

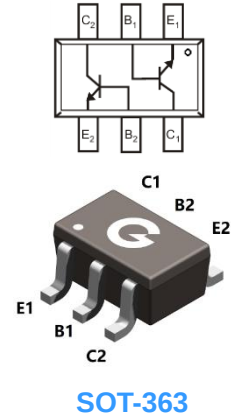
Features

- High current gain
- Excellent h_{FE} linearity
- Low noise

HF

Mechanical Data

- Case: SOT-363
- 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
BC846AS	SOT-363	3000 pcs / Tape & Reel	1A
BC846BS	SOT-363	3000 pcs / Tape & Reel	1B

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ 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

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	250	mW
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	260	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*1}	$R_{\theta JL}$	320	$^\circ\text{C/W}$
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 minimum recommended FR-4 board

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	65	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	15	nA
		$V_{CB} = 30\text{V}, I_E = 0$	-	-	5	μA
		$T_J = 150^\circ\text{C}$	-	-	-	-
Emitter-base Cut-off Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	-	-	100	nA
DC Current Gain	BC846AS	$V_{CE} = 5\text{V}, I_C = 10\mu\text{A}$	-	90	-	-
DC Current Gain	BC846BS		-	150	-	-
DC Current Gain	BC846AS	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110	-	220	-
DC Current Gain	BC846BS		200	-	450	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	0.09	0.25	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.20	0.60	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	0.70	0.90	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.90	1.10	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	0.58	0.66	0.70	V
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	-	-	0.77	V
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz

Ratings and Characteristic Curves-BC846AS (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

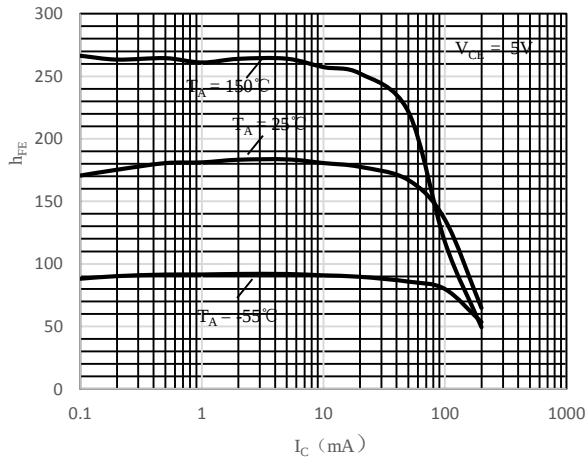


Fig 1 h_{FE} vs. I_C

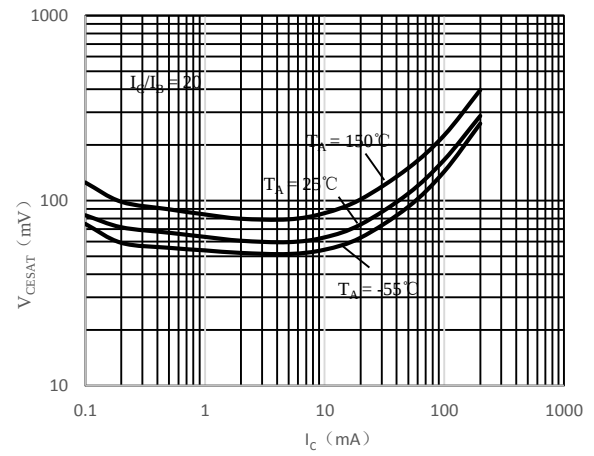


Fig 2 $V_{CE(sat)}$ vs. I_C

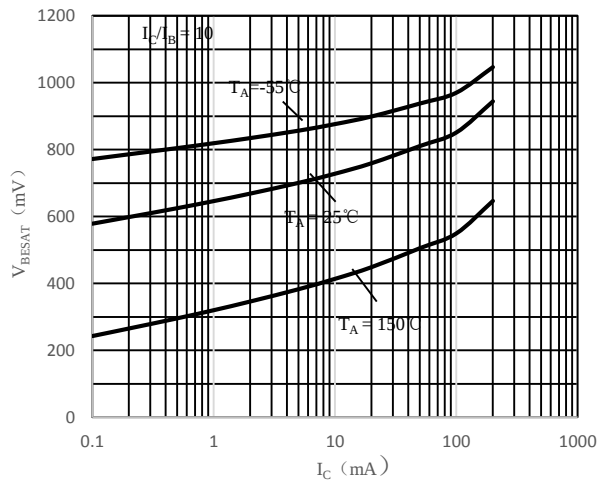


Fig 3 $V_{BE(sat)}$ vs. I_C

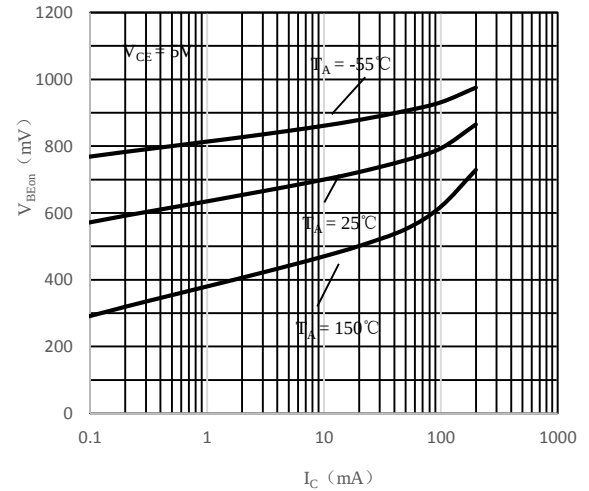


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristic Curves-BC846BS (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

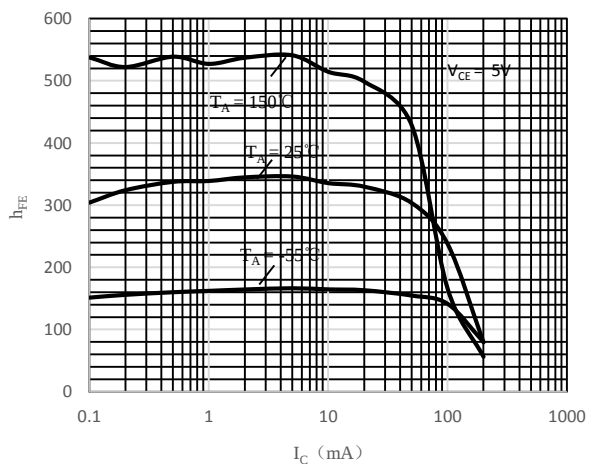


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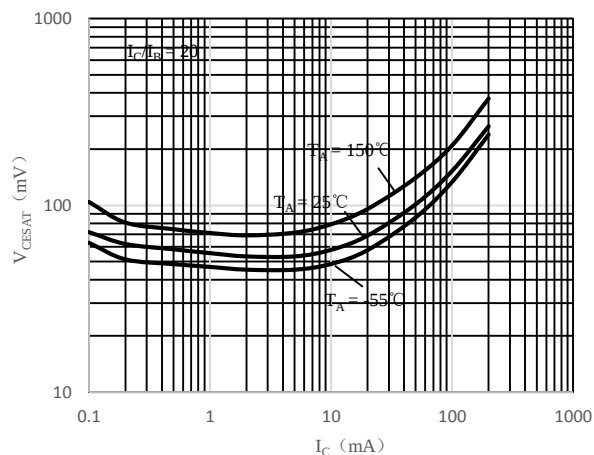


Fig 2 $V_{CE(sat)}$ vs. I_C

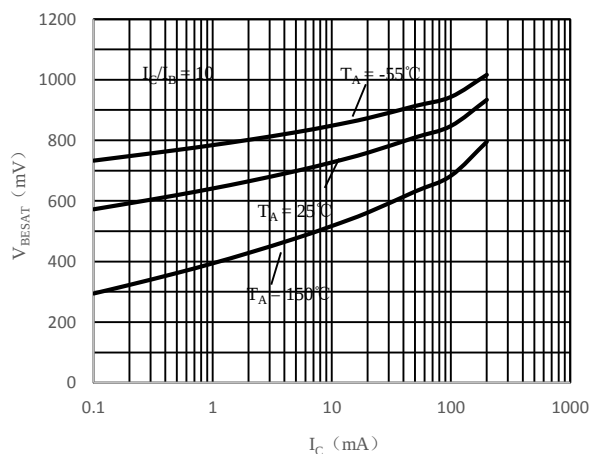


Fig 3 $V_{BE(sat)}$ vs. I_C

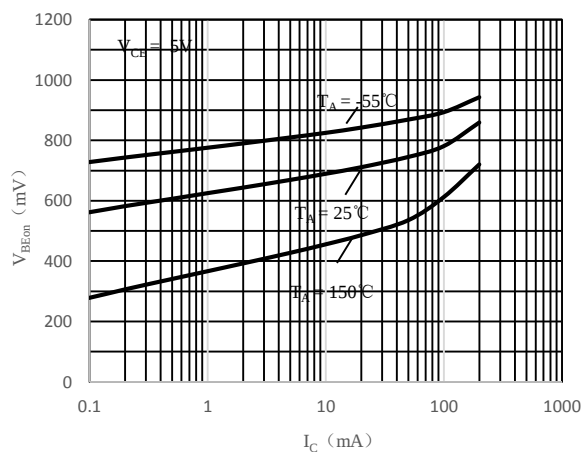
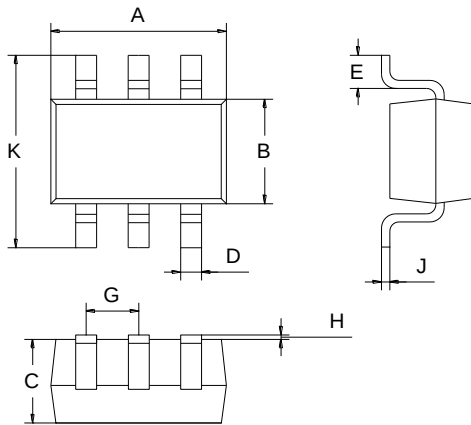


Fig 4 $V_{BE(on)}$ vs. I_C

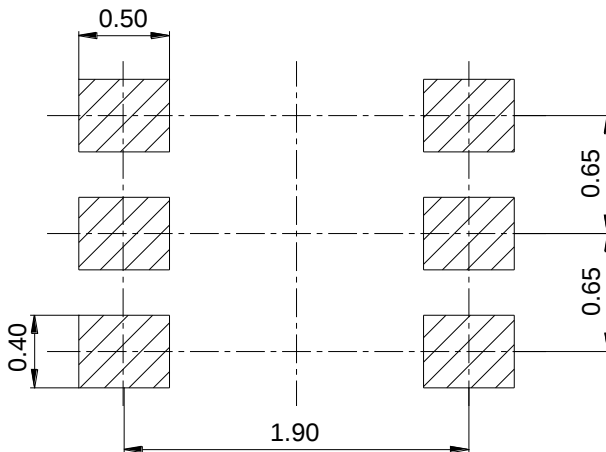
Package Outline Dimensions (Unit: mm)



SOT-363		
Dimension	Min.	Max.
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Package Outline Dimensions (Unit: mm)

SOT-363



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