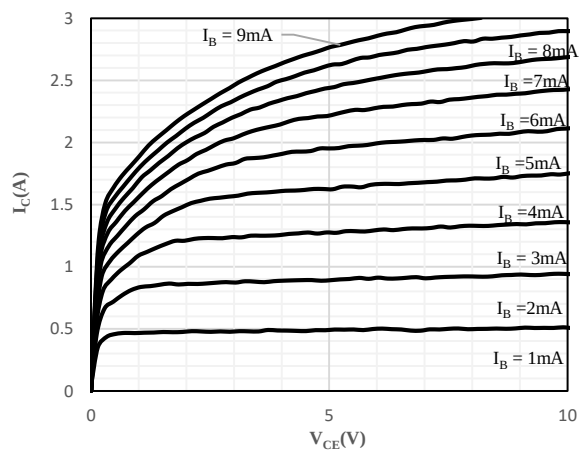


Fig 5 I_C vs. V_{CE}

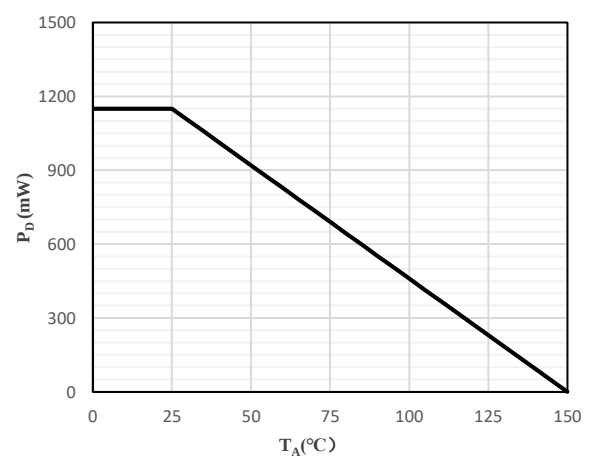


Fig 6 P_D vs. T_A

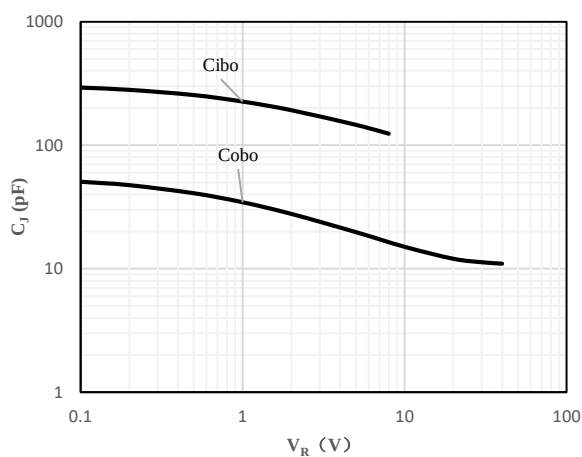
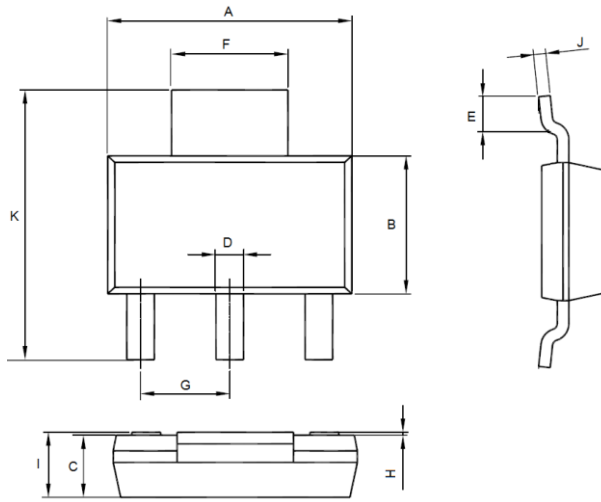


Fig 7 C_j vs. V_R

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

