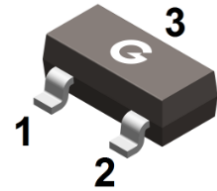
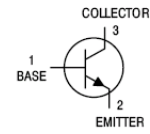


Features

- 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
- Complementary PNP type: TGT5240
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-23

Mechanical Data

- Case: SOT-23
- 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
TGT4240	SOT-23	3000 pcs / Tape & Reel	T4240

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}	40	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	2	A
Collector Current (Pulse)	I_{CM}	4	A
Equivalent On-Resistance	$R_{CE(sat)}$	130	m Ω

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	300	mW
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	344	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	157	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*1}	$R_{\theta JL}$	165	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Air ^{*2}	$R_{\theta JA}$	260	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	110	$^\circ\text{C/W}$
Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 ~ +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	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	40	-	-	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:

- The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B
- 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)

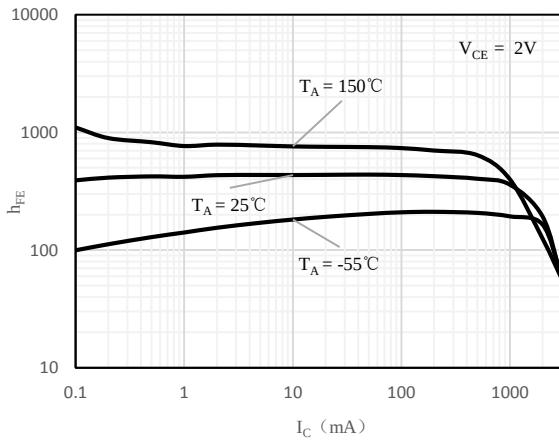


Fig 1 h_{FE} vs. I_C

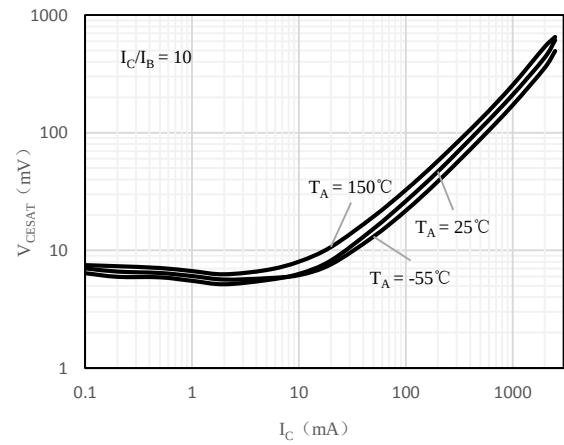


Fig 2 $V_{CE(sat)}$ vs. I_C

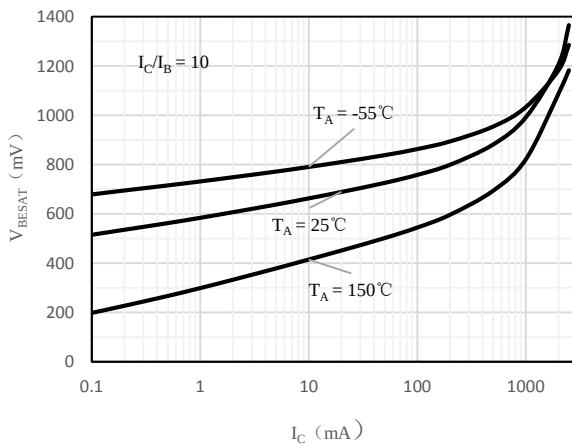


Fig 3 $V_{BE(sat)}$ vs. I_C

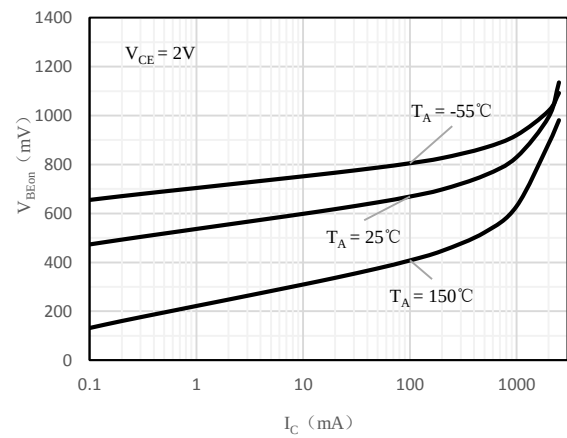


Fig 4 $V_{BE(on)}$ vs. I_C

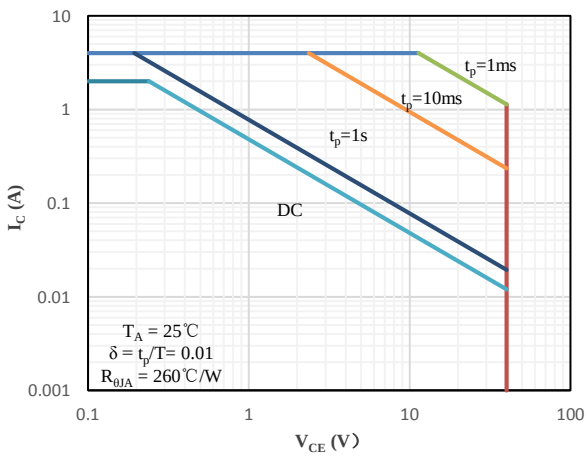
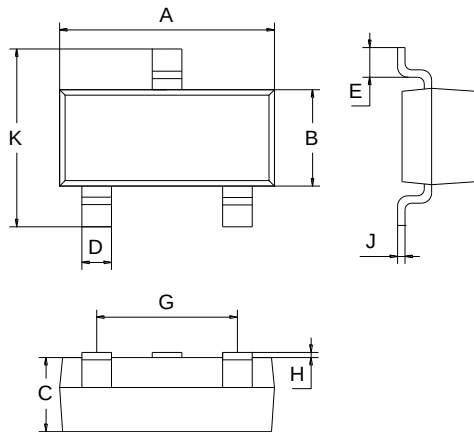


Fig 5 Safe Operating Area

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.3	0.5
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

