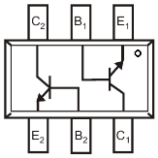
NPN Small Signal Surface Mount Transistor

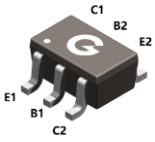
BC847BS

Features

HF

- Epitaxial die construction
- Ultra-small surface mount package





SOT-363

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
BC847BS	SOT-363	3000 pcs / Tape & Reel	1C

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}	6	V
Collector Current (Continuous)	I_C	100	mA
Collector Current (Peak)	I_{CM}	200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C)	P_D	300	mW
Thermal Resistance (Junction-to-Ambient)	$R_{\theta JA}$	417	°C/W
Operating Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 30V, I_E = 0	-	-	15	nA
		V_{CB} = 30V, I_E = 0 T_J = 150°C	-	-	5	μA
Emitter-base Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	100	nA
Collector-emitter Cut-off Current	I_{CEO}	V_{CE}= 30V, I_B = 0	-	-	1	mA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 2mA	200	-	450	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	-	0.25	V
		I_C = 100mA, I_B = 5mA	-	-	0.65	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	0.70	0.90	V
		I_C = 100mA, I_B = 5mA	-	0.90	1.10	V
Base-Emitter Voltage	$V_{BE(ON)}$	V_{CE} = 5V, I_C= 2mA	0.58	-	0.70	V
		V_{CE} = 5V, I_C= 10mA	-	-	0.77	V
Transition Frequency	f_T	V_{CE} = 5V, I_C= 20mA f = 100MHz	200	-	-	MHz
Collector Capacitance	C_C	V_{CB} = 10V, I_E = I_e = 0 f = 1MHz	-	-	2	pF

Ratings and Characteristic Curves (@ T_A = 25°C unless otherwise specified)

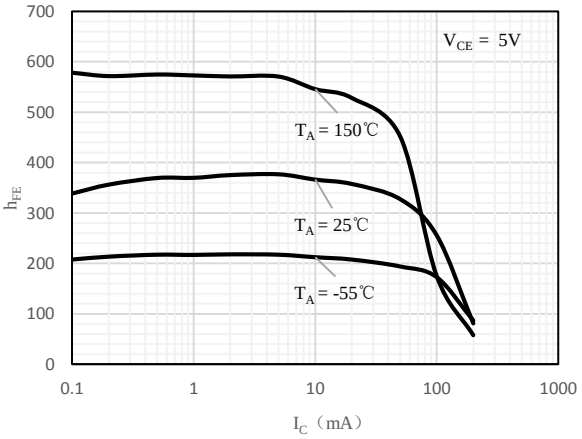


Fig 1 h_{FE} vs. I_C

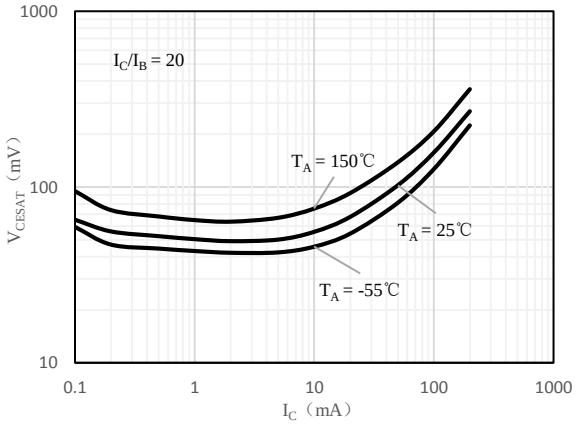


Fig 2 $V_{CE(sat)}$ vs. I_C

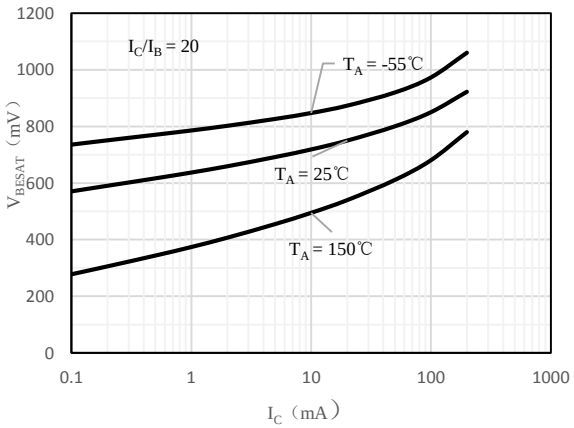


Fig 3 $V_{BE(sat)}$ vs. I_C

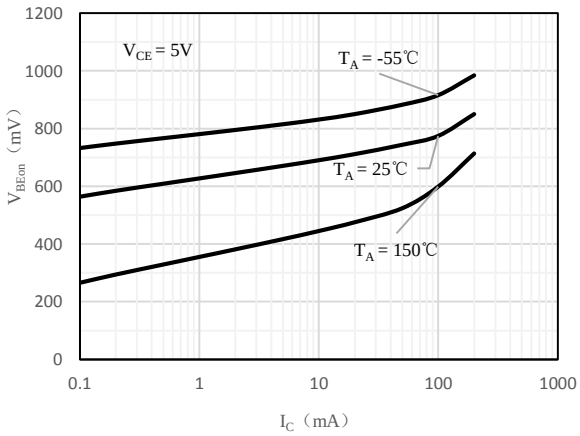
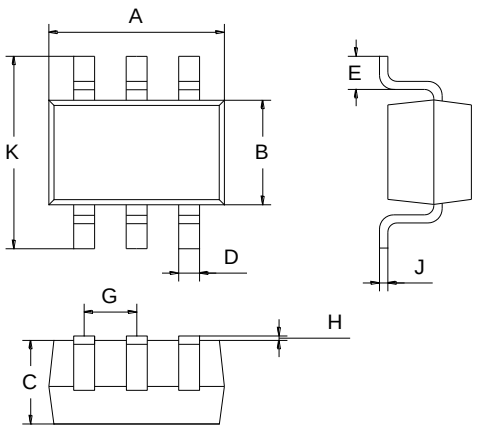


Fig 4 $V_{BE(ON)}$ vs. I_C

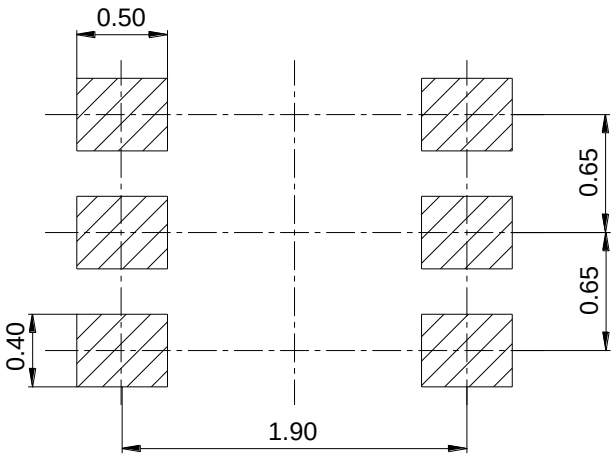
Package Outline Dimensions (Unit: mm)



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



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.