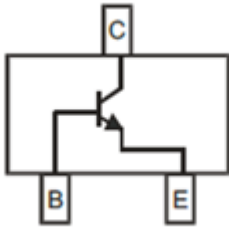


## NPN General Purpose Transistor

**SOT-23**

### Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Part no. with suffix "HQ" means AEC-Q101 qualified

### Applications

- General purpose switching and amplification

### Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

### ■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	80
Collector-Emitter Voltage	$V_{CEO}$	V	65
Emitter-Base Voltage	$V_{EBO}$	V	6
Collector Current	$I_C$	mA	100
Total Device Dissipation (*)	$P_D$	mW	300
Thermal Resistance Junction to Ambient (*)	$R_{thJA}$	K/W	417
Junction Temperature	$T_j$	°C	150
Storage Temperature	$T_{STG}$	°C	-55 to +150

(\*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch.



# BC846BHQ

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

Item	Symbol	Unit	Conditions	Min	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C=100\mu A, I_E=0$	80	
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C=10mA, I_B=0$	65	
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E=100\mu A, I_C=0$	6	
Collector cut-off current	$I_{CBO}$	nA	$V_{CB}=70V, I_E=0$		100
Emitter cut-off current	$I_{EBO}$	nA	$V_{EB}=5V, I_C=0$		100
DC current gain	$h_{FE}$		$V_{CE}=5.0V, I_C=2mA$	200	450
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
Base-emitter Voltage	$V_{BE}$	V	$V_{CE}=5V, I_C=2mA$	0.58	0.7
		V	$V_{CE}=5V, I_C=10mA$		0.77
Transition frequency	$f_T$	MHz	$V_{CE}=5V, I_C=10mA, f=100MHz$	100	
Collector output capacitance	Cob	pF	$V_{CB}=10V, f=1MHz$		4.5

## ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BC846BHQ	F2	Approximate 0.01	3000	30000	120000	7" reel



■ Characteristics (Typical)

Fig.1-Static Characteristic

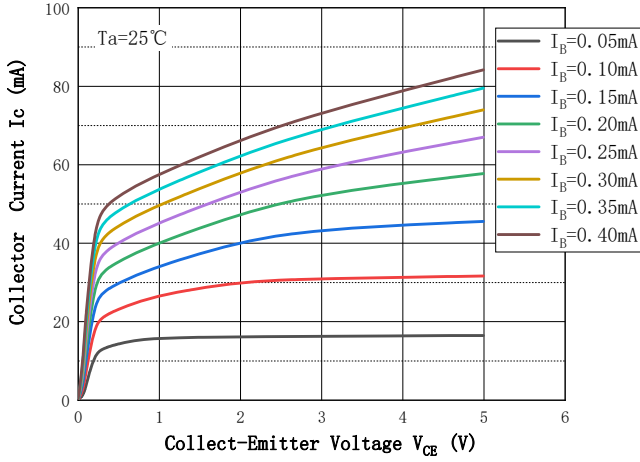


Fig.2 - DC Current Gian

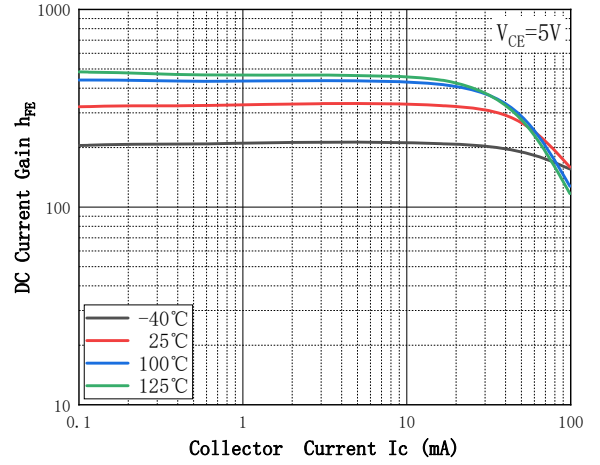


Fig.3 - Collect-Emittor Saturation Voltage

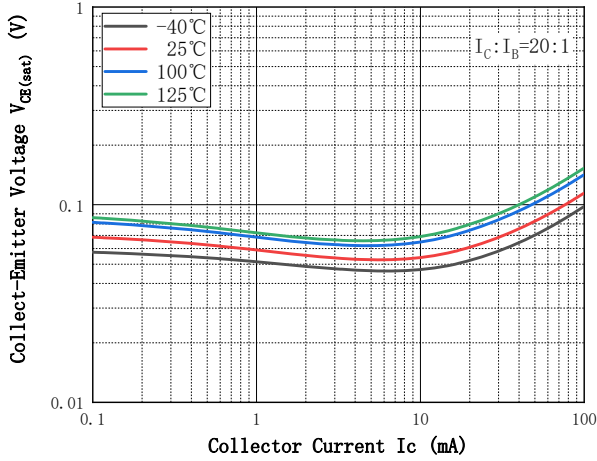


Fig.4 - Base-Emittor Voltage

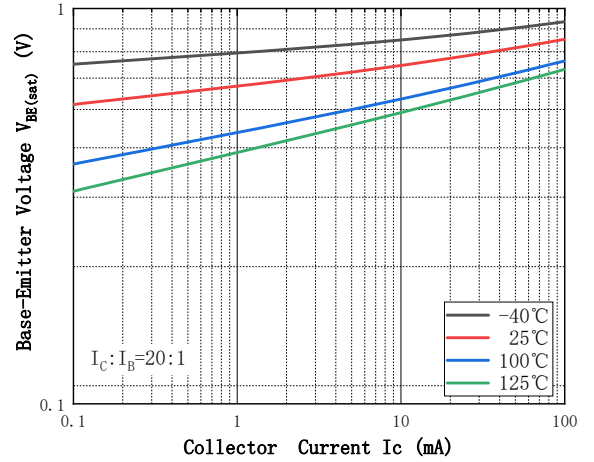


Fig.5 - Base-Emittor On Voltage

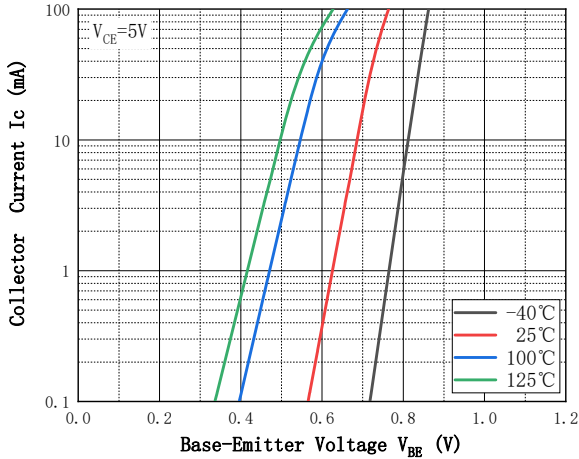
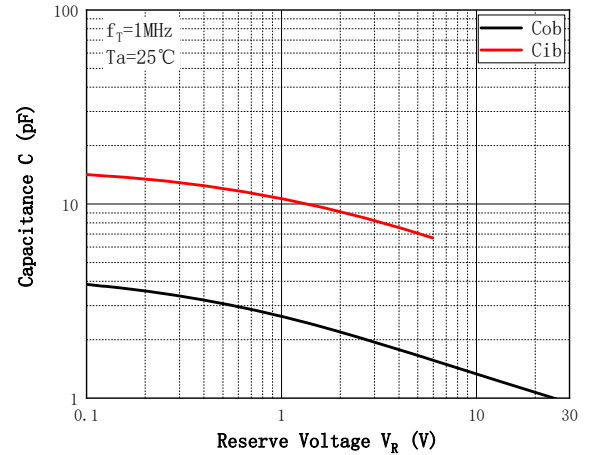


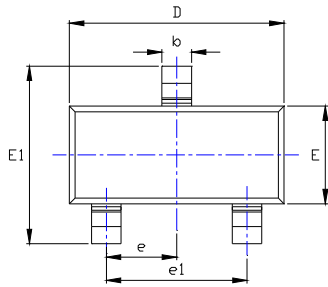
Fig.6 - Cob/Cib—Vce/Vbe



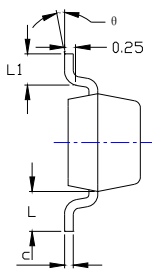


# BC846BHQ

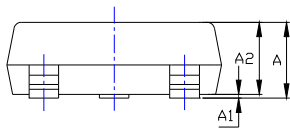
## ■ SOT-23 Package Outline Dimensions & Suggested Pad Layout



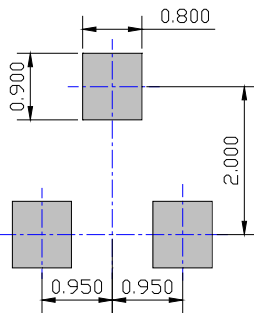
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

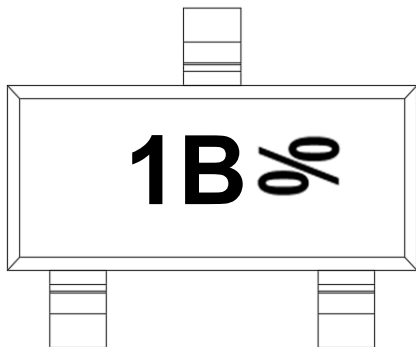
SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037 TYP		0.950 TYP	
e1	0.071	0.079	1.800	2.000
L	0.022 REF		0.550 REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

**NOTE:**

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

## ■ Marking Information



**Note:**

1. All marking is at middle of the product body
2. All marking is in laser marking
3. Body color: Black
4. XX% is Marking Code (%=placeholder for date code)

\*Date Code vary depending upon production date.



## BC846BHQ

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