

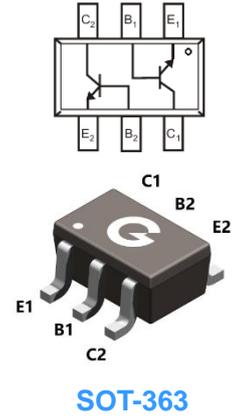
Features

- 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
BC846A/BDW	SOT-363	3000 pcs / Tape & Reel	1A/1B
BC847A/B/CDW	SOT-363	3000 pcs / Tape & Reel	1E/1F/1G
BC848A/B/CDW	SOT-363	3000 pcs / Tape & Reel	1J/1K/1L

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

Parameter	Symbol	BC846	BC847	BC848	Unit
Collector-Base Voltage	V_{CBO}	80	50	30	V
Collector-Emitter Voltage	V_{CEO}	65	45	30	V
Emitter-Base Voltage	V_{EBO}	6	6	5	V
Collector Current (Continuous)	I_C	100			mA
Collector Current (Peak)	I_{CM}	200			mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (Collector)	P_D	300	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 BC846	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	80	-	-	V
Collector-Base Breakdown Voltage BC847			50	-	-	
Collector-Base Breakdown Voltage BC848			30	-	-	
Collector-Emitter Breakdown Voltage BC846	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	65	-	-	V
Collector-Emitter Breakdown Voltage BC847			45	-	-	V
Collector-Emitter Breakdown Voltage BC848			30	-	-	V
Emitter-Base Breakdown Voltage BC846	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Emitter-Base Breakdown Voltage BC847			6	-	-	V
Emitter-Base Breakdown Voltage BC848			5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	15	nA
		$V_{CB} = 30\text{V}, I_E = 0$ $T_J = 150^\circ\text{C}$	-	-	5	μA
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 BC846/847/848ADW	h_{FE}	$V_{CE} = 5\text{V}, I_C = 10\mu\text{A}$	-	110	-	-
DC Current Gain BC846/847/848BDW			-	250	-	-
DC Current Gain BC847/848CDW			-	480	-	-
DC Current Gain BC846/847/848ADW		$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110	-	220	-
DC Current Gain BC846/847/848BDW			200	-	450	-
DC Current Gain BC847/848CDW			420	-	800	-
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-BC846/847/848A (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

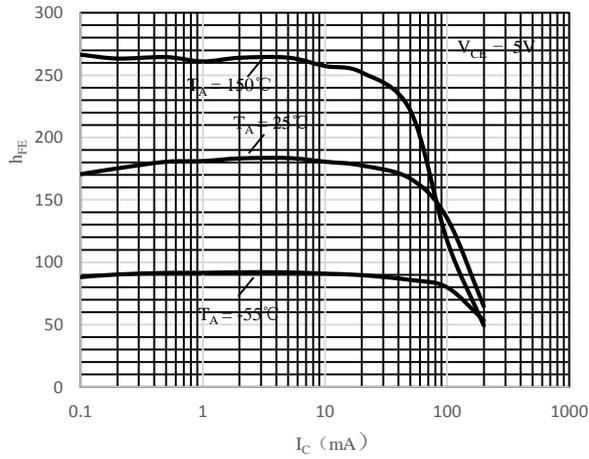


Fig 1 h_{FE} vs. I_C

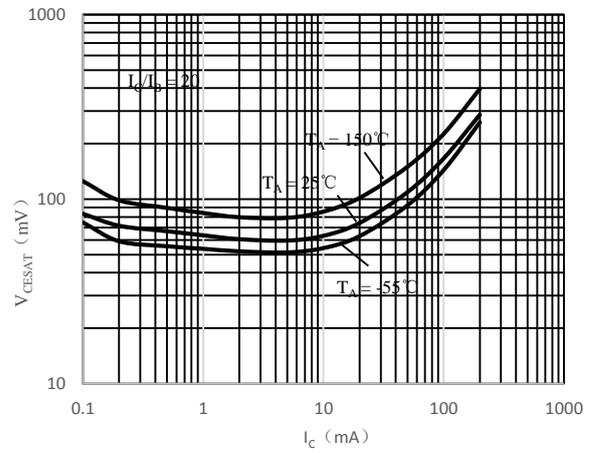


Fig 2 $V_{CE(sat)}$ vs. I_C

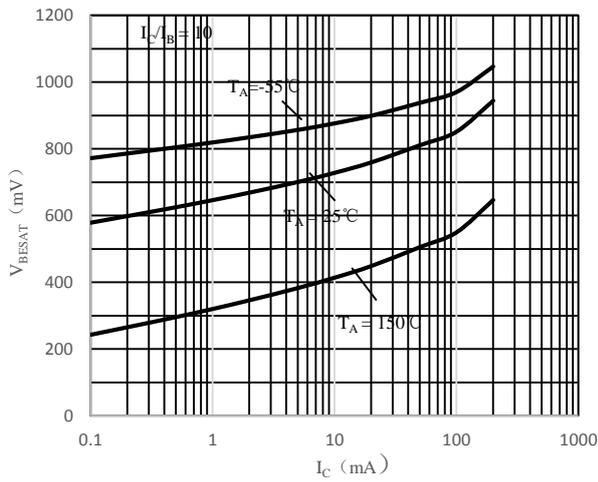


Fig 3 $V_{BE(sat)}$ vs. I_C

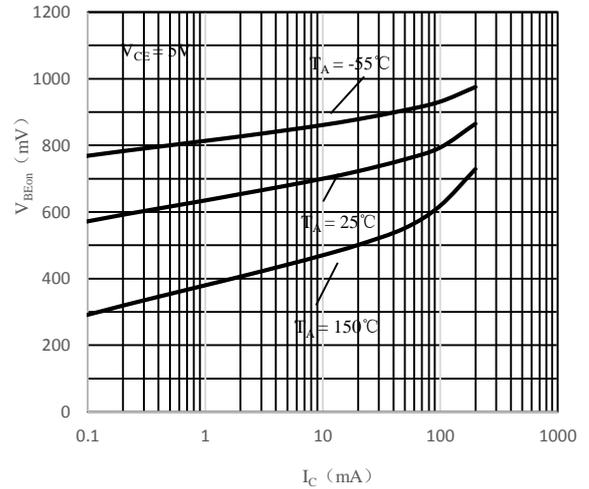


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristic Curves-BC846/847/848B (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

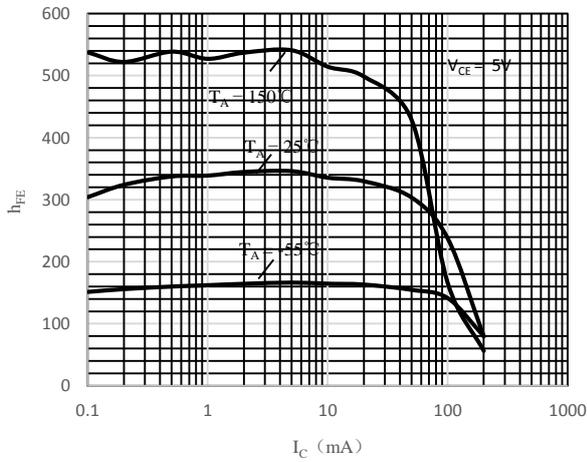


Fig 1 h_{FE} vs. I_C

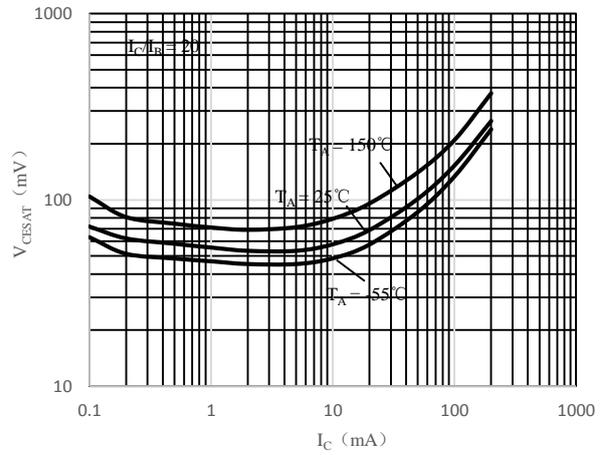


Fig 2 $V_{CE(sat)}$ vs. I_C

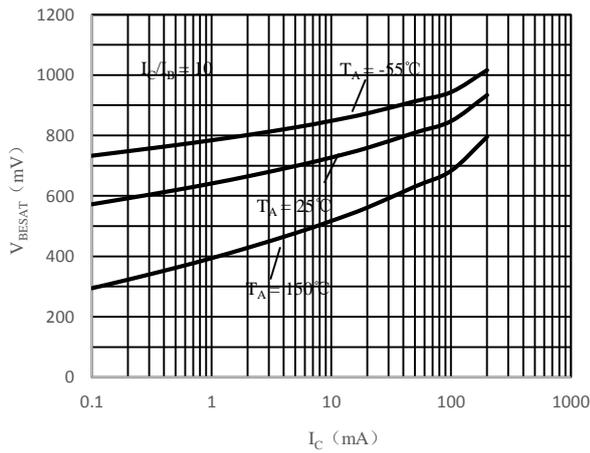


Fig 3 $V_{BE(sat)}$ vs. I_C

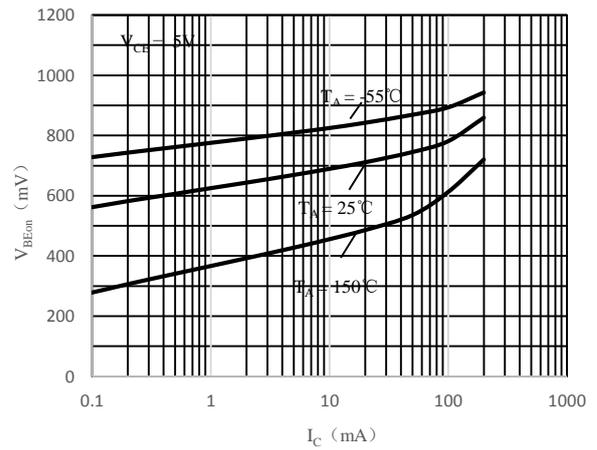


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristic Curves-BC847/848C (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

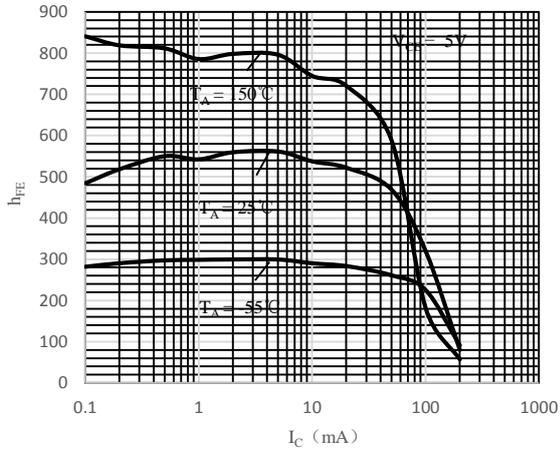


Fig 1 h_{FE} vs. I_C

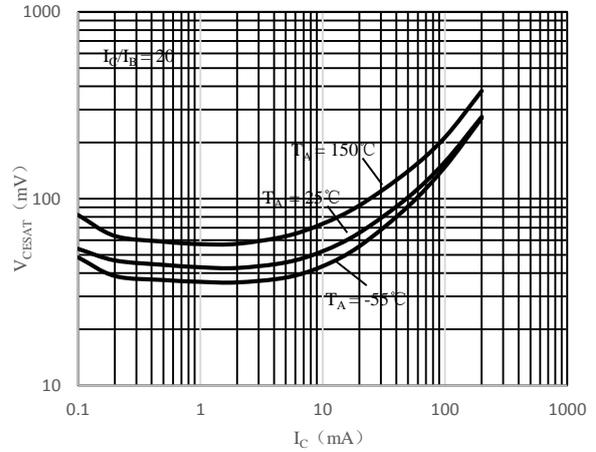


Fig 2 $V_{CE(sat)}$ vs. I_C

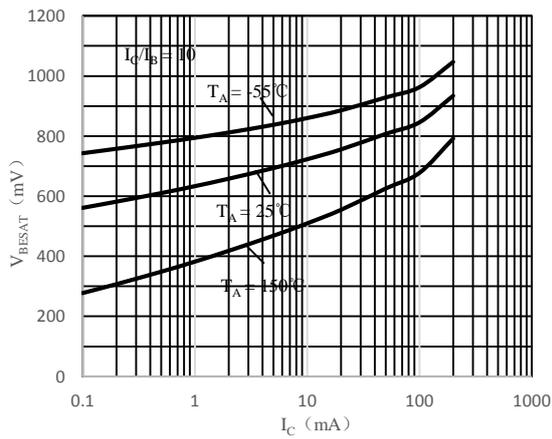


Fig 3 $V_{BE(sat)}$ vs. I_C

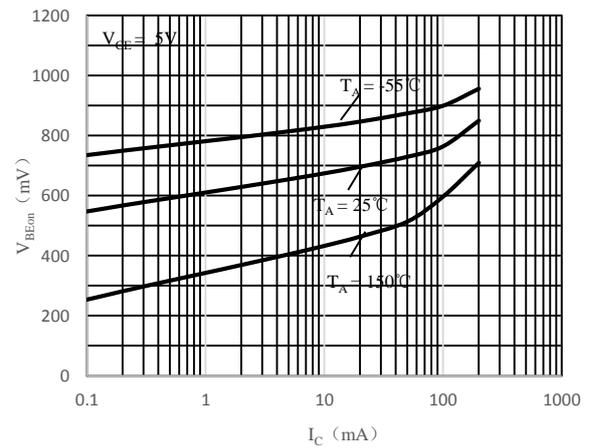
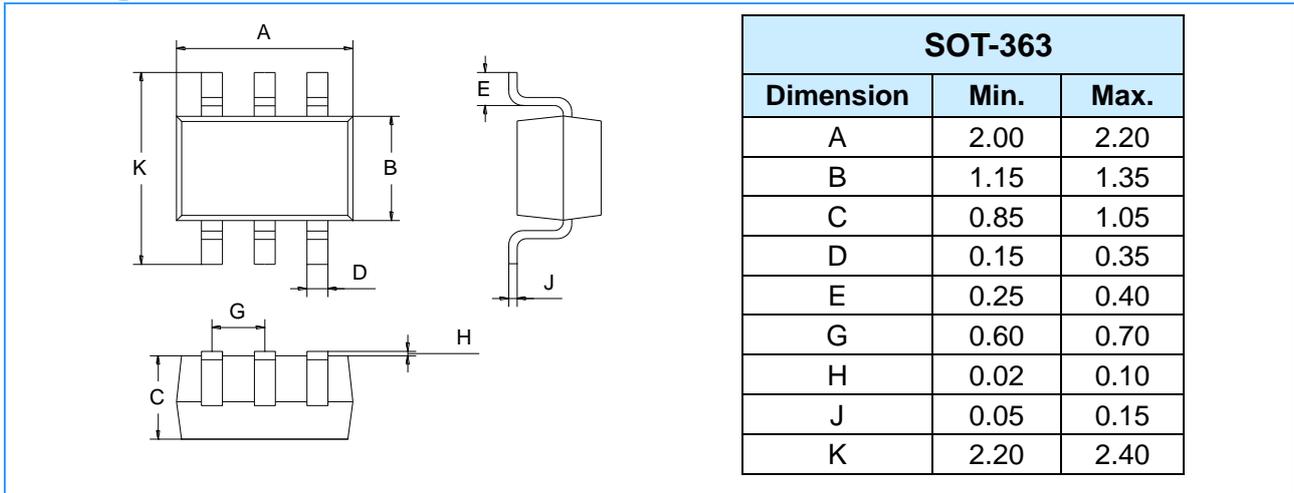
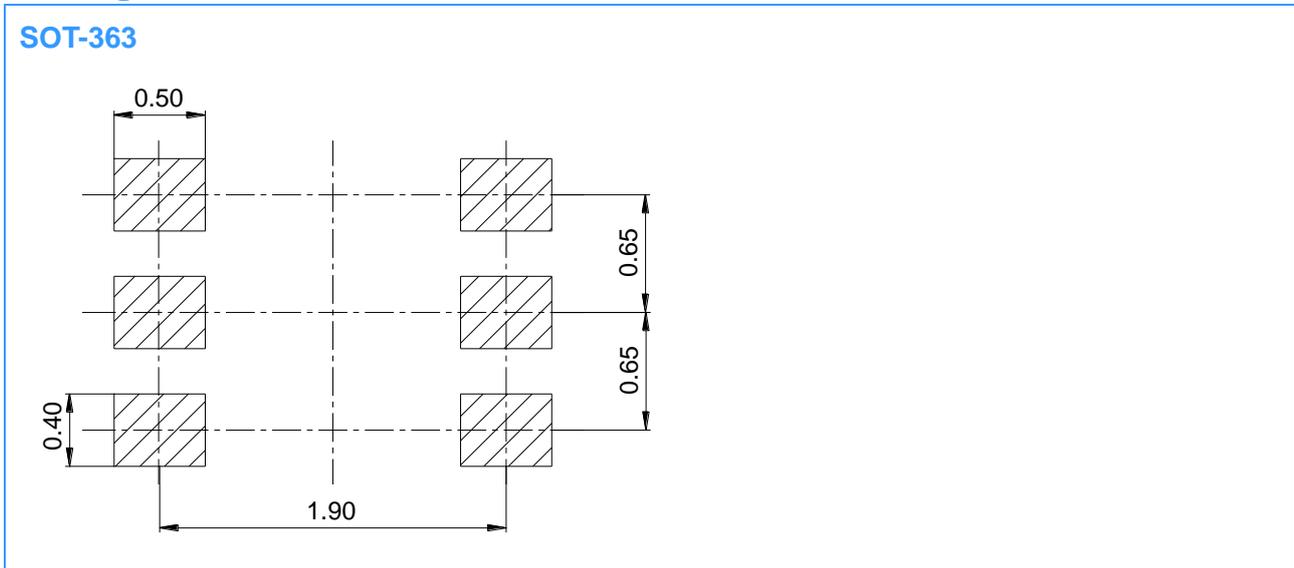


Fig 4 $V_{BE(on)}$ vs. I_C

Package Outline Dimensions (Unit: mm)



Package Outline Dimensions (Unit: mm)



IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.