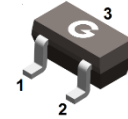
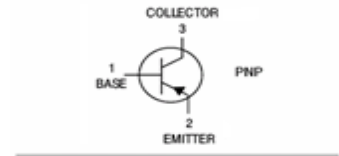


### Features

- Low current
- Low voltage

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
BC856A/B/T	SOT-523	3000 pcs / Tape & Reel	3A/3B
BC857A/B/C/T	SOT-523	3000 pcs / Tape & Reel	3E/3F/3G
BC858A/B/C/T	SOT-523	3000 pcs / Tape & Reel	3J/3K/3L

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	BC856T	BC857T	BC858T	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-80	-50	-30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-65	-45	-30	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	-5	-5	V
Collector Current (Continuous)	I <sub>C</sub>	-100			mA
Collector Current (Peak)	I <sub>CM</sub>	-200			mA

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T <sub>A</sub> = 25°C) *1	P <sub>D</sub>	265	mW
Thermal Resistance Junction-to-Air *2	R <sub>θJA</sub>	306	°C/W
Thermal Resistance Junction-to-Case *2	R <sub>θJC</sub>	152	°C/W
Thermal Resistance Junction-to-Lead *2	R <sub>θJL</sub>	61	°C/W
Operating Junction Temperature	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage BC856T	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-80	-	-	V
Collector-Base Breakdown Voltage BC857T			-50	-	-	
Collector-Base Breakdown Voltage BC858T			-30	-	-	
Collector-Emitter Breakdown Voltage BC856T	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-65	-	-	V
Collector-Emitter Breakdown Voltage BC857T			-45	-	-	V
Collector-Emitter Breakdown Voltage BC858T			-30	-	-	V
Emitter-Base Breakdown Voltage BC856T	$V_{(BR)EBO}$	$I_E = -1\mu\text{A}, I_C = 0$	-5	-	-	V
Emitter-Base Breakdown Voltage BC857T			-5	-	-	V
Emitter-Base Breakdown Voltage BC858T			-5	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0$	-	-1	-15	nA
Emitter-base Cut-off Current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$	-	-	-100	nA
Collector-emitter Cut-off Current	$I_{CEO}$	$V_{CE} = -30\text{V}, I_B = 0$	-	-	-1	mA
DC Current Gain BC856/857/858AT	$h_{FE}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	125	-	250	-
DC Current Gain BC856/857/858BT			220	-	475	-
DC Current Gain BC857/858CT			420	-	800	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-	-0.3	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.65	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-0.70	-	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-0.85	-	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.6	-0.65	-0.75	V
		$V_{CE} = -5\text{V}, I_C = -10\text{mA}$	-	-	-0.82	V
Transition Frequency	$f_T$	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz

Notes:

- Device mounted on FR-5 = 1.0 X 0.75 X 0.062 inch
- The data tested by surface mounted on a 15mm \* 15mm \* 1mm FR4-epoxy P.C.B

Ratings and Characteristic Curves-BC856/857/858AT (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

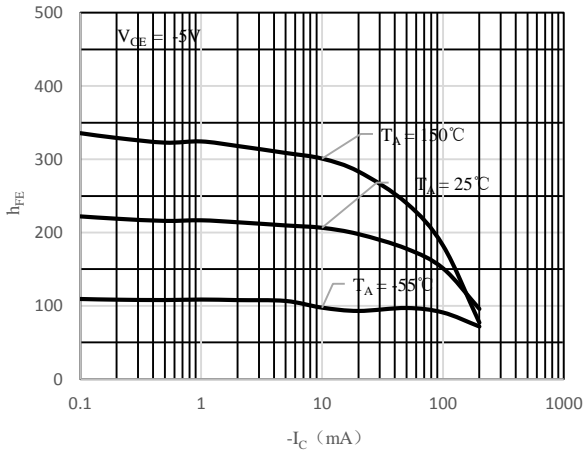


Fig 1  $h_{FE}$  vs.  $I_C$

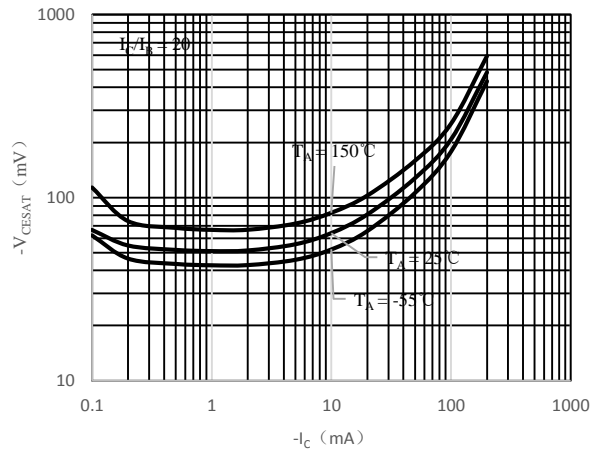


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

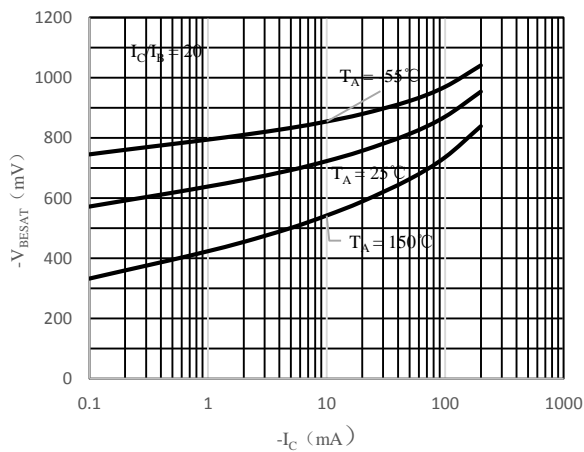


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

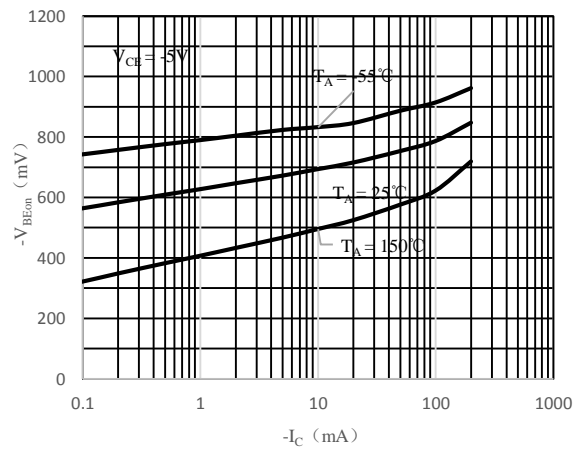


Fig 4  $V_{BE(on)}$  vs.  $I_C$

Ratings and Characteristic Curves-BC856/857/858BT (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

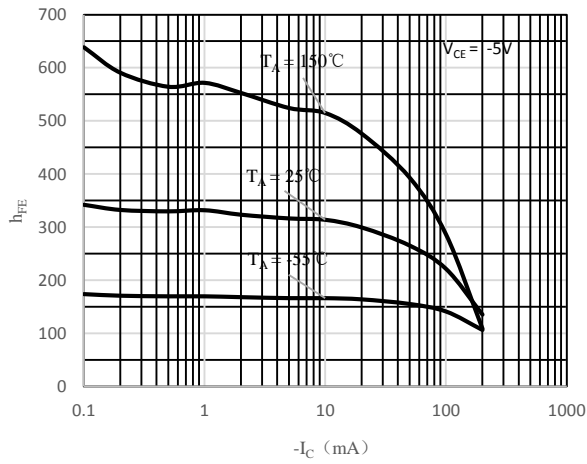


Fig 1  $h_{FE}$  vs.  $I_C$

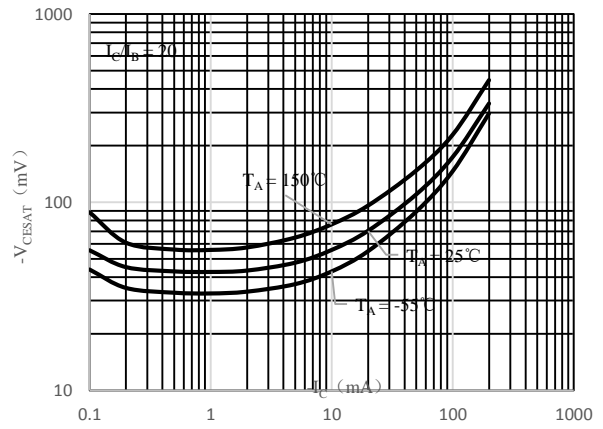


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

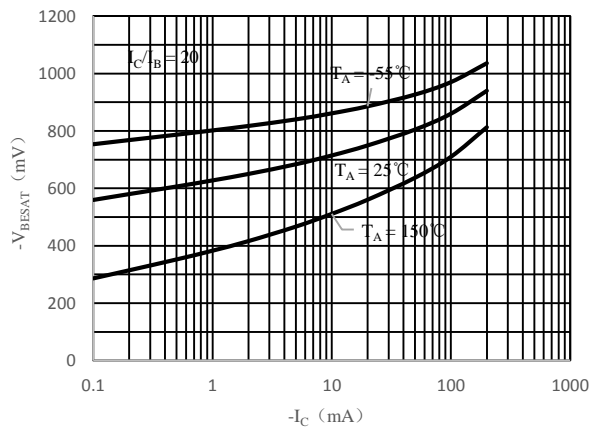


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

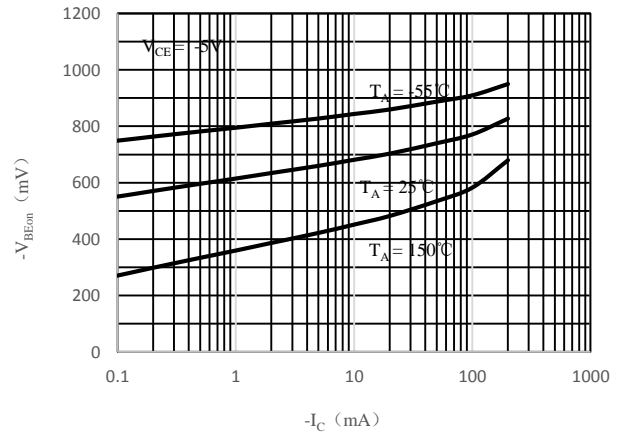


Fig 4  $V_{BE(on)}$  vs.  $I_C$

Ratings and Characteristic Curves-BC857/858CT (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

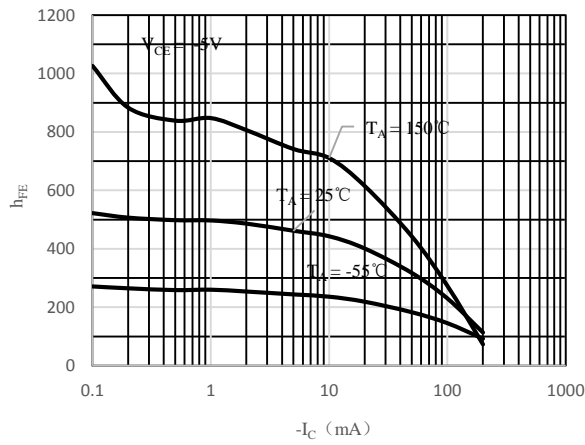


Fig 1  $h_{FE}$  vs.  $I_C$

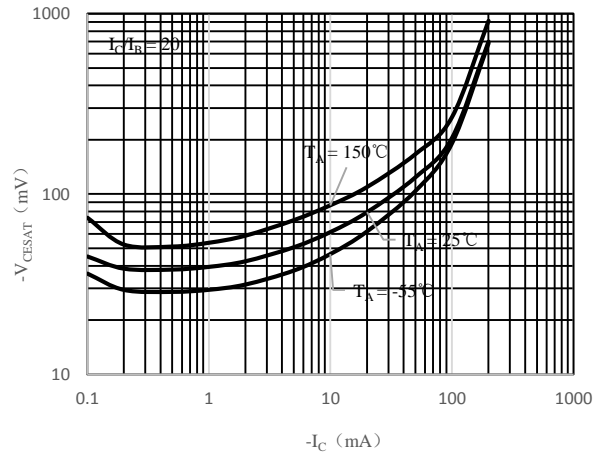


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

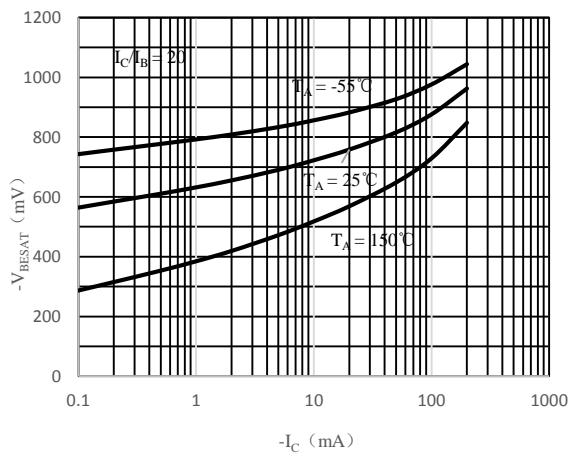


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

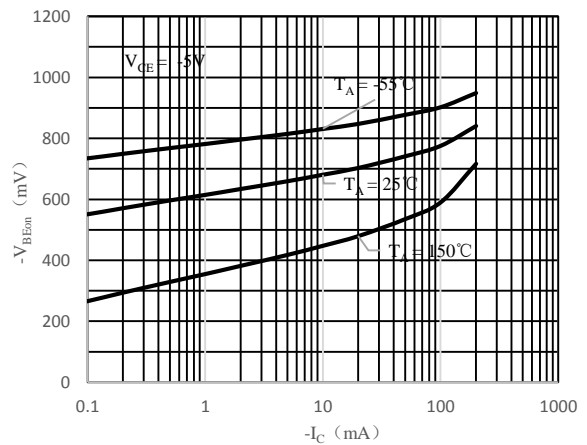
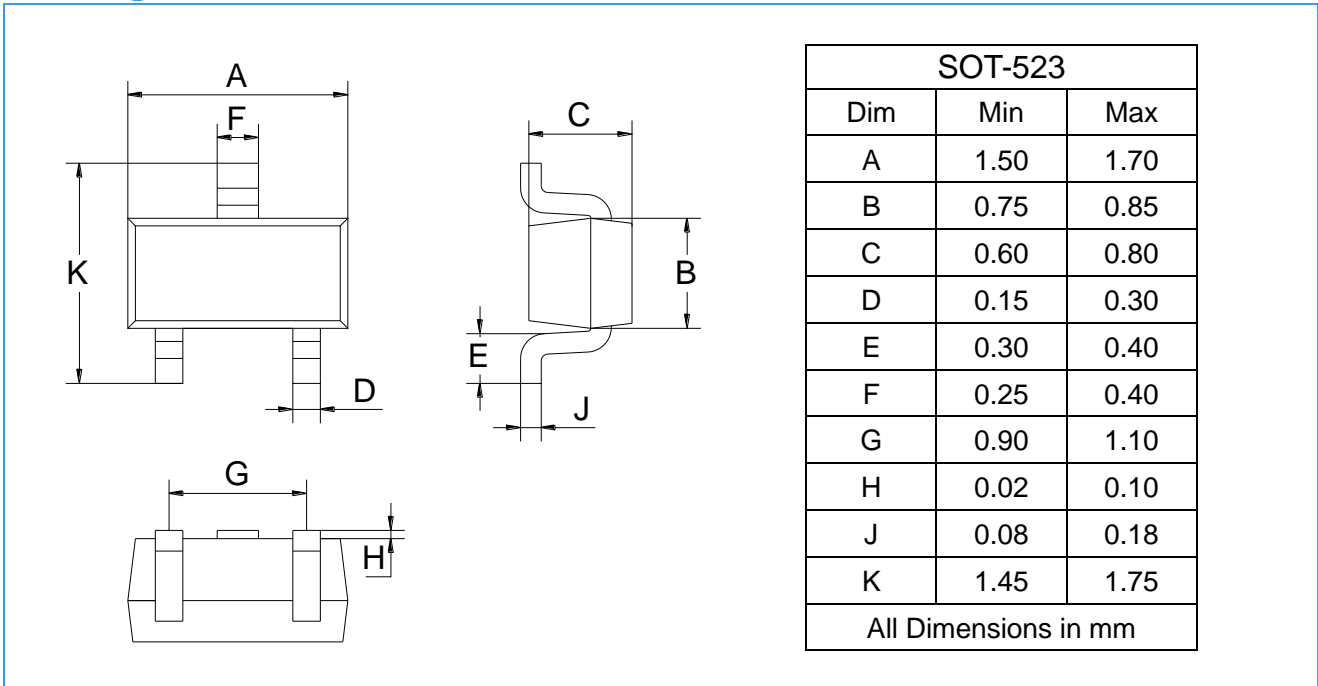
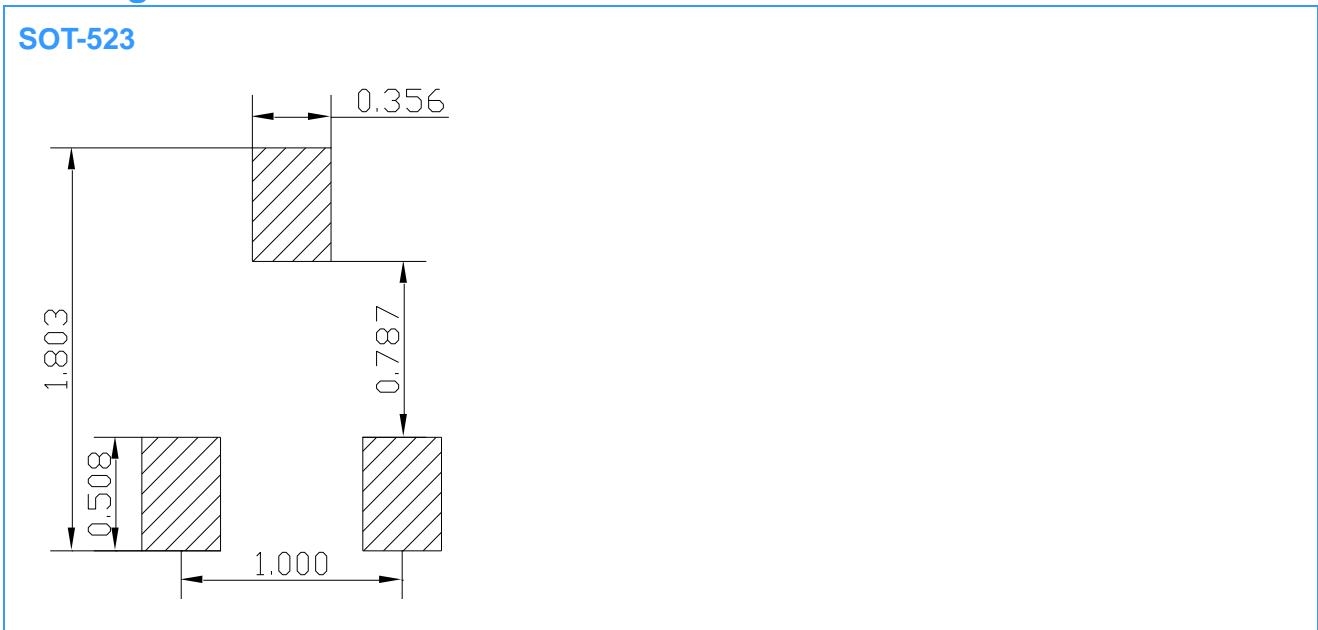


Fig 4  $V_{BE(ON)}$  vs.  $I_C$

**Package Outline Dimensions** (Unit: mm)



**Package Outline Dimensions** (Unit: mm)



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