

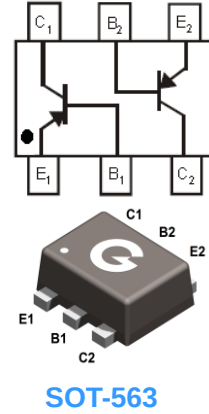
Features

- Epitaxial die construction
- Complementary NPN Type Available (BC847A/B/CV)
- Ultra-small surface mount package

HF

Mechanical Data

- Case: SOT-563
- Molding compound: UL flammability classification rating 94V-0
- Terminal s: Tin-plated; solderability per MIL-STD-202, Method 208



Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BC857AV	SOT-563	3000pcs / Tape & Reel	3E
BC857BV	SOT-563	3000pcs / Tape & Reel	K5V
BC857CV	SOT-563	3000pcs / Tape & Reel	3G

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-45	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current (Continuous)	I _C	-100	mA
Collector Current (Pulse)	I _{CM}	-200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (Collector) *1	P _C	150	mW
Thermal Resistance (Junction-to-Ambient) *1	R _{θJA}	833	°C/W
Power Dissipation *2	P _D	357	mW
Thermal Resistance (Junction-to-Ambient) *2	R _{θJA}	350	°C/W
Thermal Resistance (Junction-to-Case) *2	R _{θJC}	200	°C/W
Thermal Resistance (Junction-to-Lead) *2	R _{θJL}	250	°C/W
Operating junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-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	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_B = 0$	-50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	-45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}, I_C = 0$	-5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0$	-	-	-15	nA
DC Current Gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$				
		BC857AV	125	-	250	-
		BC857BV	220	-	475	-
		BC857CV	420	-	800	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-	-0.1	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-0.7	-	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-0.9	-	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.6	-	-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	-	-	-
Collector-BASE Capacitance	C_{CB}	$V_{CB} = -10\text{V}, I_E = 0$ $f = 1\text{MHz}$	-	-	4.5	pF

Notes:

1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch
2. 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)

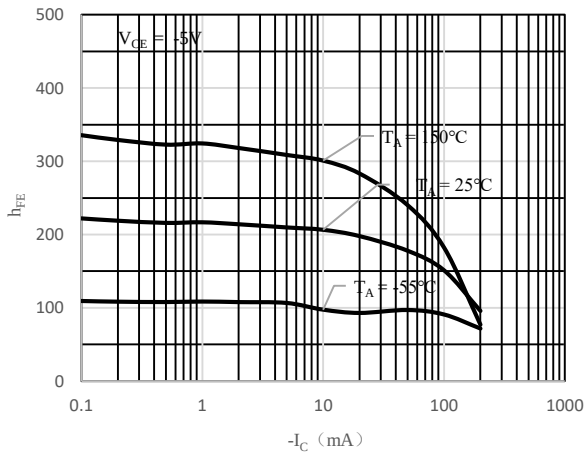


Fig 1 h_{FE} vs. I_C (BC857AV)

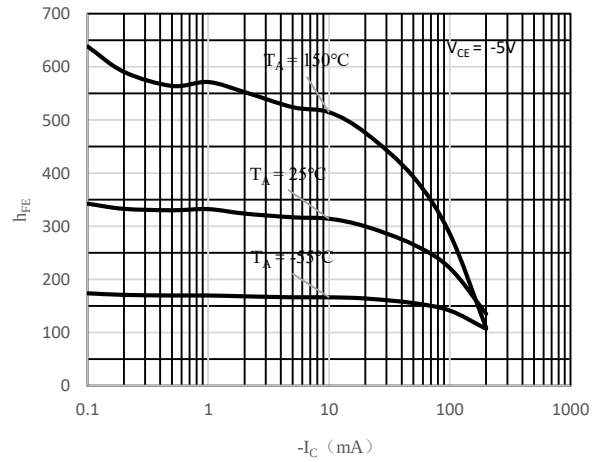


Fig 2 h_{FE} vs. I_C (BC857BV)

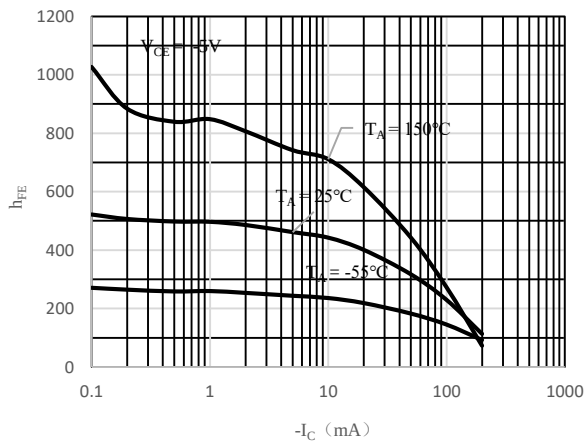


Fig 3 h_{FE} vs. I_C (BC857CV)

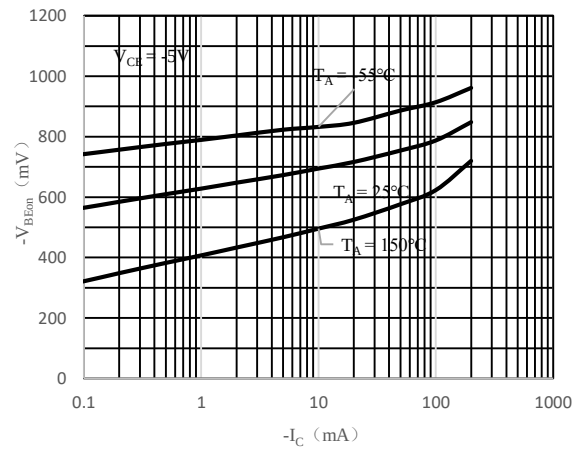


Fig 4 $V_{BE(ON)}$ vs. I_C

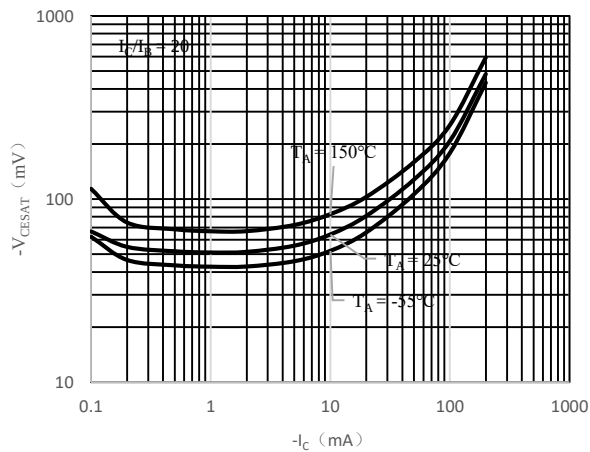


Fig 5 $V_{CE(sat)}$ vs. I_C

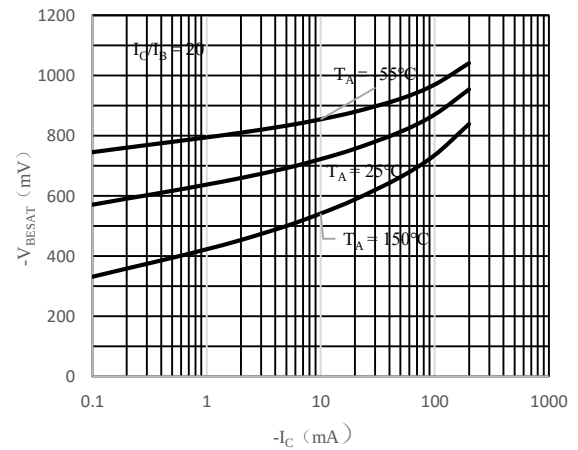
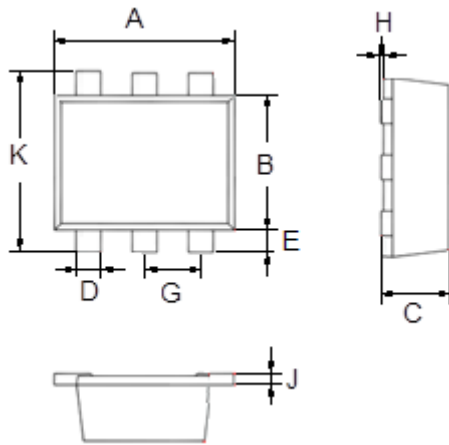


Fig 6 $V_{BE(sat)}$ vs. I_C

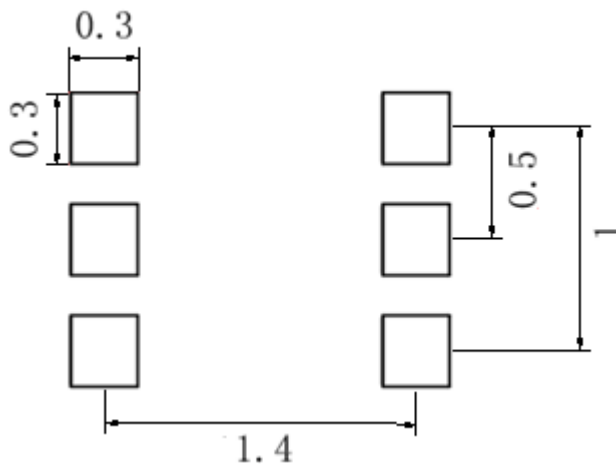
Package Outline Dimensions (Unit: mm)



SOT-563		
Dimension	Min.	Max.
A	1.500	1.700
B	1.100	1.300
C	0.525	0.600
D	0.170	0.270
E	0.100	0.300
G	0.450	0.550
H	0.000	0.050
J	0.090	0.160
K	1.500	1.700

Package Outline Dimensions (Unit: mm)

SOT-563



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