

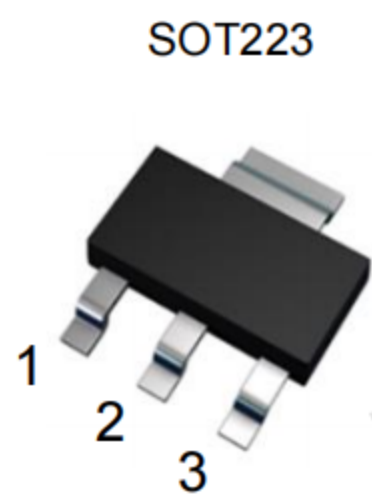


### Features

- High Collector Current
- Low Collector-emitter Saturation Voltage

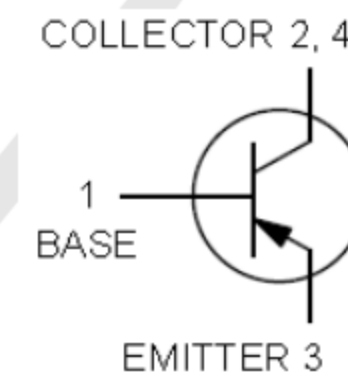
### Mechanical Data

- Case: SOT-223
- Molding compound, UL flammability classification rating 94V-0
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208



Marking:BCP51-16

### Circuit Diagram



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

Parameter	Symbol	BCP51-16	Unit
Collector-Base Voltage	$V_{CBO}$	-45	V
Collector-Emitter Voltage	$V_{CEO}$	-45	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current (Continuous)	$I_C$	-1	A
Collector Current (Peak)	$I_{CM}$	-1.5	A



**Thermal Characteristic**

Parameter	Symbol	Value	Unit
Power Dissipation ( $T_A = 25^\circ\text{C}$ ) *1	$P_D$	1.5	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	104	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case *2	$R_{\theta JC}$	32	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead *2	$R_{\theta JL}$	14	$^\circ\text{C/W}$
Operating junction Temperature	$T_J$	-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	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-45	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}, I_C = 0$	-5	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0$	-	-	-100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -5\text{mA}$	25	-	-	-
		$V_{CE} = -2\text{V}, I_C = -150\text{mA}$	100	-	250	-
		$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	25	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$	-	-	-0.5	V
Base-Emitter Voltage	$V_{BE(on)}$	$I_C = -500\text{mA}, V_{CE} = -2\text{V}$	-	-	-1	V
Transition Frequency	$f_T$	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$ $f = 20\text{MHz}$	-	125	-	MHz



Typical Electrical Characteristic Curves

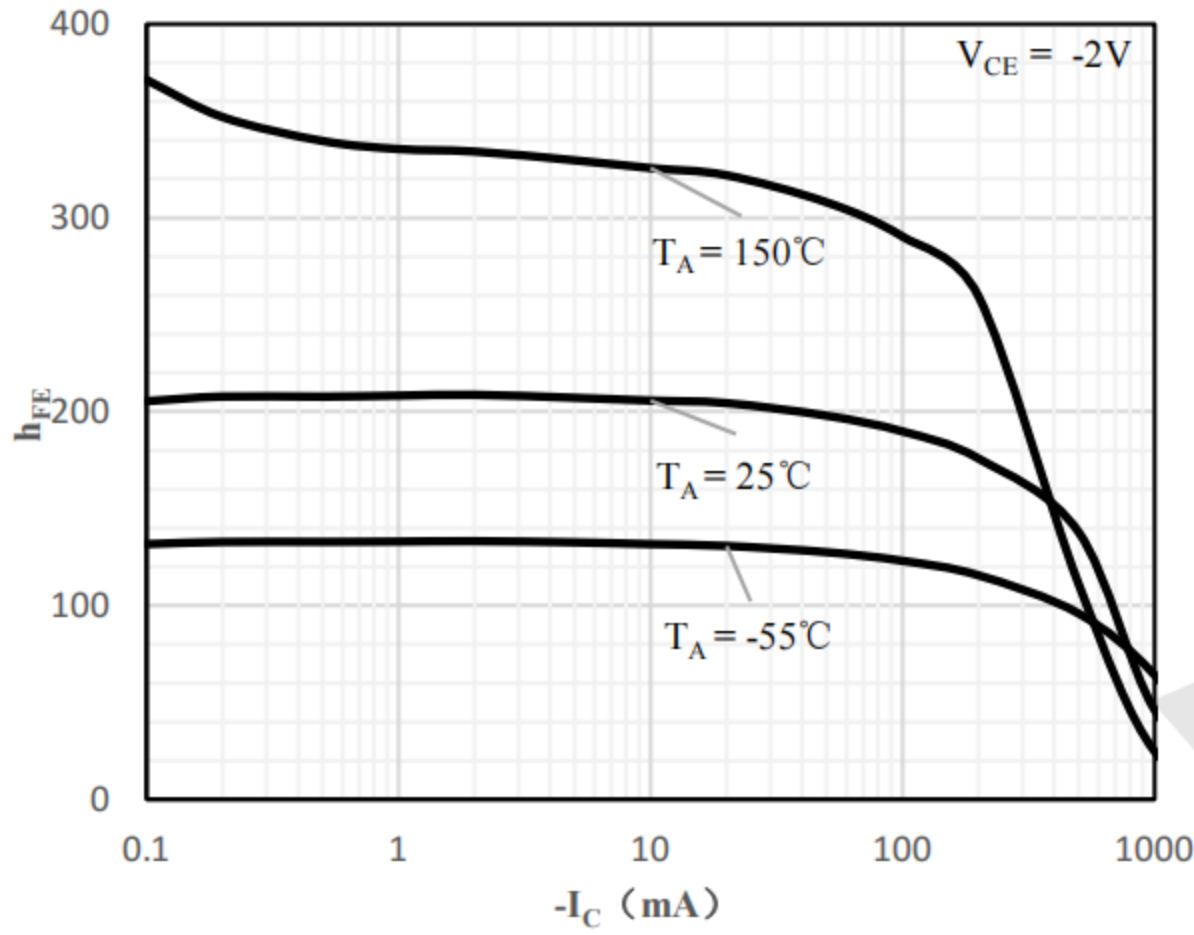


Fig 1  $h_{FE}$  vs.  $I_C$  (BCP51/52/53-16)

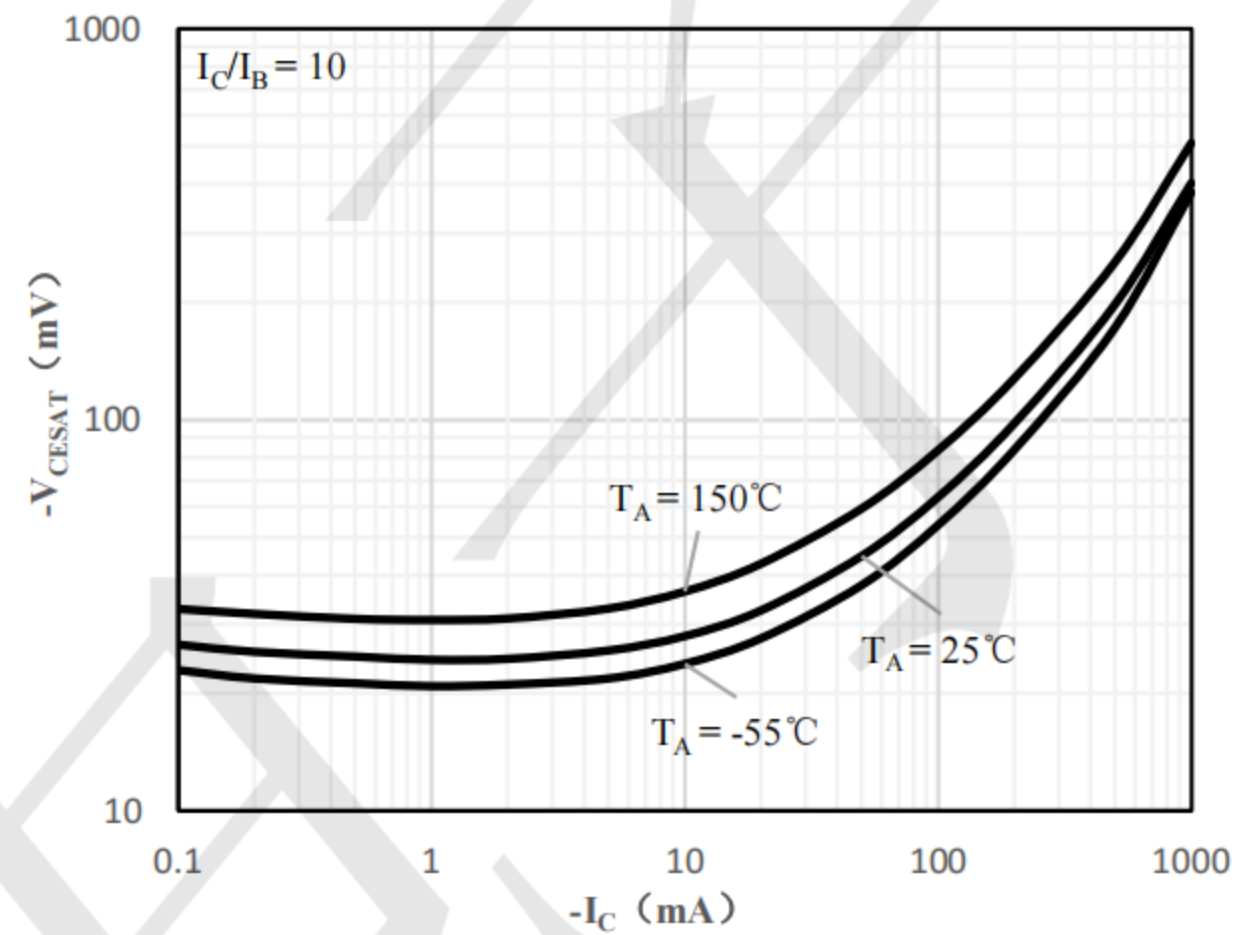


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

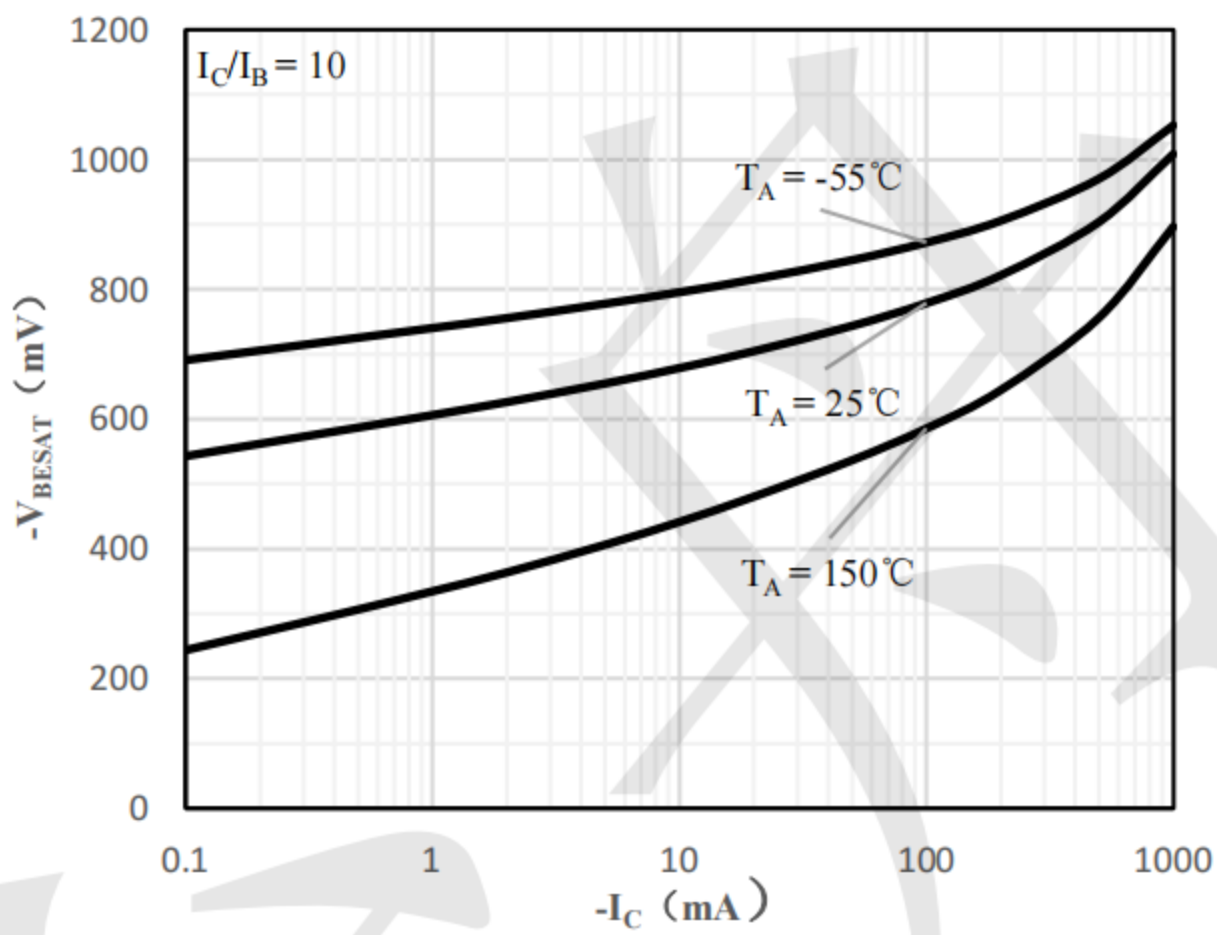


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

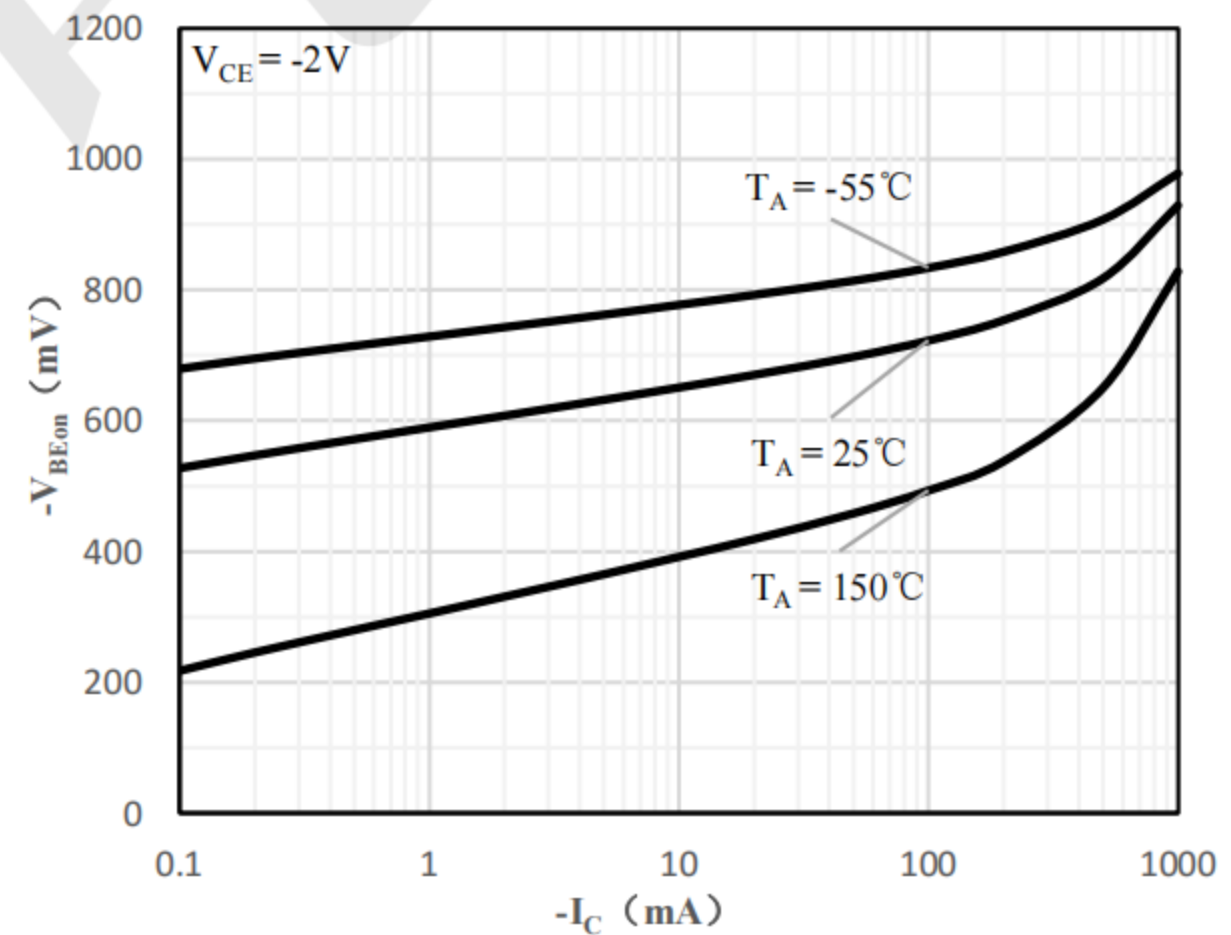


Fig 4  $V_{BE(ON)}$  vs.  $I_C$

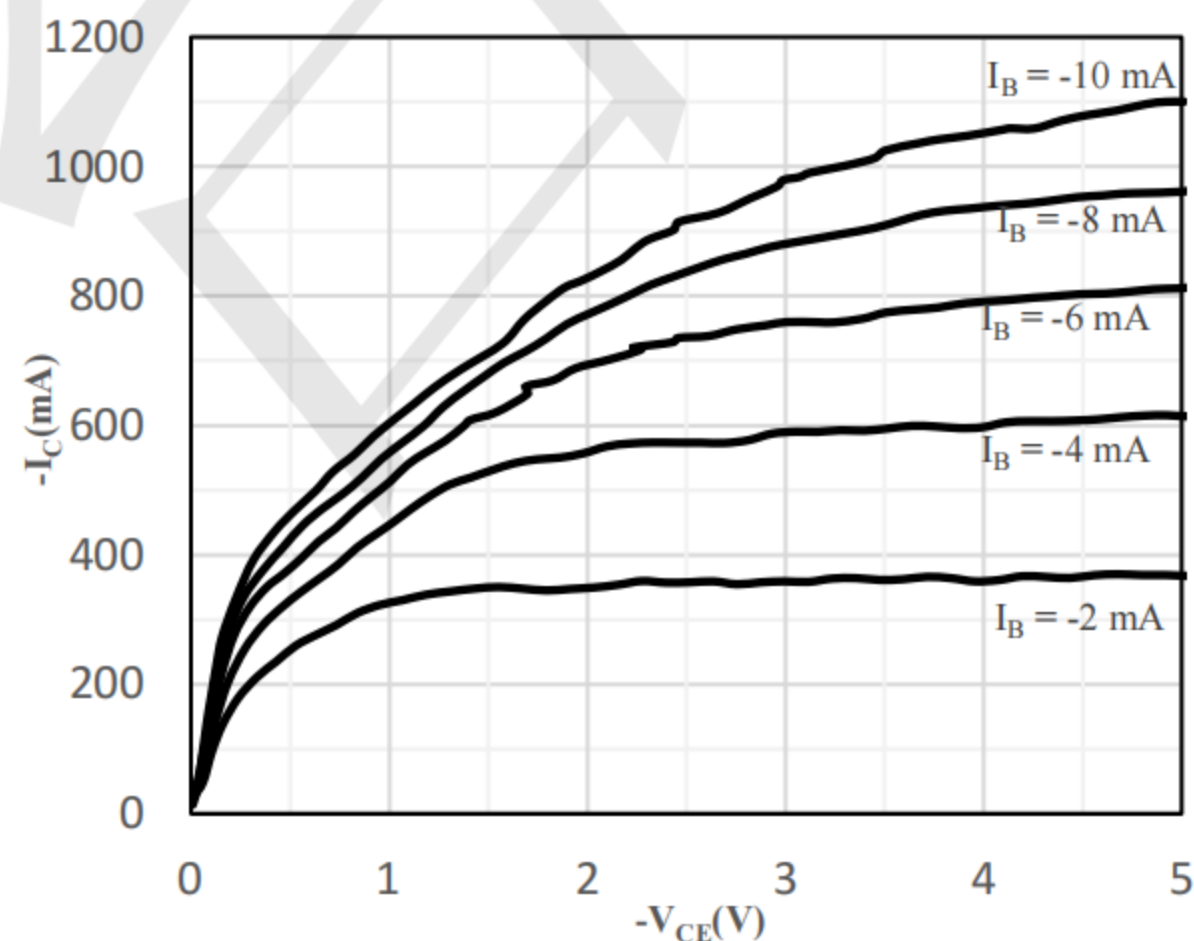


Fig 5  $I_C$  vs.  $V_{CE}$

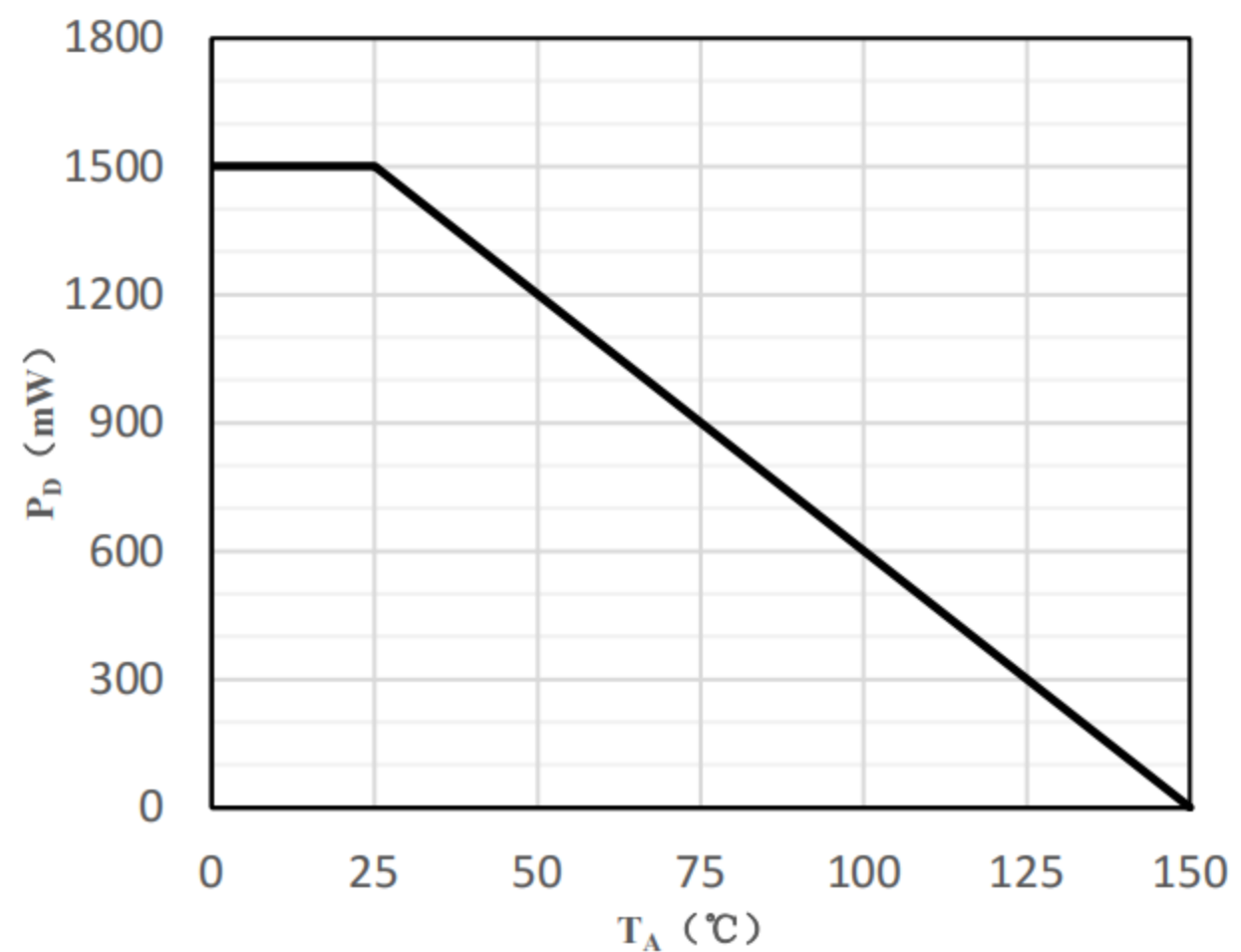
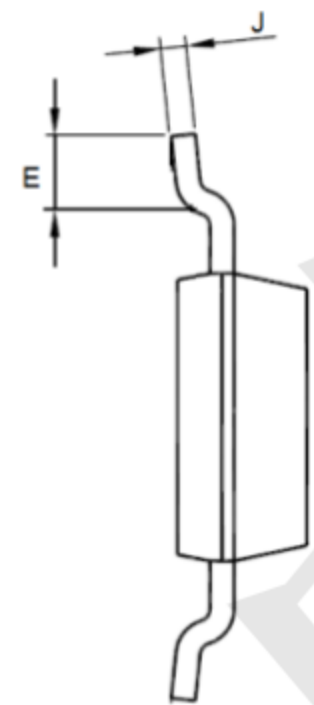
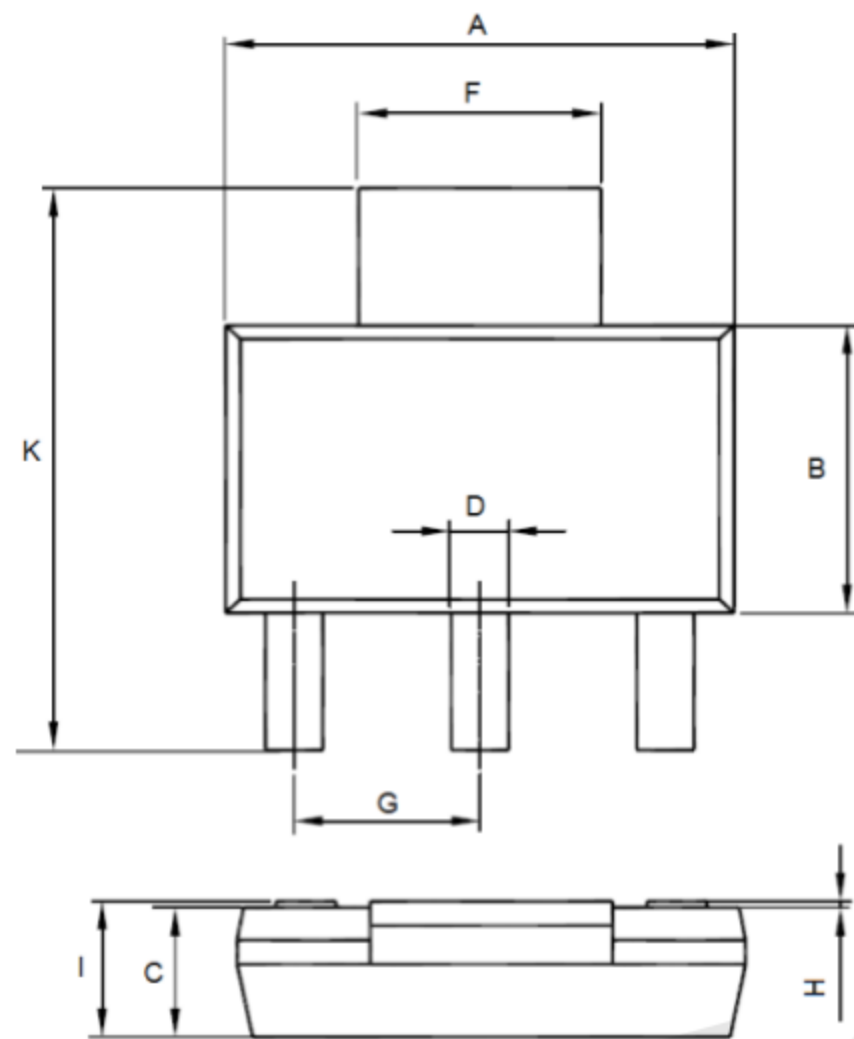


Fig 6  $P_D$  vs.  $T_A$



### Outline Drawing - SOT223



SOT-223		
Dim	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

