

# BC846 THRU BC848

NPN TRANSISTORS

## SOT-23 Plastic-Encapsulate Transistors

### Features

- Complementary to BC856 THRU BC858
- Power dissipation of 200mW
- High stability and high reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

### Mechanical Data

- Case: SOT-23  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

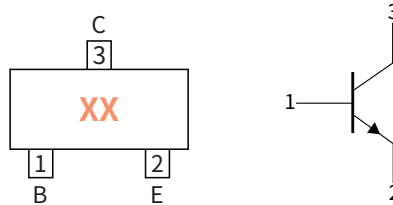
### Function Diagram

XX = Device Code

1A = BC846A, 1B = BC846B

1E = BC847A, 1F = BC847B, 1G = BC847C

1J = BC848A, 1K = BC848B, 1L = BC848C



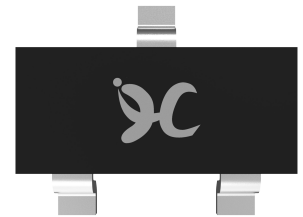
### Collector-Base Voltage

VCBO 80V/50V/30V

### Collector Current

0.1Ampere

### SOT-23



### Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	CONDITIONS		VALUE
Collector-Base Voltage	$V_{CBO}$	V	BC846	$I_C=10\mu A, I_E=0$	80
			BC847		50
			BC848		30
Collector-Emitter Voltage	$V_{CEO}$	V	BC846	$I_C=10mA, I_B=0$	65
			BC847		45
			BC848		30
Emitter-Base Voltage	$V_{EBO}$		$I_C=0, I_E=10\mu A$		6.0
Collector Current	$I_C$	A	—		0.1
Collector Power Dissipation	$P_C$	mW	—		200
Storage temperature	$T_{stg}$	°C	—		-55 ~+150
Junction temperature	$T_j$	°C	—		-55 ~+150
Typical Thermal Resistance	$R_{\theta J-A}$	°C /W	—		625

### Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	120000	7"

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## Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition		Min	Max	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=10\mu A, I_E=0$	BC846	80	—	
				BC847	50	—	
				BC848	30	—	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=10mA, I_B=0$	BC846	65	—	
				BC847	45	—	
				BC848	30	—	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=10\mu A, I_C=0$		6.0	—	
Collector-Base cut-off current	$I_{CBO}$		$\mu A$	$V_{CB}=70V, I_E=0$	BC846	—	0.1
					BC847	—	0.1
		BC848			—	0.1	
Collector-Emitter cut-off current	$I_{CEO}$	$V_{CE}=60V, I_B=0$		BC846	—	0.1	
				BC847	—	0.1	
				BC848	—	0.1	
Emitter-Base cut-off current	$I_{EBO}$	$V_{EB}=5.0V, I_C=0$		—	0.1		
DC Current Gain	$h_{FE}$	—		$I_C=2mA, V_{CE}=5.0V$	BC846A,847A,848A	110	220
					BC846B,847B,848B	200	450
			BC847C,BC848C		420	800	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=100mA, I_B=5mA$		—	0.5	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=100mA, I_B=5mA$		—	1.1	

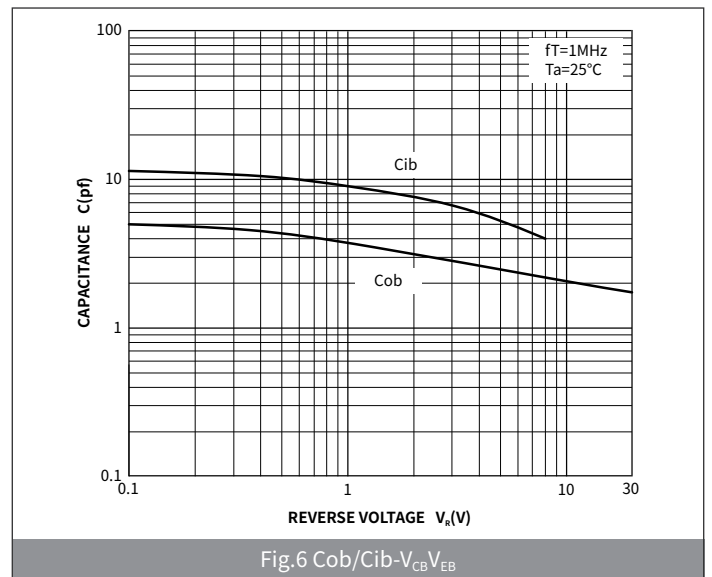
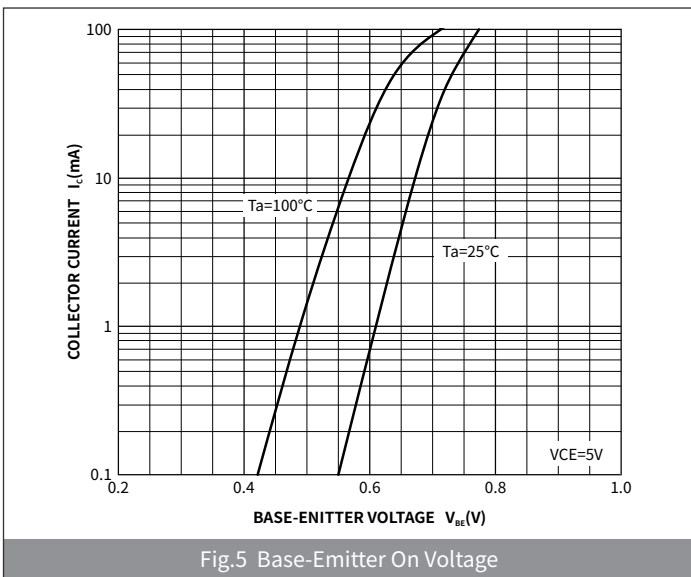
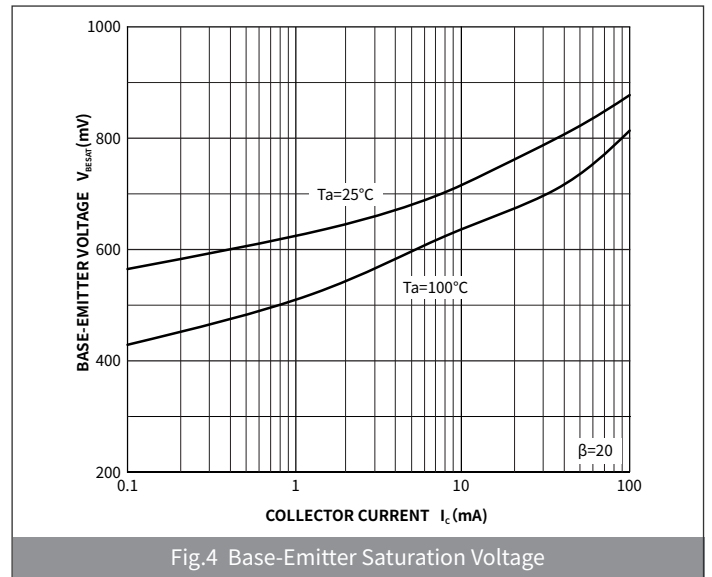
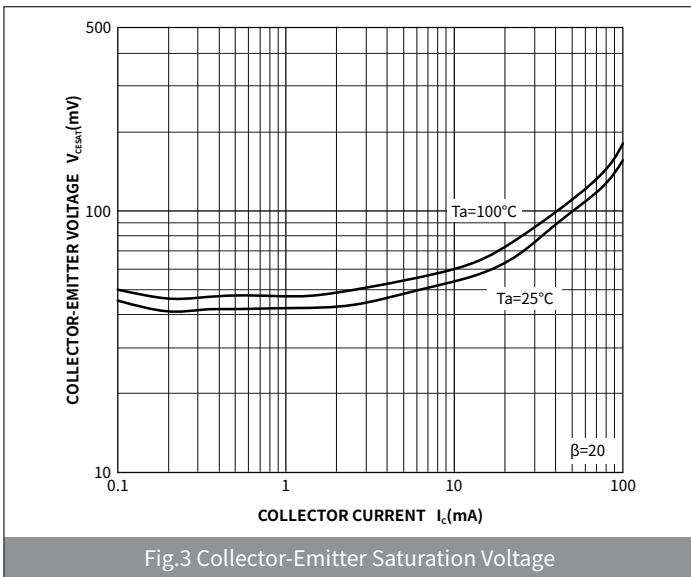
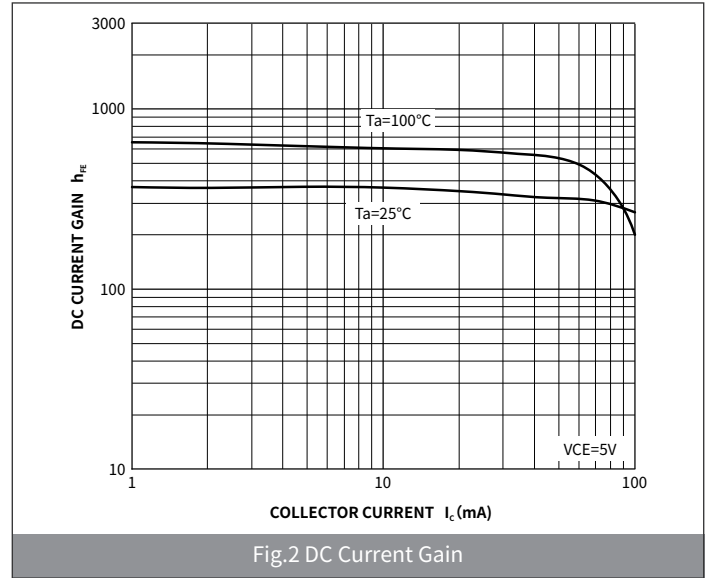
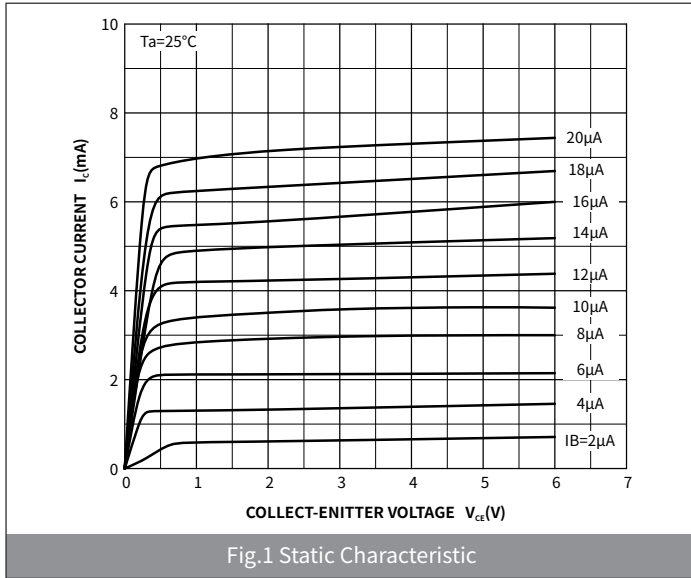
## Classification Of $h_{FE}$

RANK	A	B	C
Range	110-220	200-450	420-800

## Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Max
Transition frequency	$f_T$	$I_C=10mA, V_{CE}=5V, f=100MHz$	MHz	100	—

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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## ● Package Outline Dimensions (SOT-23)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
$\theta$	-	8°	-	8°

## ● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077

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