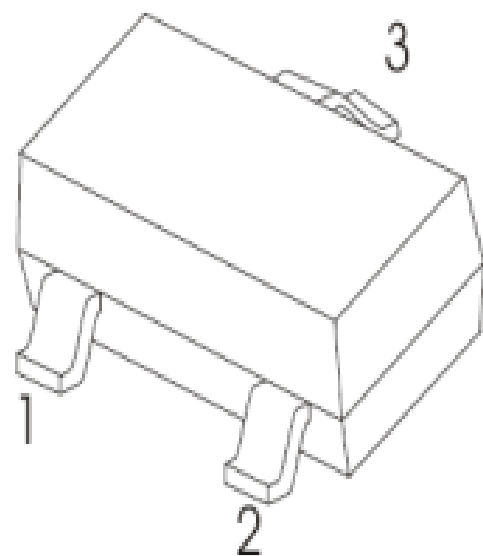


Features

- High current gain
- Excellent h_{fe} linearity
- Low noise between 30Hz and 15kHz



1. BASE

2. EMITTER

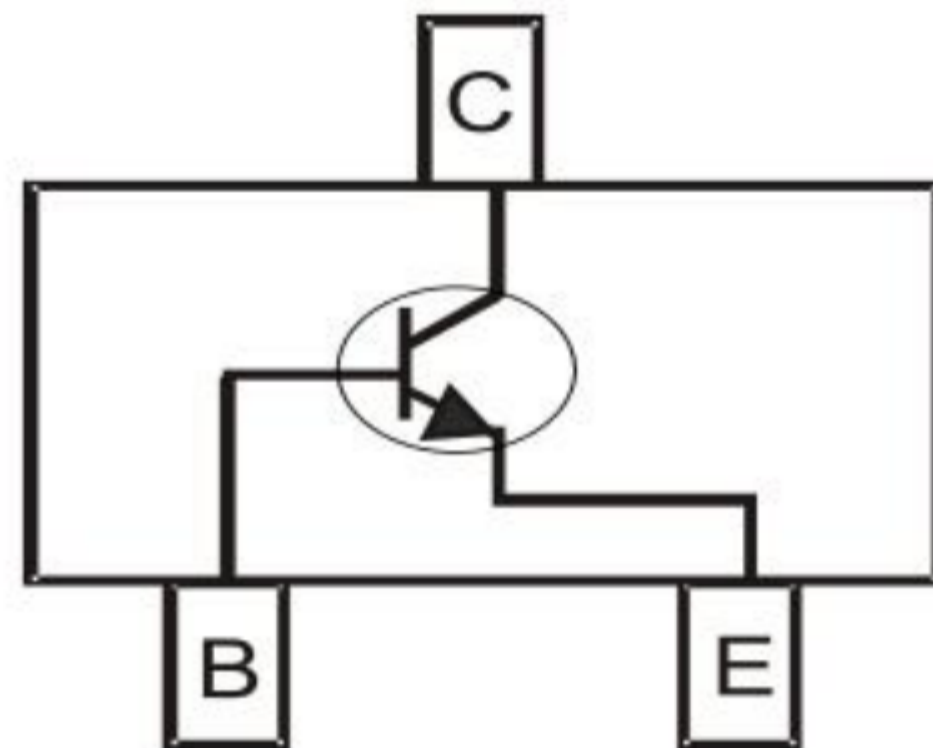
3. COLLECTOR

SOT-523

Mechanical data

- Case: SOT-523

Circuit Diagram



Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	65	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (Continuous)	I_C	100	mA
Collector Current (Peak)	I_{CM}	200	mA

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Power Dissipation (Collector) (Note 1)	P_D	265	mW
Thermal Resistance Junction-to-Air ¹	$R_{\theta JA}$	306	°C/W
Thermal Resistance Junction-to-Case ¹	$R_{\theta JC}$	152	°C/W
Thermal Resistance Junction-to-Lead	$R_{\theta JL}$	61	°C/W
Operating Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	65	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30V, I_E = 0$	-	-	15	nA
		$V_{CB} = 30V, I_E = 0$	-	-	5	μA
		$T_J = 150^\circ C$	-	-	-	-
Emitter-base Cut-off Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	-	-	100	nA
Collector-emitter Cut-off Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$	-	-	1	mA
DC Current Gain	h_{FE}	$V_{CE} = 5V, I_C = 10\mu A$	-	250	-	-
DC Current Gain		$V_{CE} = 5V, I_C = 2mA$	200	-	450	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5mA$	-	0.09	0.25	V
		$I_C = 100mA, I_B = 5mA$	-	0.20	0.60	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 0.5mA$	-	0.70	0.90	V
		$I_C = 100mA, I_B = 5mA$	-	0.90	1.10	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = 5V, I_C = 2mA$	0.58	0.66	0.70	V
		$V_{CE} = 5V, I_C = 10mA$	-	-	0.77	V
Transition Frequency	f_T	$V_{CE} = 5V, I_C = 10mA$ $f = 100MHz$	100	-	-	MHz

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

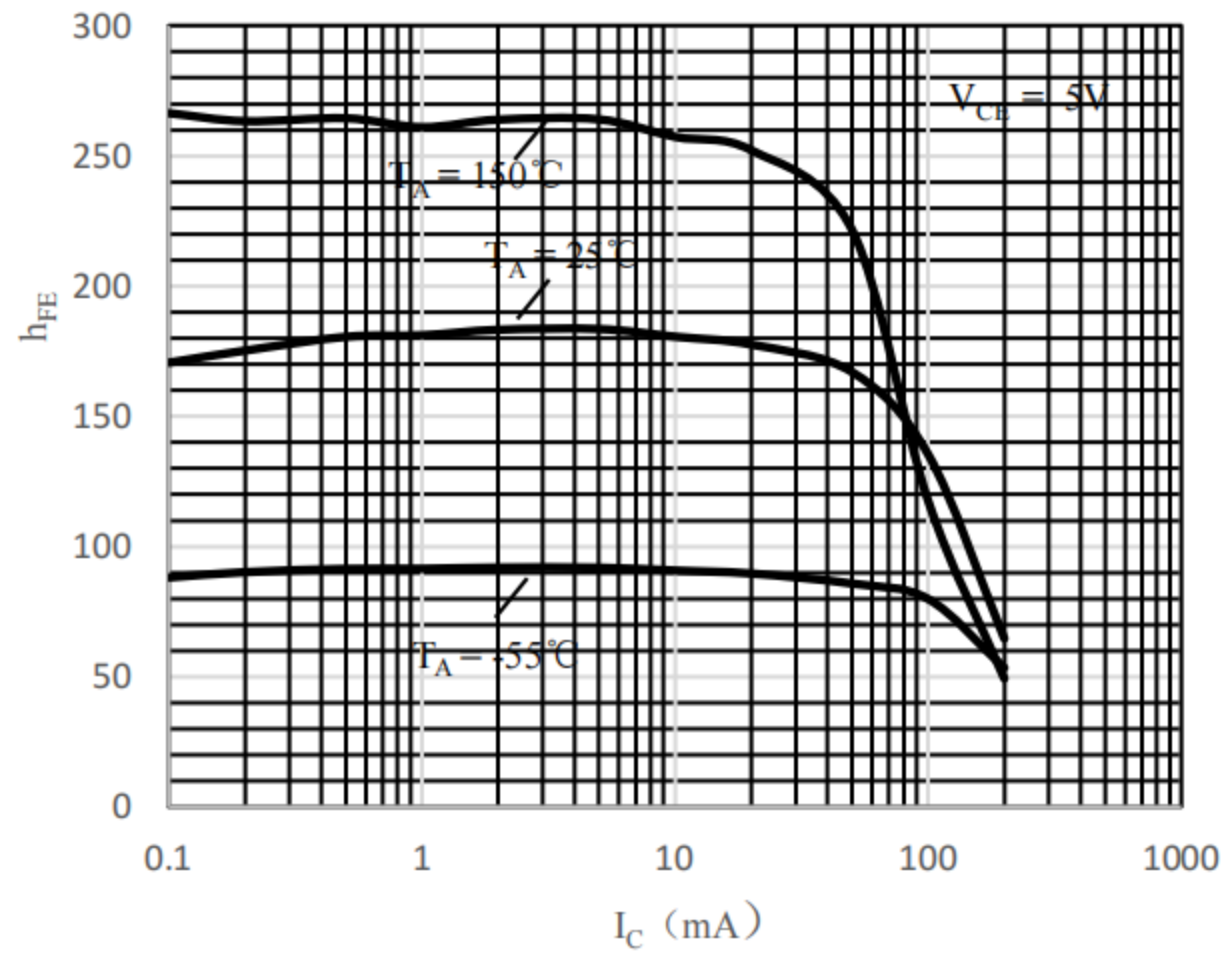


Fig 1 h_{FE} vs. I_C

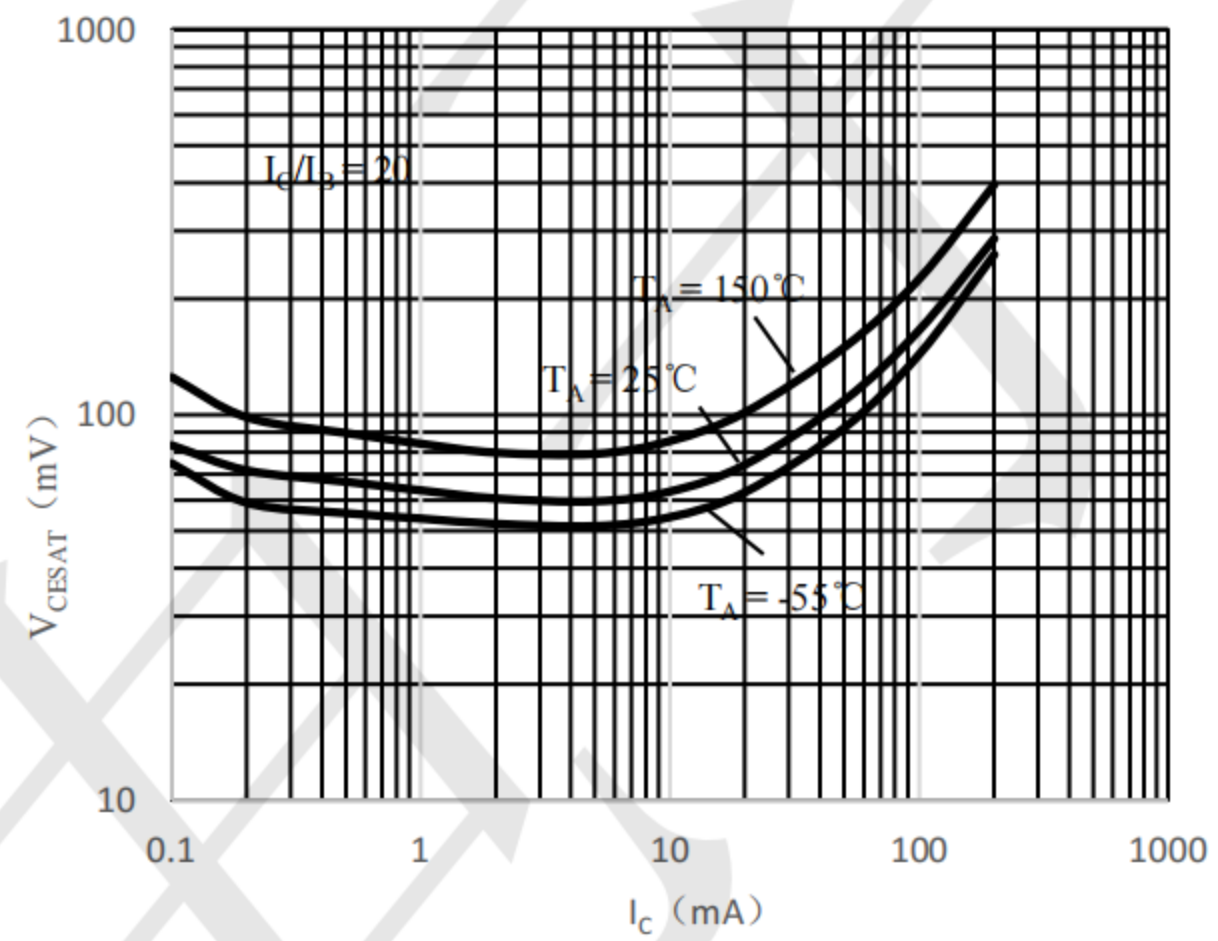


Fig 2 $V_{CE(sat)}$ vs. I_C

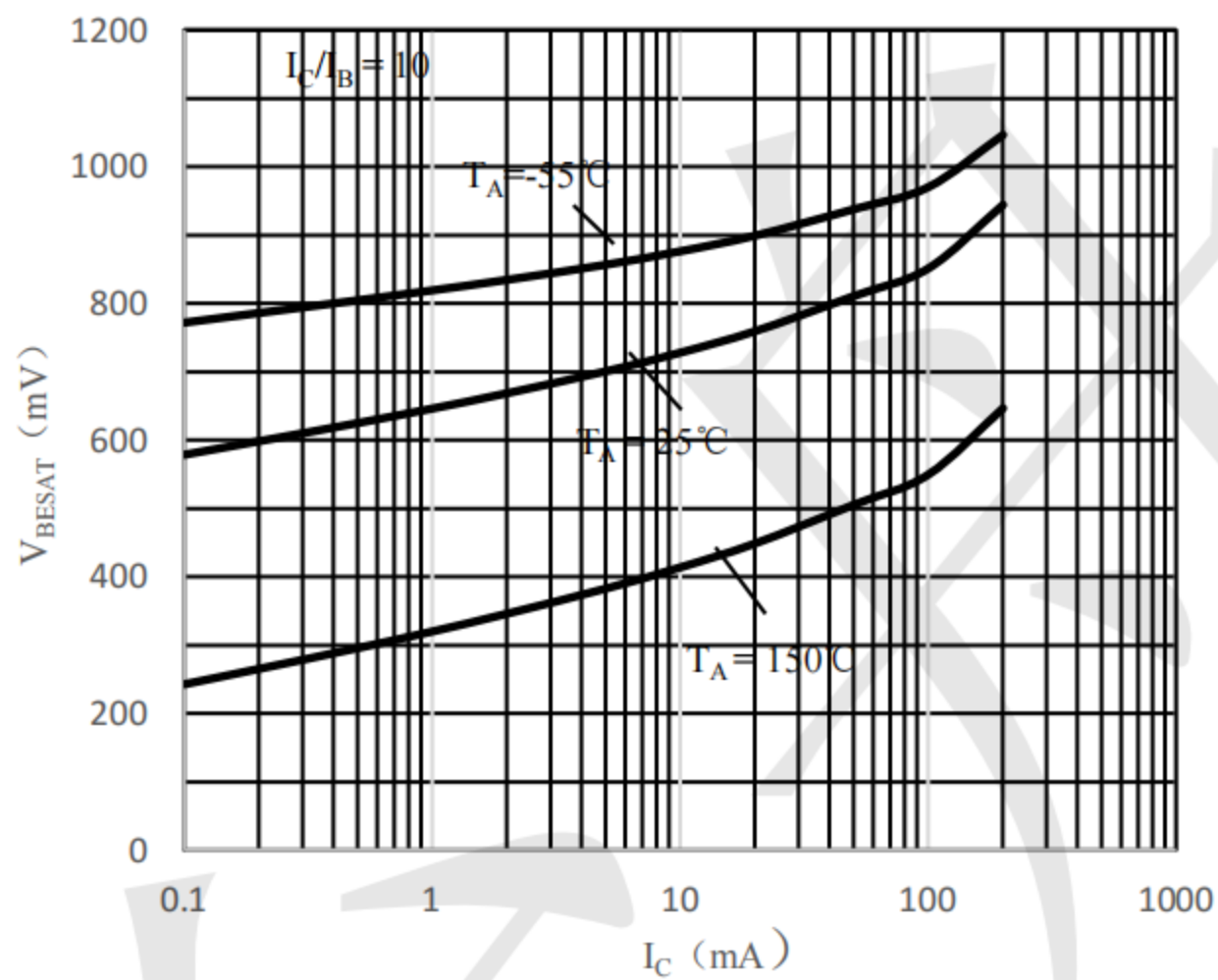


Fig 3 $V_{BE(sat)}$ vs. I_C

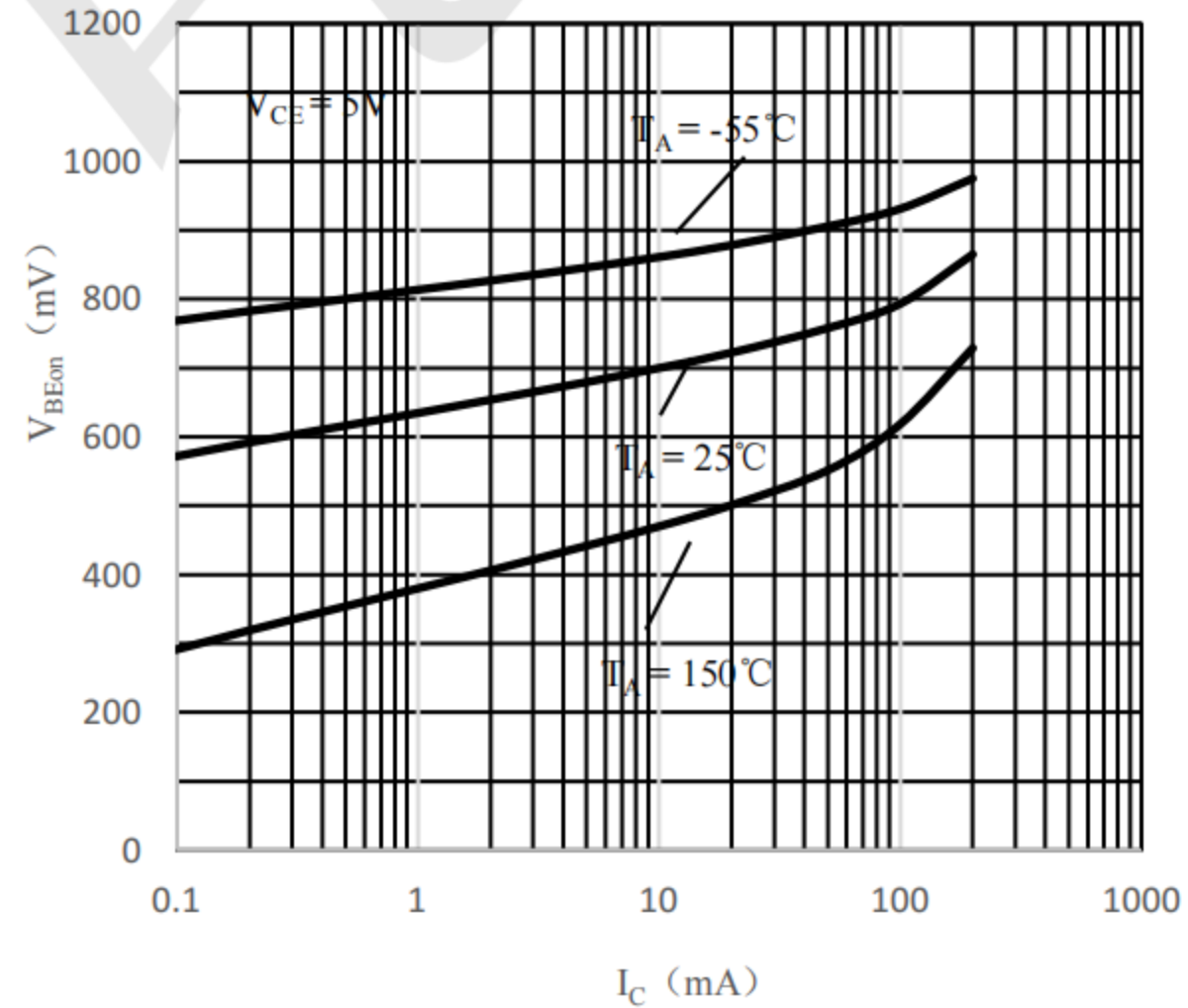


Fig 4 $V_{BE(on)}$ vs. I_C

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

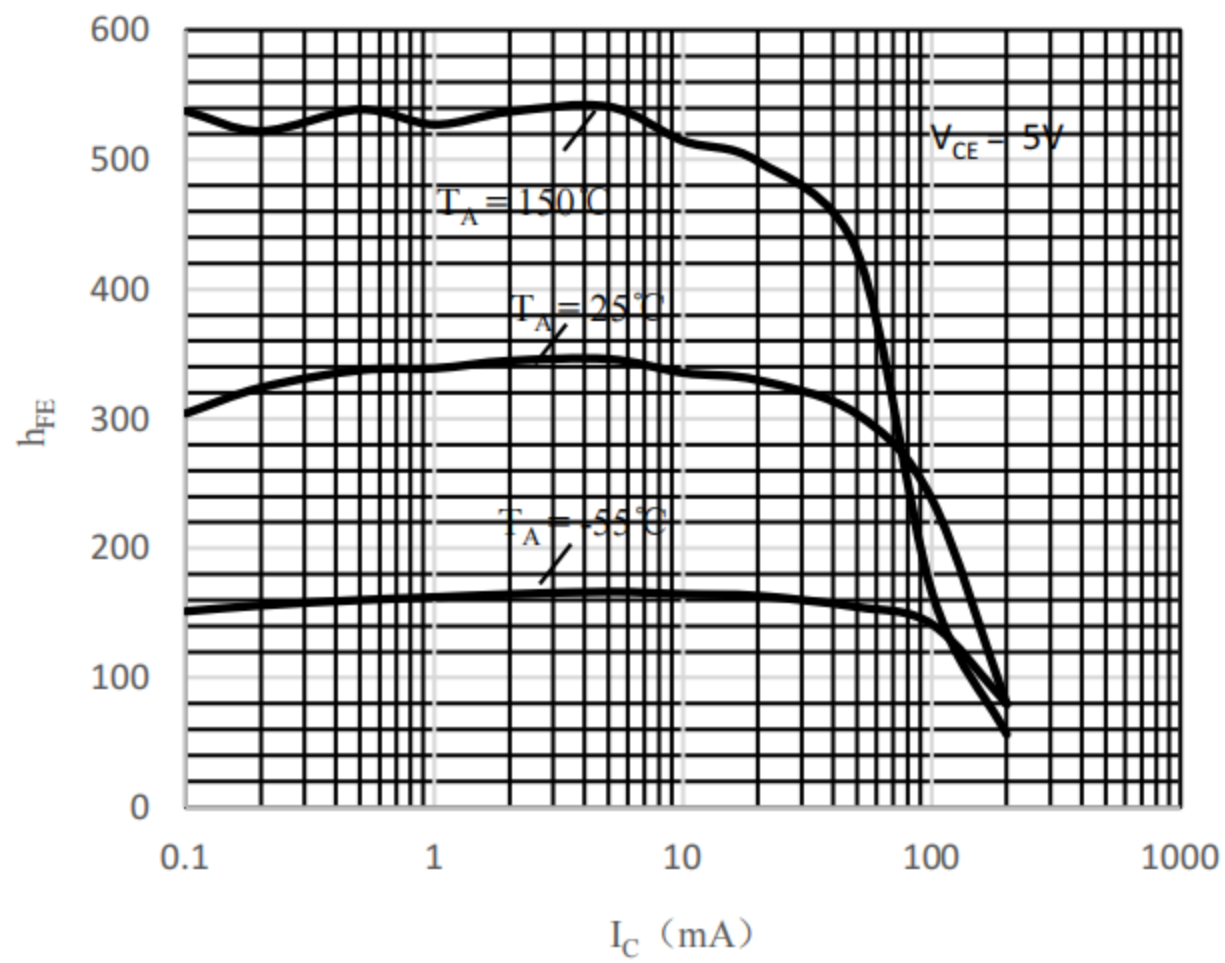


Fig 1 h_{FE} vs. I_C

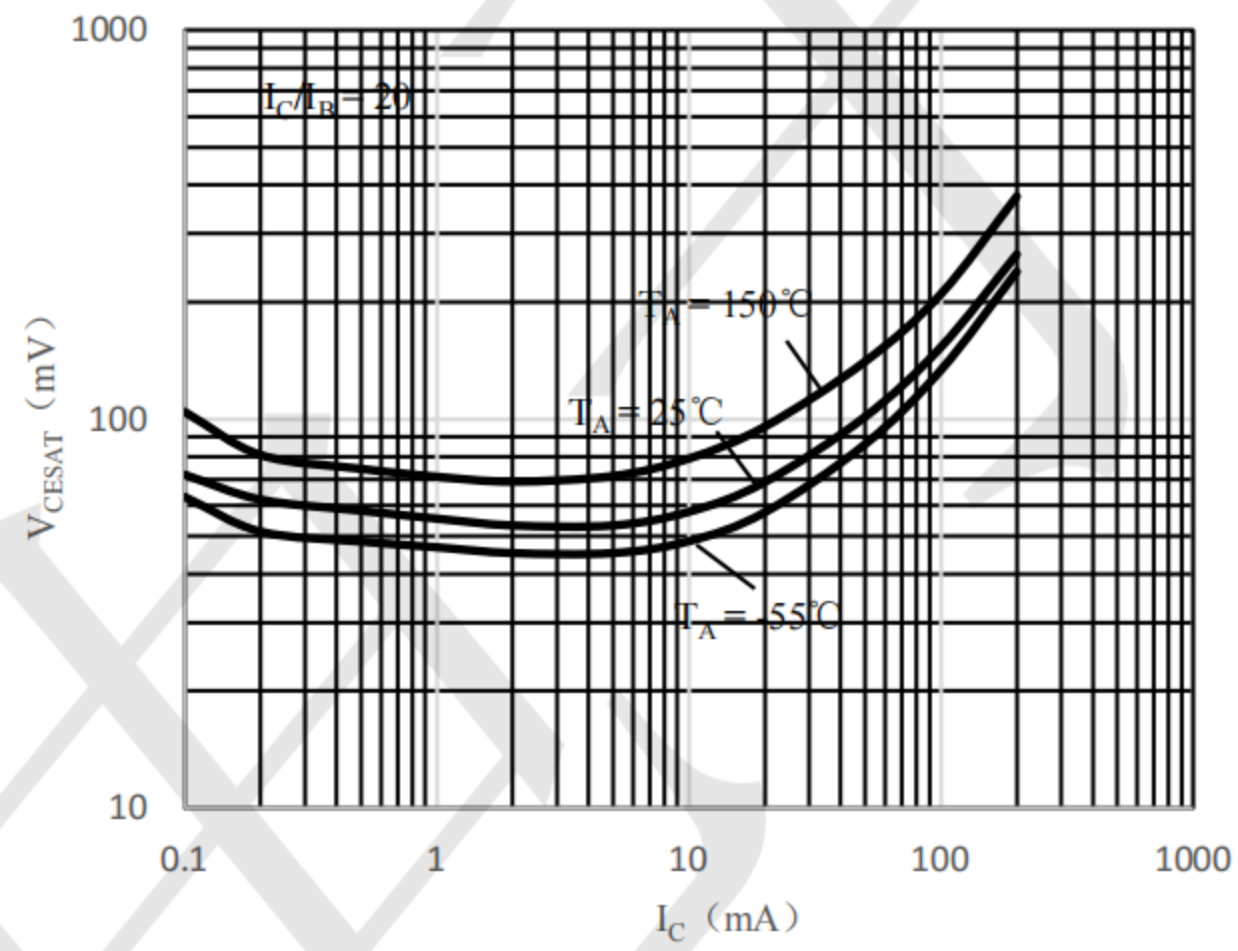


Fig 2 $V_{CE(sat)}$ vs. I_C

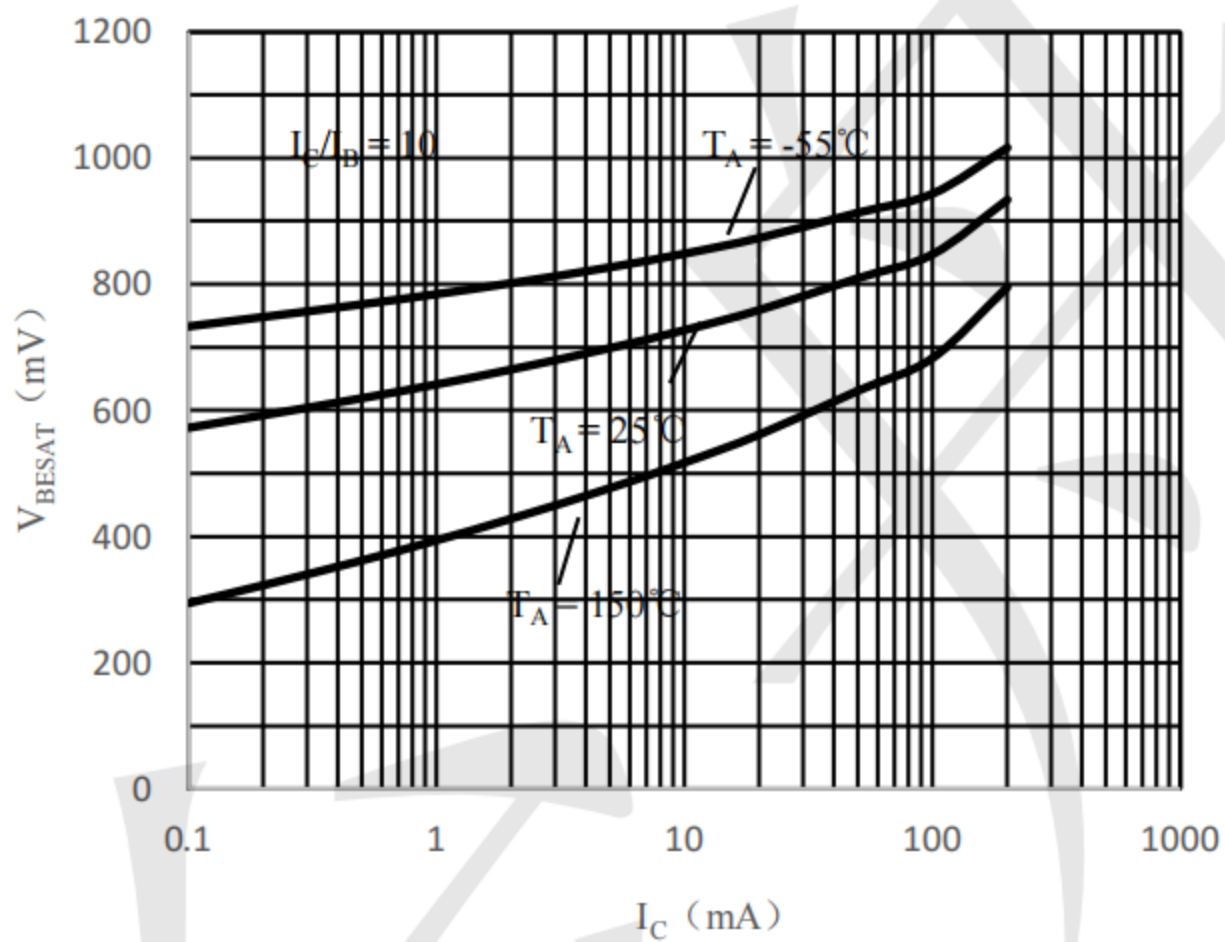


Fig 3 $V_{BE(sat)}$ vs. I_C

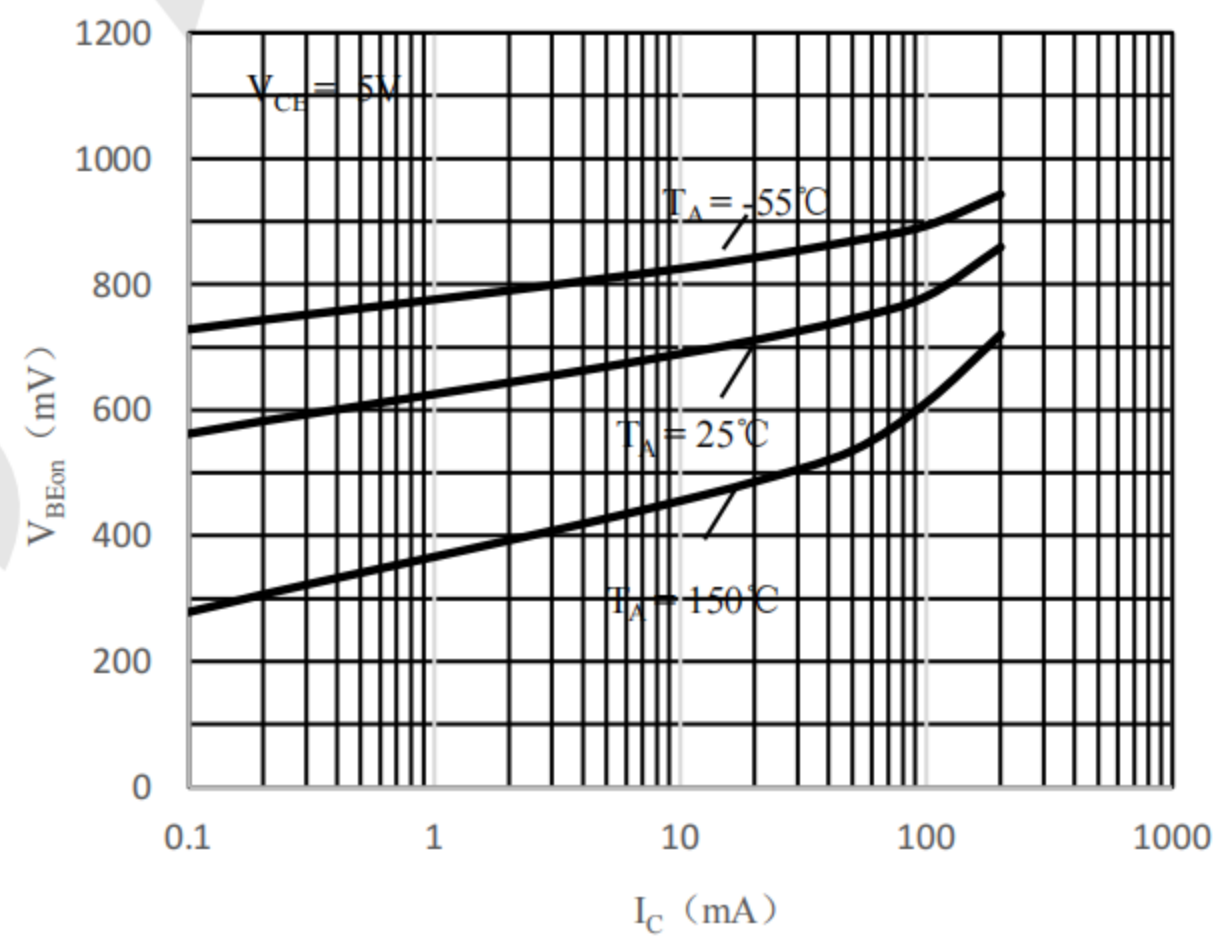


Fig 4 $V_{BE(on)}$ vs. I_C

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

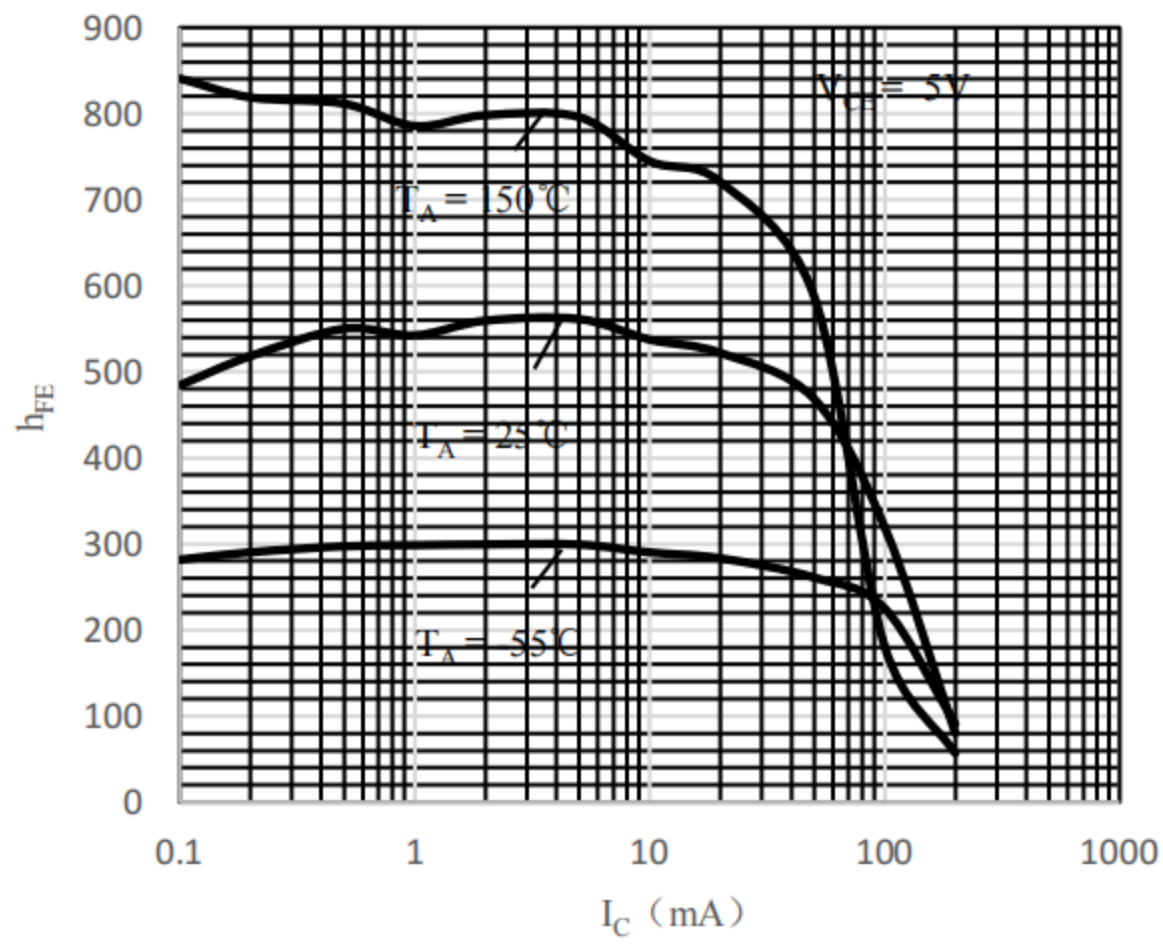


Fig 1 h_{FE} vs. I_C

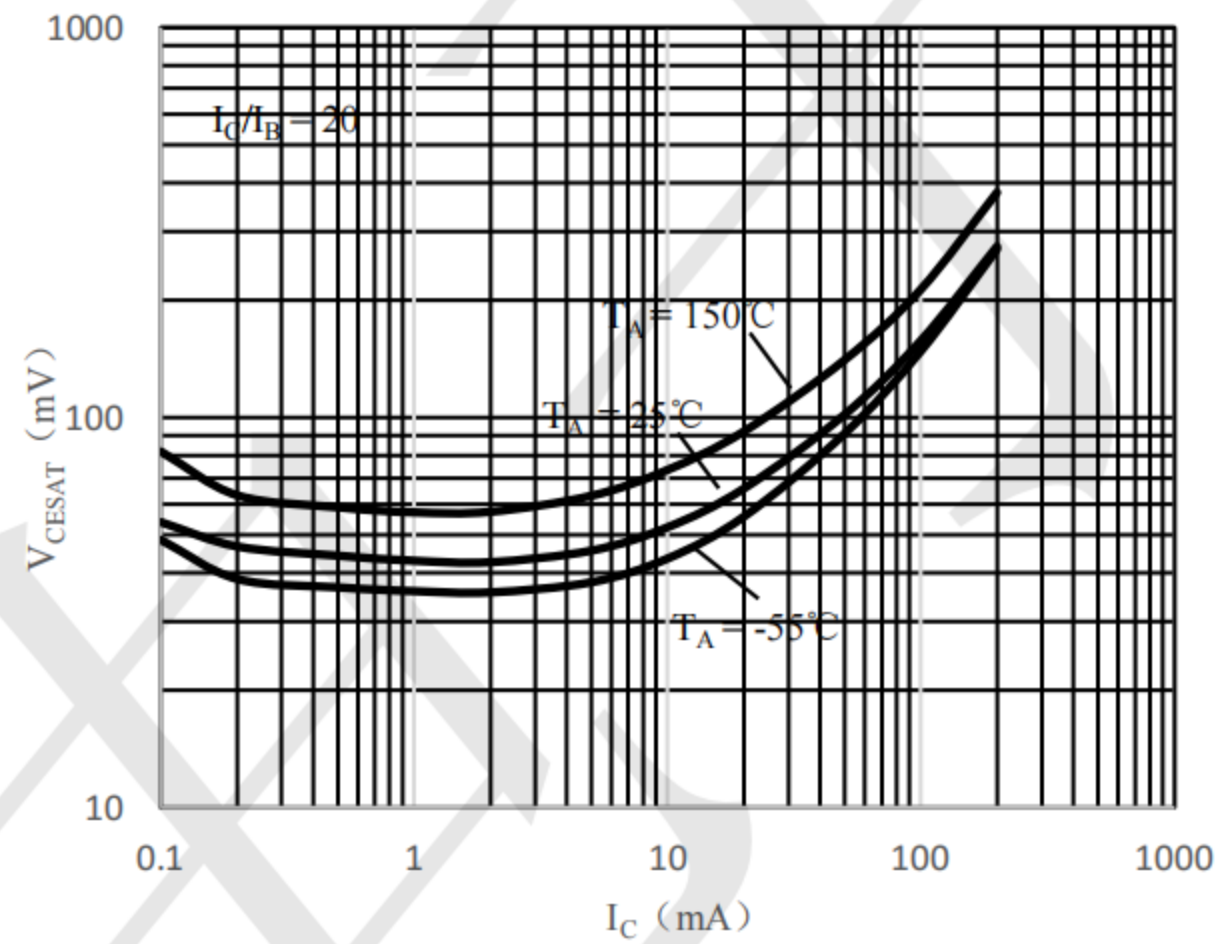


Fig 2 $V_{CE(sat)}$ vs. I_C

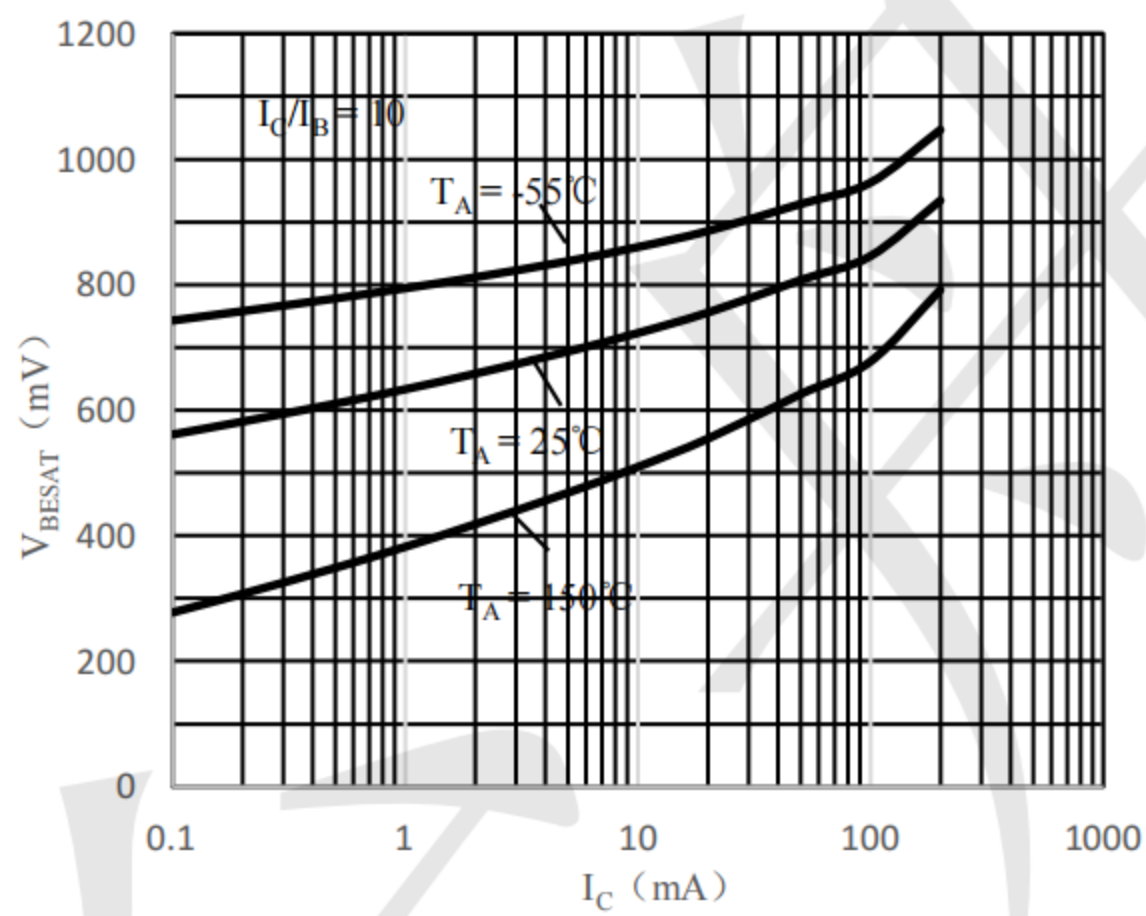


Fig 3 $V_{BE(sat)}$ vs. I_C

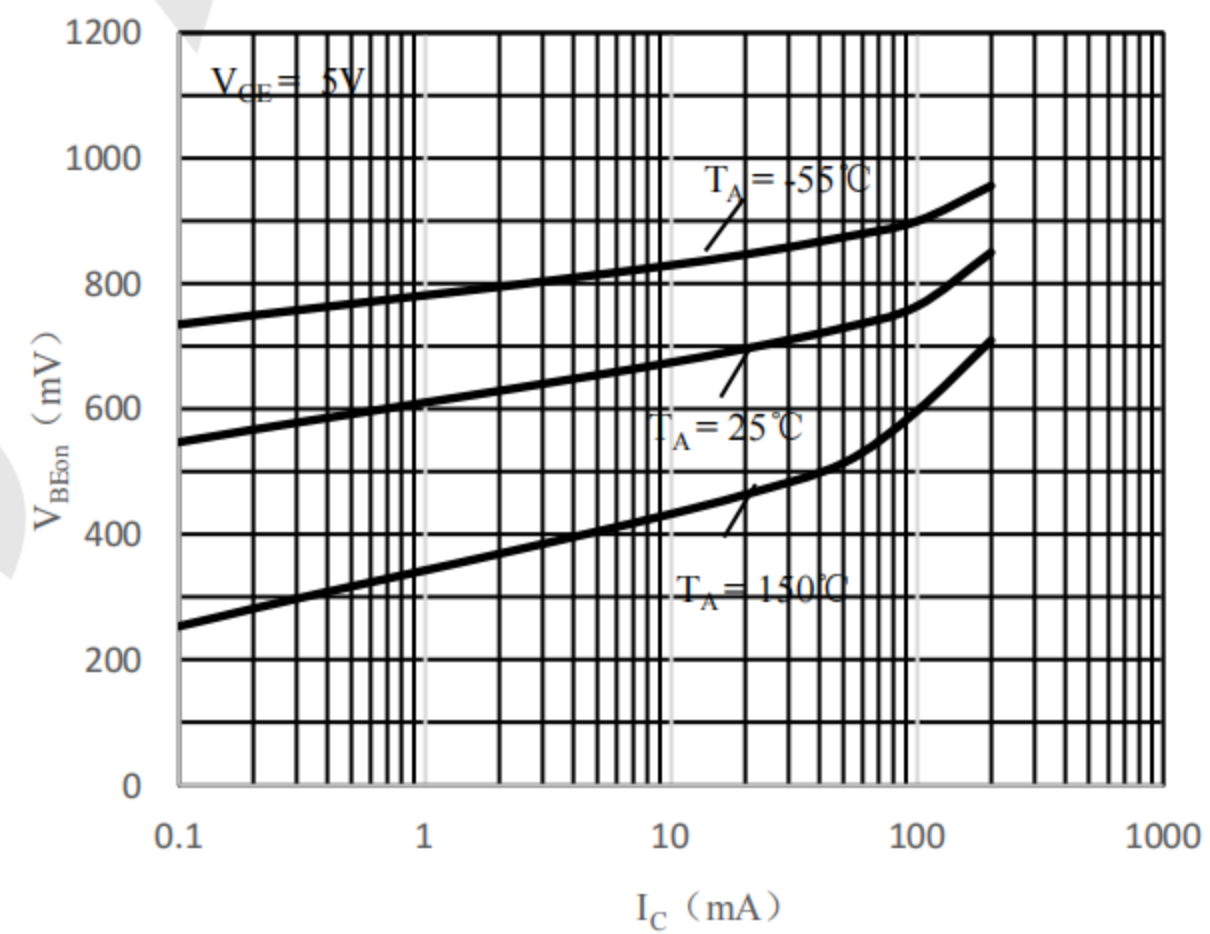
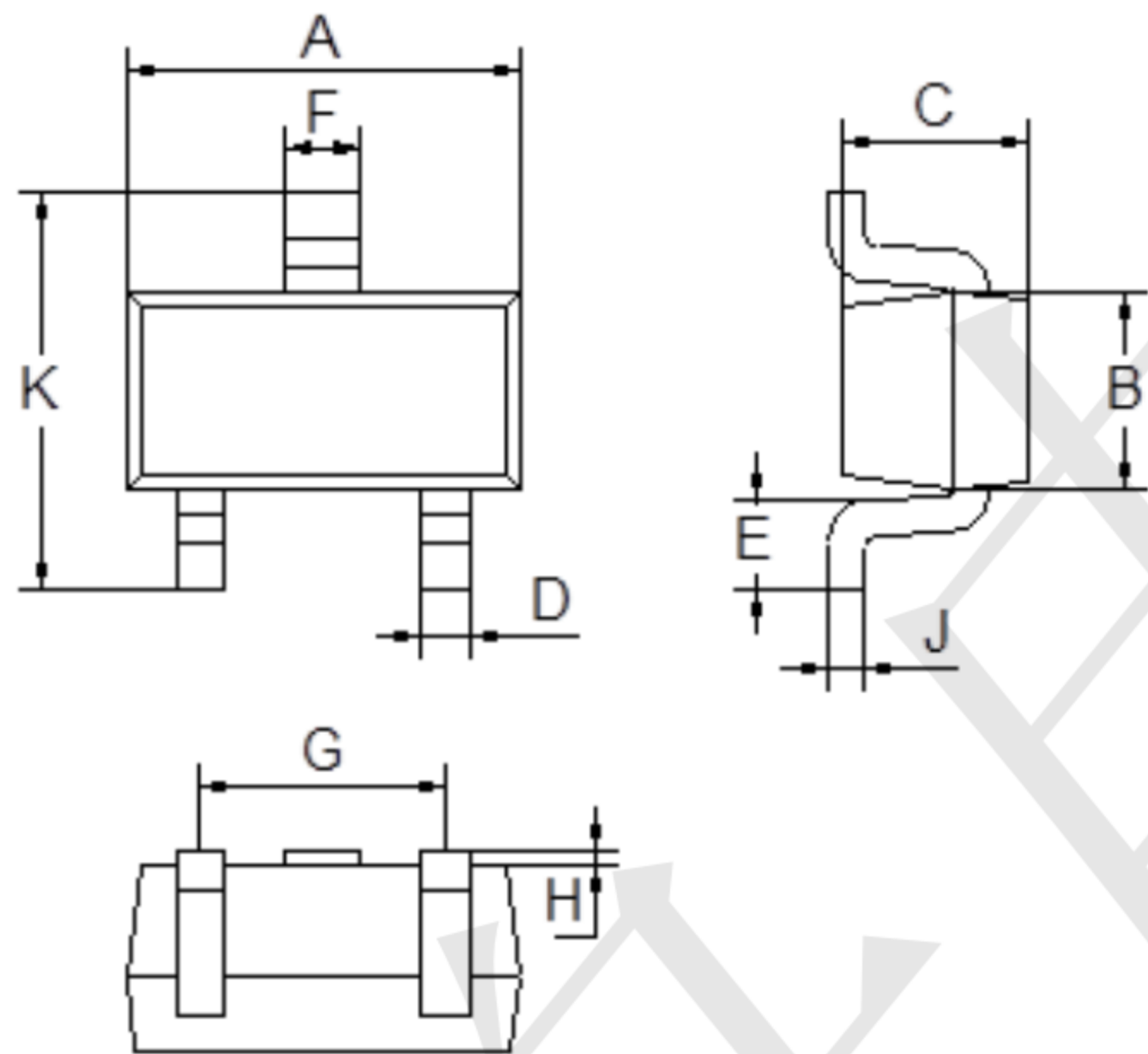


Fig 4 $V_{BE(on)}$ vs. I_C



Outline Drawing - SOT523 (unit: mm)



SOT-523		
Dim	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)

