

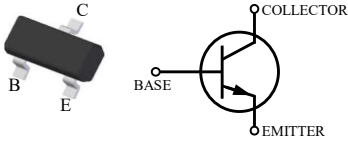


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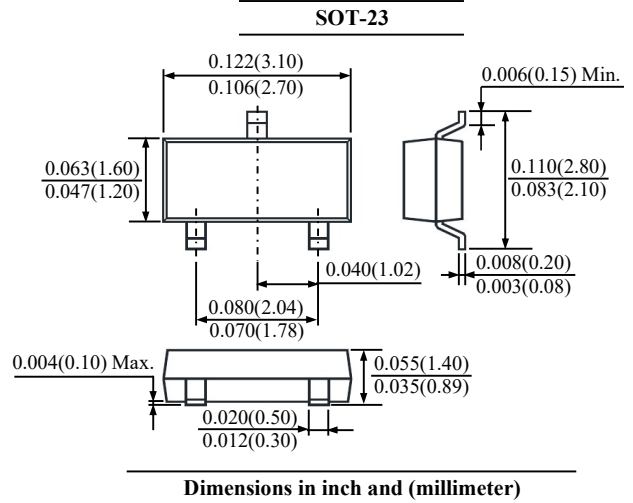
NPN TRANSISTORS

FEATURES

- For switching and amplifier applications
- Suffix "H" indicates Halogen-free parts, ex. BC846AH



B	Base
C	Collector
E	Emitter



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

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	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Power Dissipation	P_D	300	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain	$V_{CE}=5V, I_C=2mA$	A	110	-	220	-
		B	200	-	450	-
		C	420	-	800	-
Collector Base Cutoff Current	$V_{CB}=30V$	I_{CBO}	-	-	15	nA
Collector Base Breakdown Voltage	$I_C=100\mu A$	$V_{(BR)CBO}$	80	-	-	V
Collector Emitter Breakdown Voltage	$I_C=2mA$	$V_{(BR)CEO}$	65	-	-	V
Emitter Base Breakdown Voltage	$I_E=100\mu A$	$V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage	$I_C=10mA, I_B=0.5mA$	$V_{CE(sat)}$	-	-	0.25	V
	$I_C=100mA, I_B=5mA$		-	-	0.60	
Base Emitter Saturation Voltage	$I_C=10mA, I_B=0.5mA$	$V_{BE(sat)}$	-	0.7	-	V
	$I_C=100mA, I_B=5mA$		-	-	1.0	
Base Emitter On Voltage	$V_{CE}=5V, I_C=2mA$	$V_{BE(on)}$	0.58	-	0.70	V
	$V_{CE}=5V, I_C=10mA$		-	-	0.72	
Transition Frequency	$V_{CE}=5V, I_C=10mA, f=100MHz$	f_T	-	300	-	MHz
Collector Output Capacitance	$V_{CB}=10V, f=1MHz$	C_{ob}	-	-	6	pF
Input Capacitance	$V_{EB}=0.5V, f=1MHz$	C_{ib}	-	9	-	pF



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RATINGS AND CHARACTERISTIC CURVES

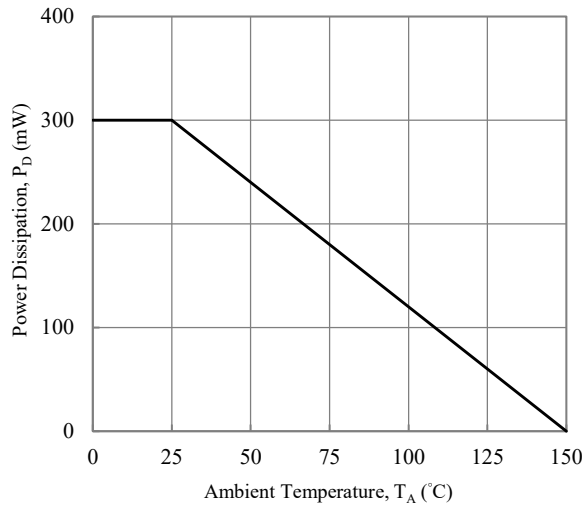


Fig. 1 Power Derating Curves

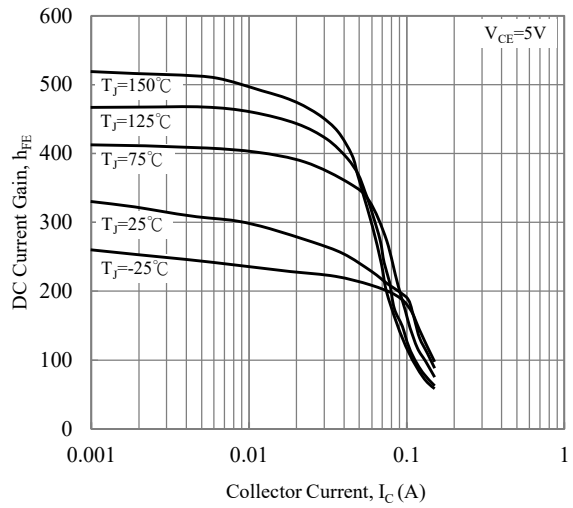


Fig. 2 Current Gain vs. Collector Current

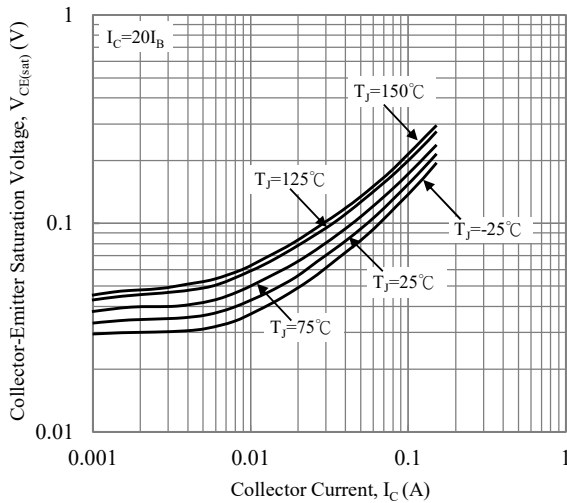


Fig. 3 Collector-Emitter Saturation Voltage vs. Collector Current

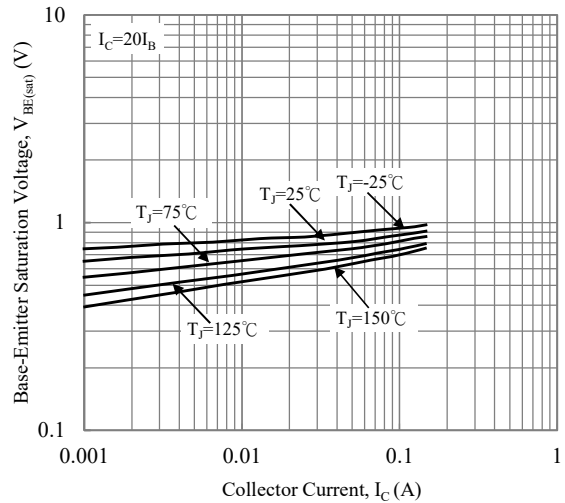


Fig. 4 Base-Emitter Saturation Voltage vs. Collector Current

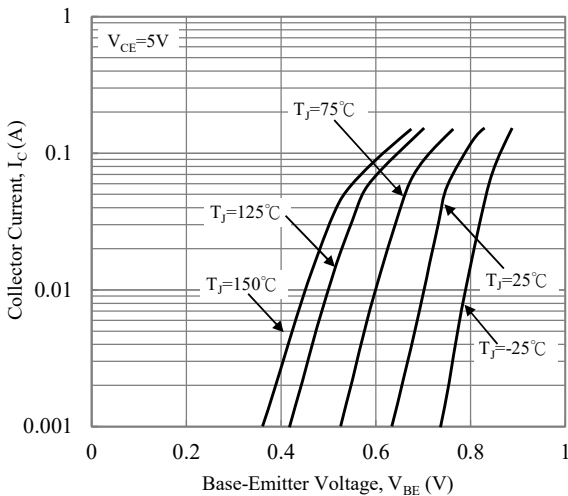


Fig. 5 Base-Emitter Voltage vs. Collector Current

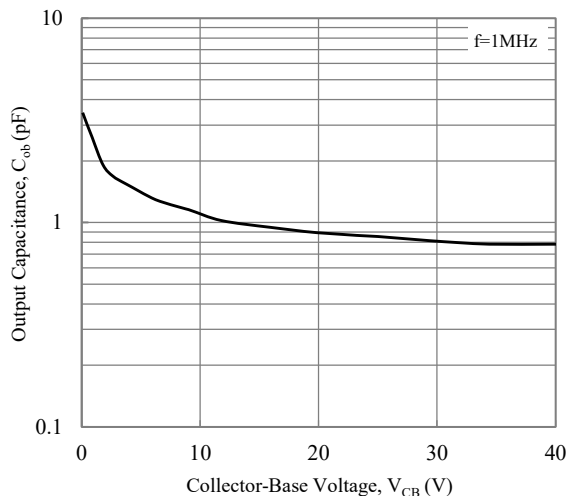


Fig. 6 Output Capacitance



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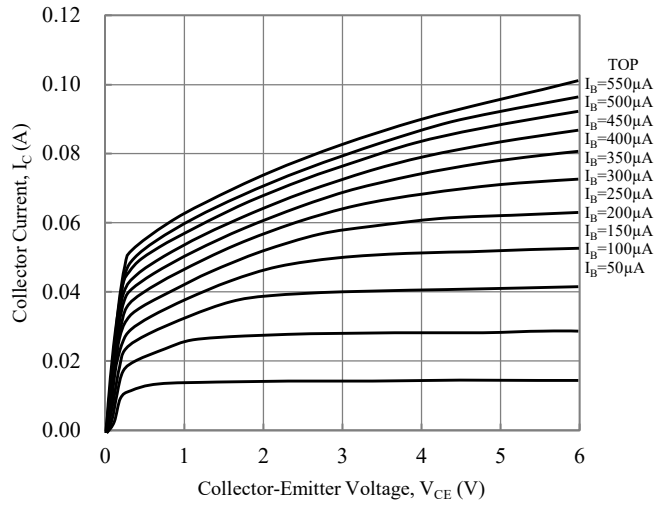


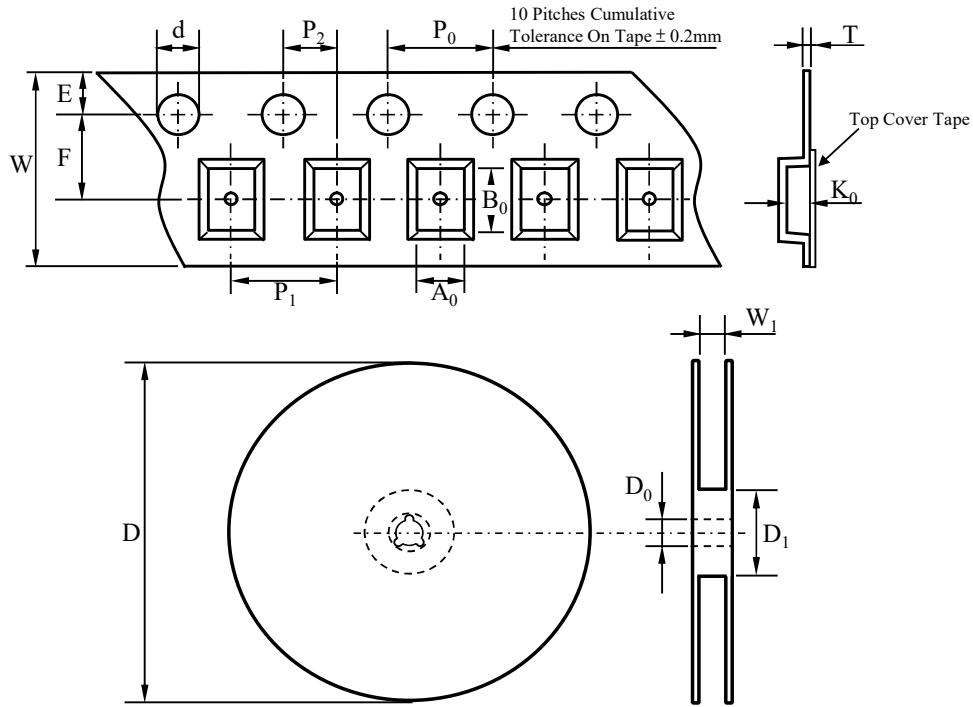
Fig. 7 Output Characteristics Curves



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23
Carrier width	A_0	*
Carrier length	B_0	
Carrier depth	K_0	
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D_0	13.00 ± 0.50
Reel inner diameter	D_1	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P_0	4.00 ± 0.10
Punch hole pitch	P_1	4.00 ± 0.10
Embossment center	P_2	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W1	MAX. 14.50

Note *: A_0 , B_0 , and K_0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.5 mm max.

ORDER INFORMATION

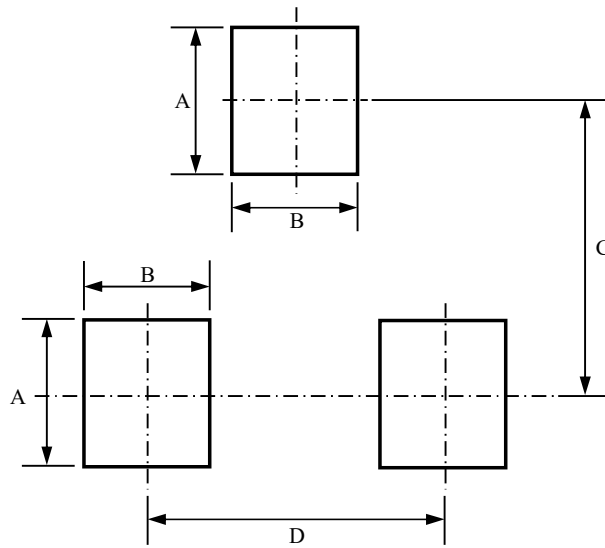
Part Number	Marking Code	Reel Size	Quantity
BC846AH	1A	7"	3,000
BC846BH	1B		
BC846CH	1C		



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SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D
SOT-23	1.00	0.80	2.00	1.90