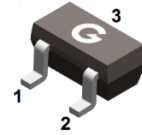
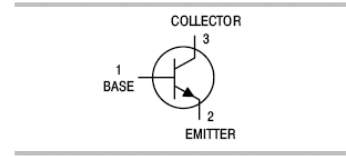


Features

- Reduces board space
- High h_{FE}
- Low $V_{CE(sat)}$
- Halogen free
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-523

Mechanical Data

- Case: SOT-523
- 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
T2SC4617-Q	SOT-523	3000 pcs / Tape Reel	BQ
T2SC4617-R	SOT-523	3000 pcs / Tape Reel	BR
T2SC4617-S	SOT-523	3000 pcs / Tape Reel	BS

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	100	mA
Peak Collector Current ($t_p \leq 1\text{ms}$)	I_{CM}	200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	150	mW
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	90	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*1}	$R_{\theta JL}$	80	$^\circ\text{C/W}$
Operating 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	$V_{(BR)CBO}$	$I_C = 50\mu\text{A}, I_B = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 50\mu\text{A}, I_C = 0$	7	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	0.5	μA
Emitter-base Cut-off Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	-	-	0.5	μA
DC Current Gain	h_{FE}	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	120	-	560	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 60\text{mA}, I_B = 5\text{mA}$	-	-	0.4	V
Transition Frequency	f_T	$V_{CE} = 12\text{V}, I_C = 2\text{mA}$ $f = 30\text{MHz}$	-	180	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = 12\text{V}, I_C = 0$ $f = 1\text{MHz}$	-	-	2	pF

Classification of h_{FE}

Rank	Q	R	S
Range	120-270	180-390	270-560
MARKING	BQ	BR	BS

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

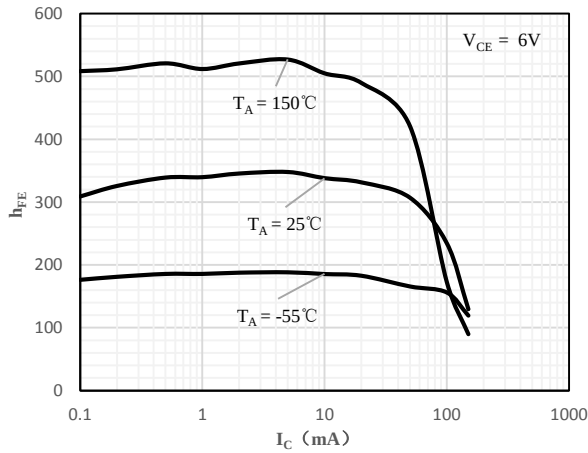


Fig 1 h_{FE} vs. I_C (R: 180-390)

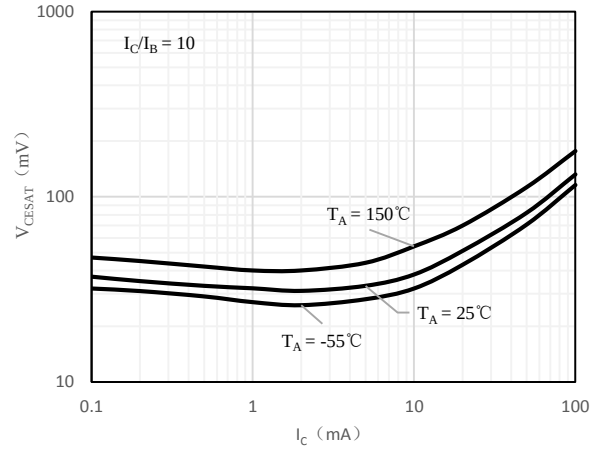


Fig 2 $V_{CE(sat)}$ vs. I_C

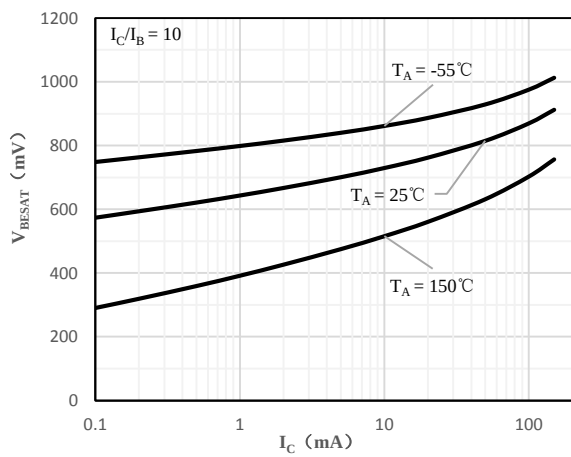


Fig 3 $V_{BE(sat)}$ vs. I_C

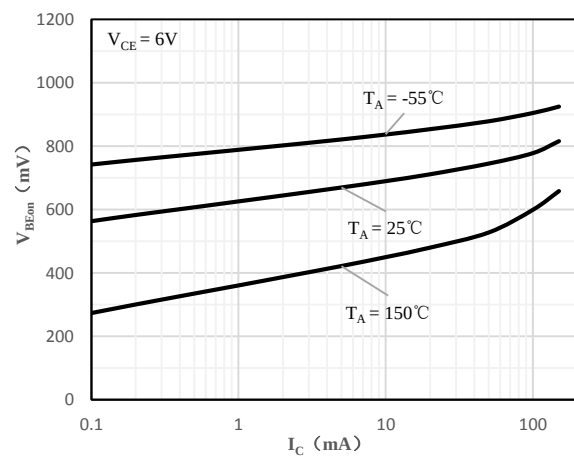


Fig 4 $V_{BE(on)}$ vs. I_C

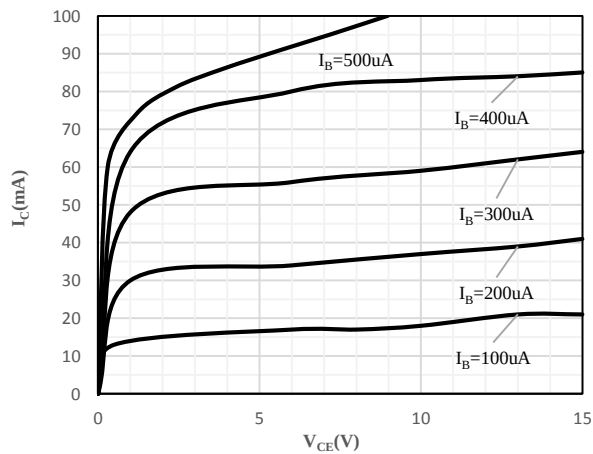


Fig 5 I_C vs. V_{CE}

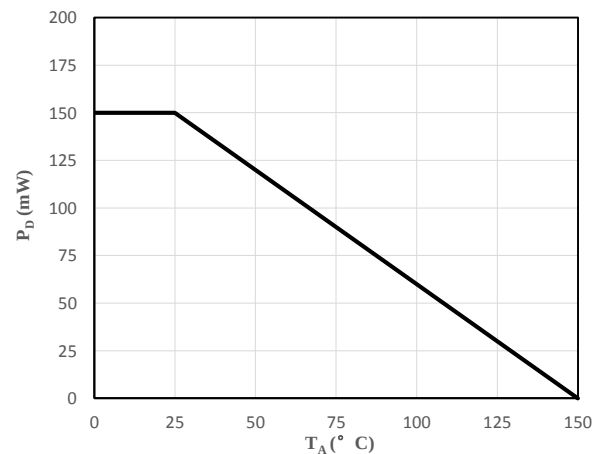


Fig 6 P_D vs. T_A

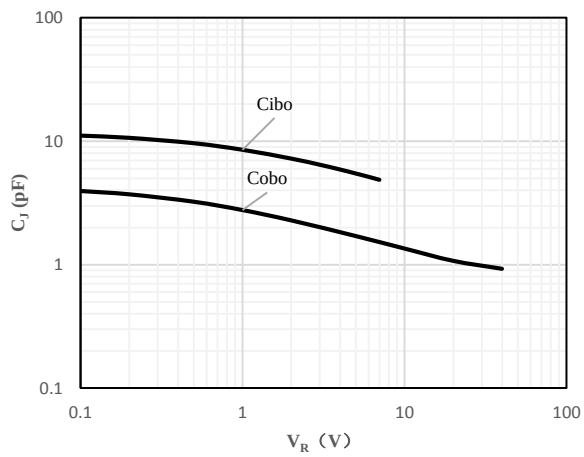
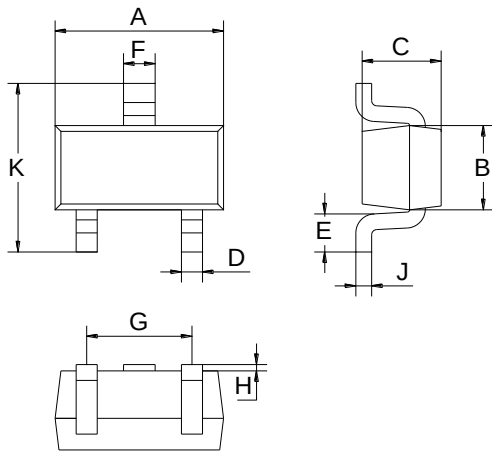


Fig 7 C_J vs. V_R

Package Outline Dimensions (Unit: mm)



SOT-523		
Dimension	Min.	Max.
A	1.50	1.70
B	0.75	0.85
C	0.60	0.80
D	0.15	0.30
E	0.30	0.40
F	0.25	0.40
G	0.90	1.10
H	0.02	0.10
J	0.08	0.18
K	1.45	1.75

Mounting Pad Layout (Unit: mm)

SOT-523

