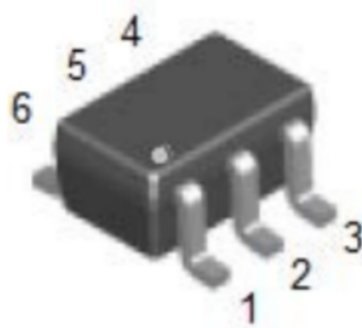


Features

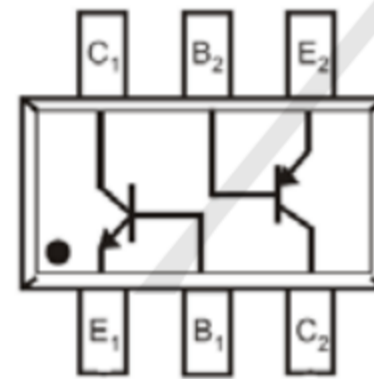
- Epitaxial planar die construction
- Two internal isolated NPN/PNP transistors in one package
- Ultra-small surface mount package

Ordering Information

- Case: SOT363
- Shipping Qty:3000/7inch Tape& Reel



SOT363



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

Parameter	Symbol	NPN	PNP	Unit
Collector-Base Voltage	V_{CBO}	50	-50	V
Collector-Emitter Voltage	V_{CEO}	45	-45	V
Emitter-Base Voltage	V_{EBO}	6	-5	V
Collector Current (Continuous)	I_C	100	-100	mA
Collector Current (Pulse)	I_{CM}	200	-200	mA

Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	200	mW
Thermal Resistance (Junction-to-Ambient)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics of NPN Transistor ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\mu\text{A}, I_C = 0$	6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	15	nA
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	200	290	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	-	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.90	-	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	0.58	0.66	0.70	V
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	-	-	0.72	V
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz
Output Capacitance	C_{OBO}	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$	-	3.5	6.0	pF
Noise Figure	N_F	$V_{CE} = 5\text{V}, f = 1.0\text{MHz}$ $I_C = 200\text{mA}, R_G = 2\text{k}\Omega$	-	2.0	10	dB

Electrical Characteristics of PNP Transistor ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -1\mu\text{A}, I_C = 0$	-6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -30\text{V}, I_E = 0$	-	-	-15	nA
DC Current Gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	200	290	450	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-0.075	-0.3	V
		$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-0.25	-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	-0.95	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
Output Capacitance	C_{OBO}	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}$	-	3	4.5	pF
Noise Figure	N_F	$V_{CE} = -5\text{V}, f = 1.0\text{MHz}$ $I_C = -200\text{mA}, R_G = -2\text{k}\Omega$	-	-	10	dB

Typical Electrical Characteristic Curves

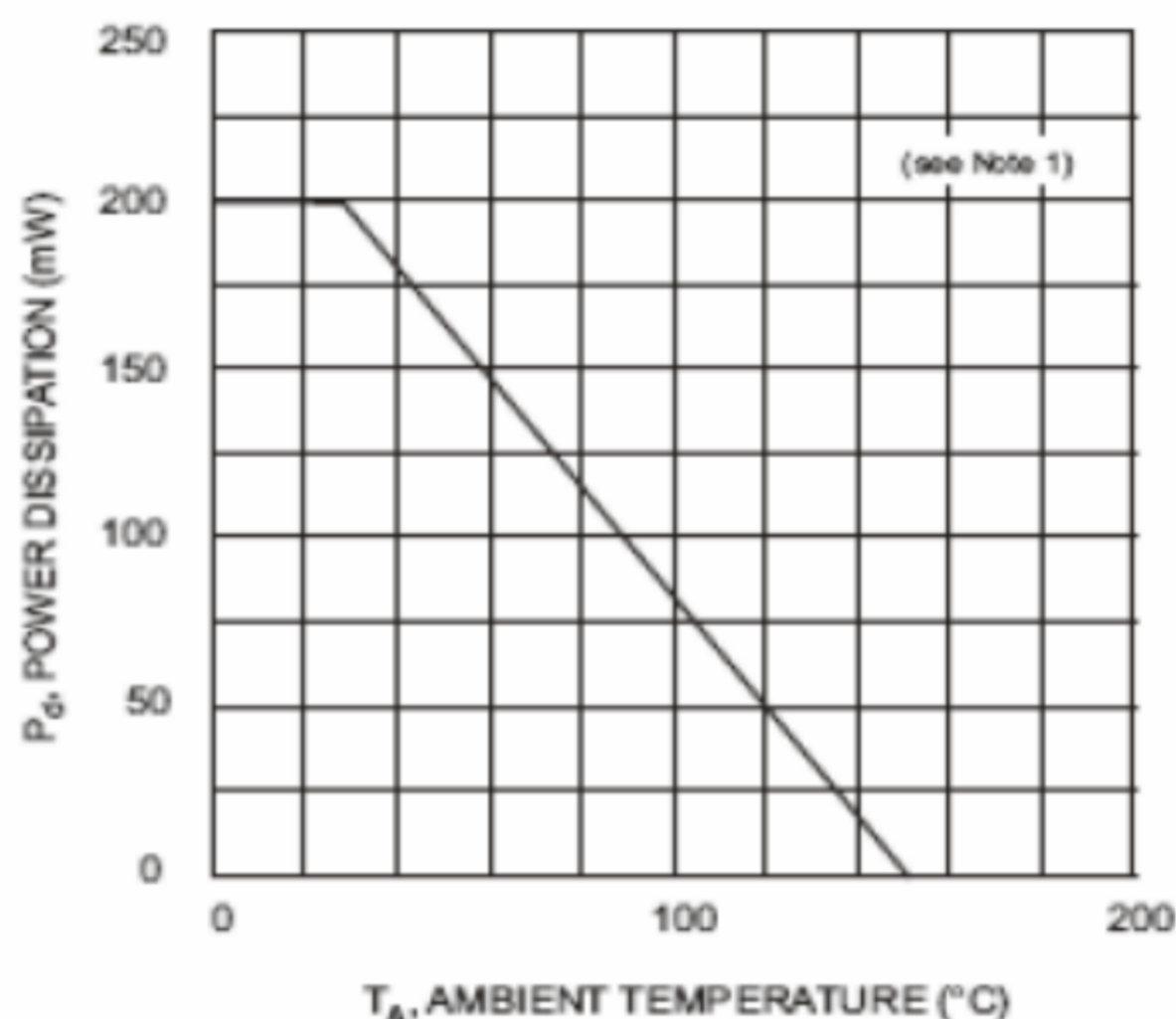


Fig. 1, Power Derating Curve (Total Device)

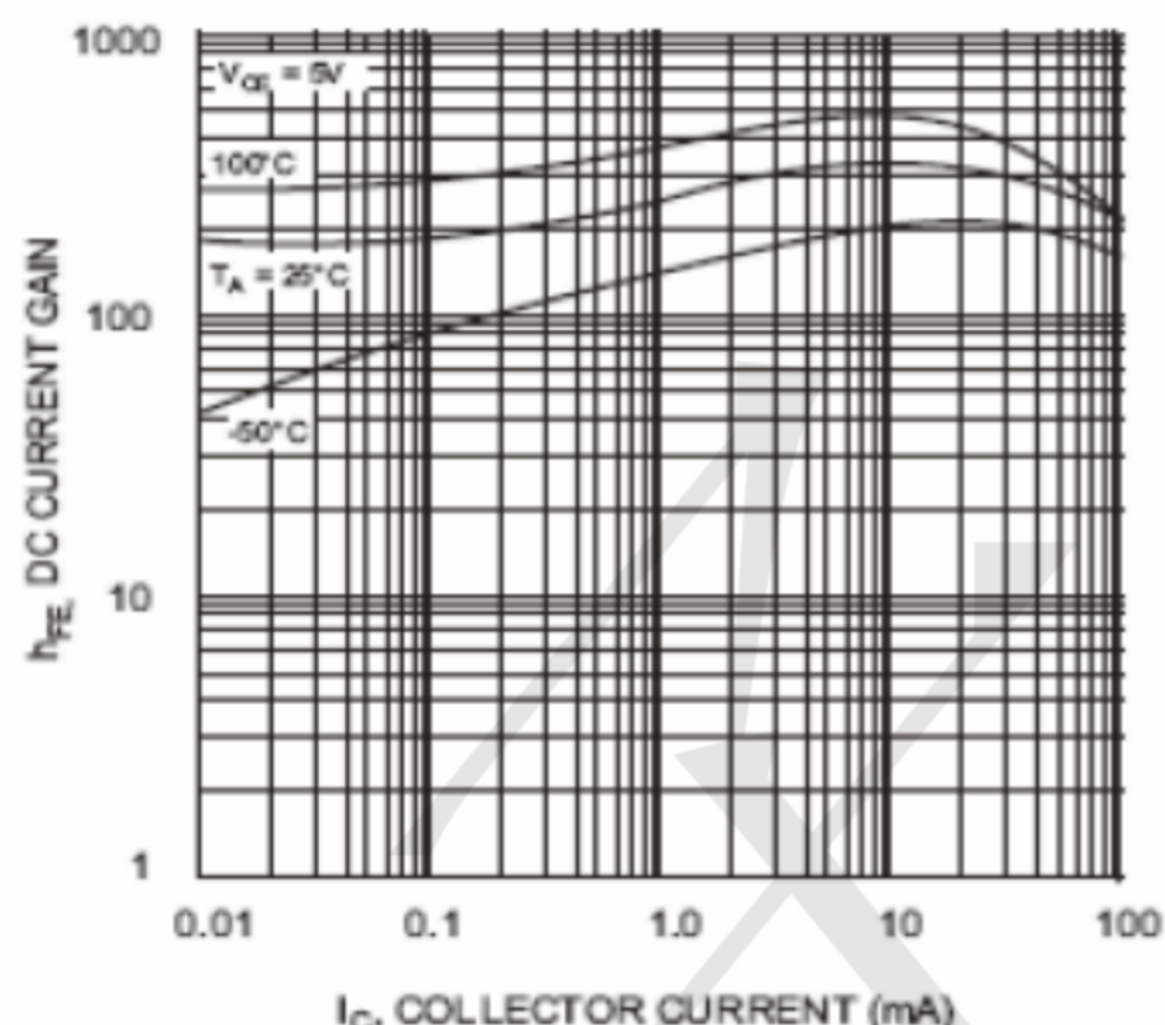


Fig. 2, DC Current Gain vs Collector Current (BC847B)

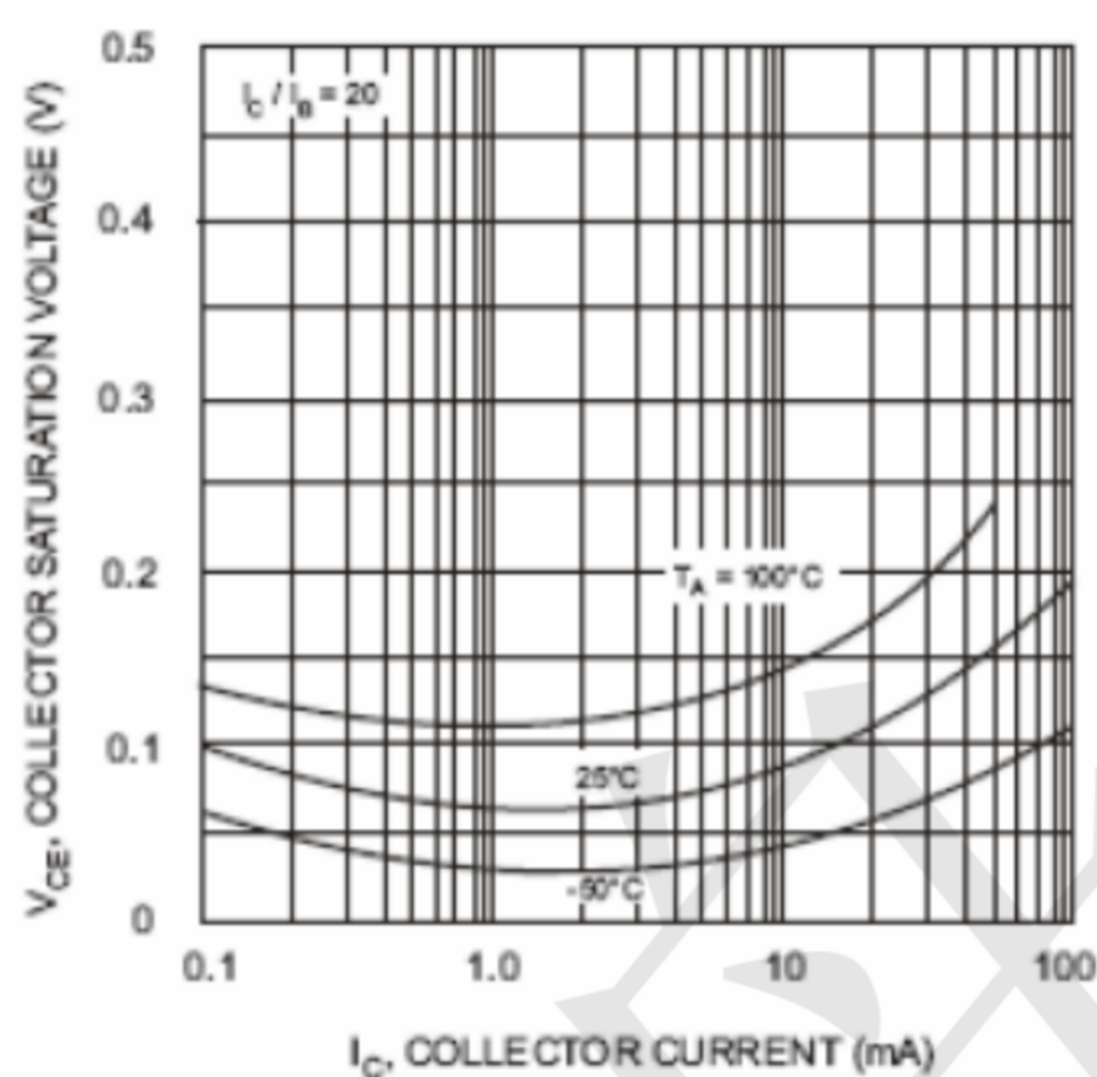


Fig. 3, Collector Saturation Voltage vs Collector Current (BC847B)

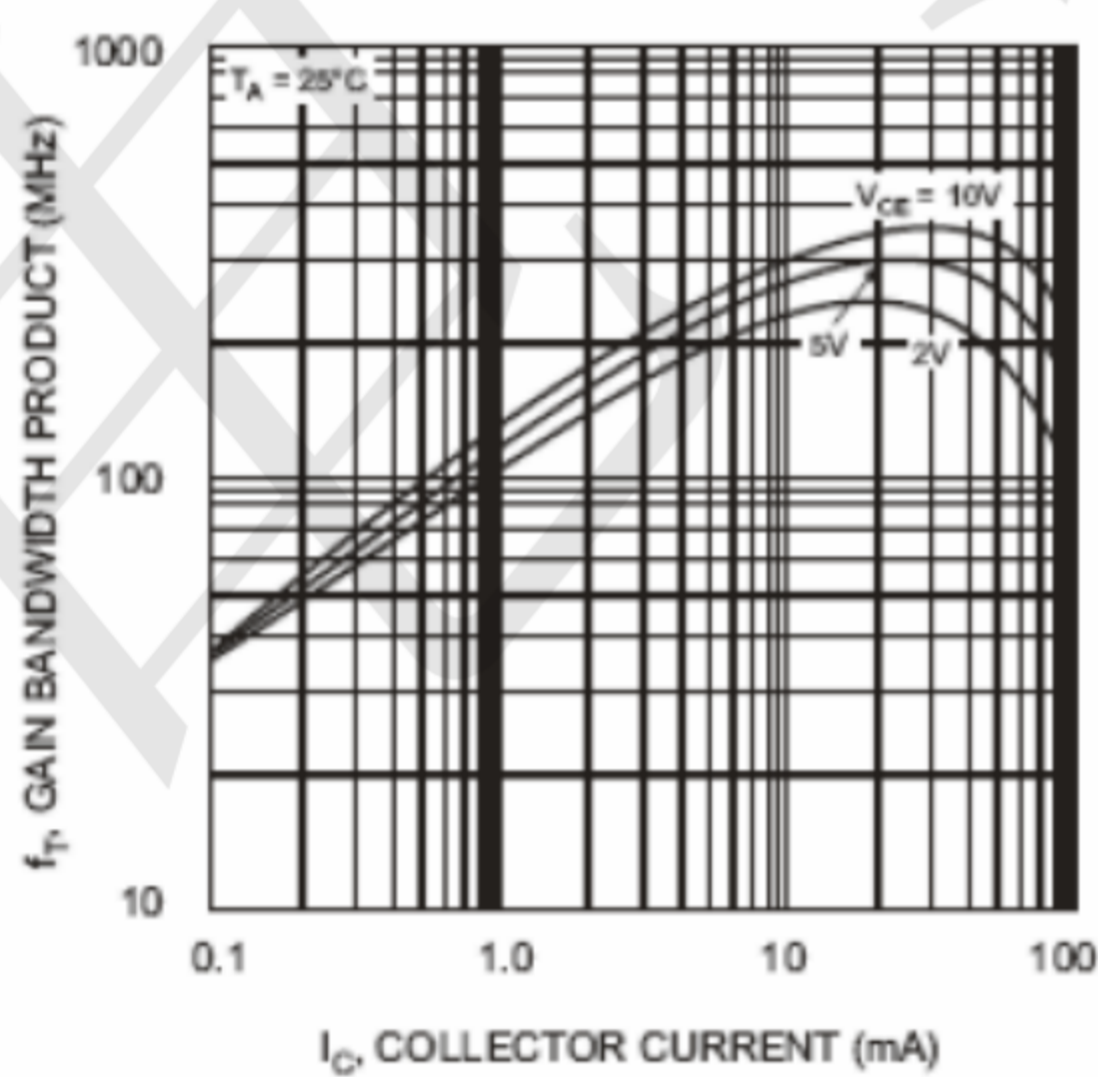
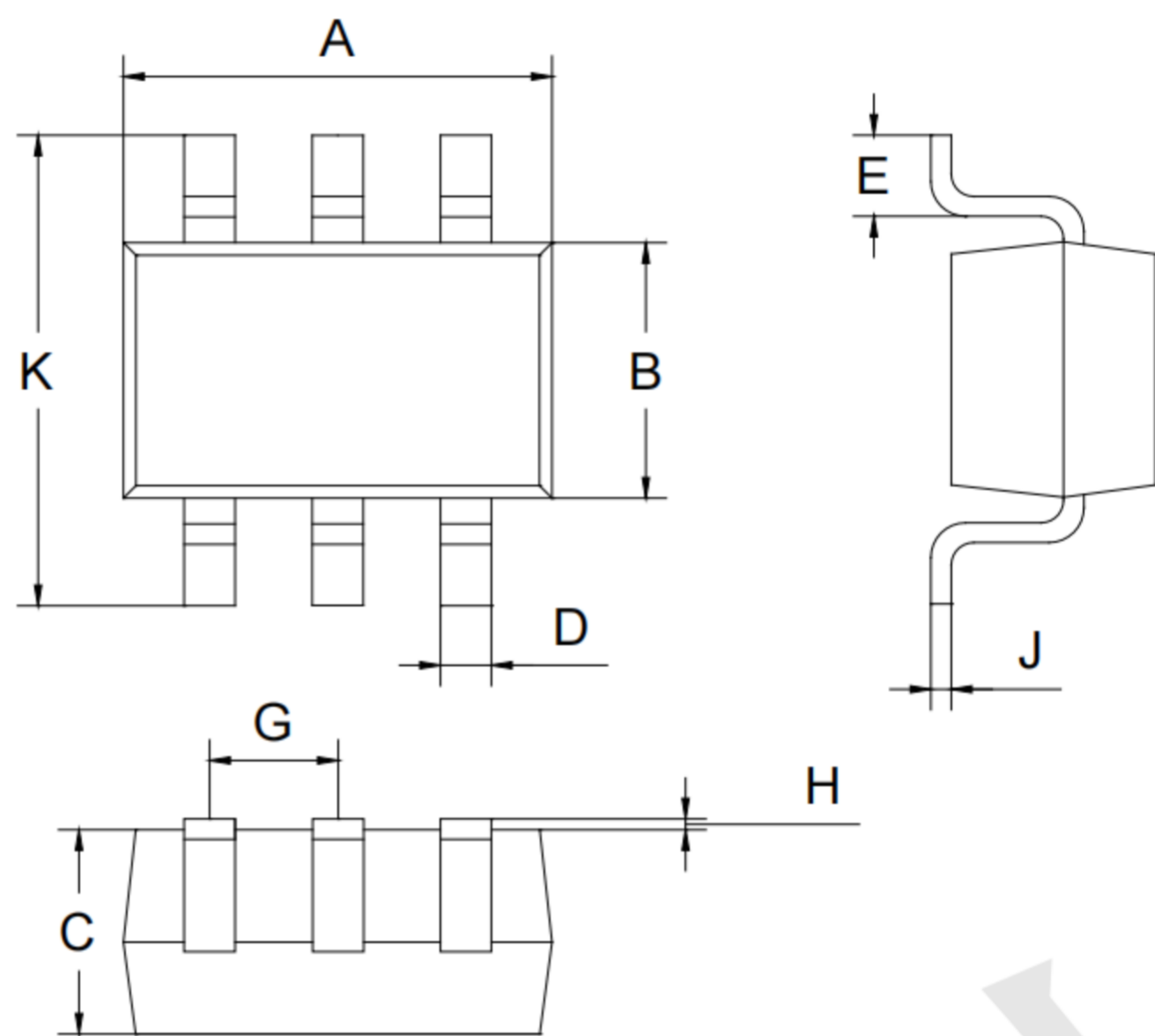


Fig. 4, Gain Bandwidth Product vs Collector Current (BC847B)

Outline Drawing - SOT363 (unit: mm)



SOT-363		
Dim	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

Mounting Pad Layout-SOT363 (unit: mm)

