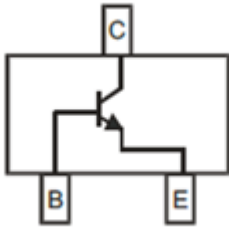


## NPN General Purpose Transistors



**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	BC847AHQ BC847BHQ BC847CHQ	50
			BC848AHQ BC848BHQ BC848CHQ	30
Collector-Emitter Voltage	$V_{CEO}$	V	BC847AHQ BC847BHQ BC847CHQ	45
			BC848AHQ BC848BHQ BC848CHQ	30
Emitter-Base Voltage	$V_{EBO}$	V	6	
Collector Current -Continuous	$I_C$	A	0.1	
Total Device Dissipation (*)	$P_D$	mW	300	
Thermal Resistance Junction to Ambient (*)	$R_{thJA}$	K/W	417	
Junction Temperature	$T_J$	°C	-55 to +150	
Storage Temperature	$T_{STG}$	°C	-55 to +150	

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



# BC847HQ THRU BC848HQ

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

Item	Symbol	Unit	Conditions	Min	Max
Collector-base breakdown voltage	V <sub>CBO</sub>	V	BC847AHQ BC847BHQ BC847CHQ	I <sub>C</sub> =10μA, I <sub>E</sub> =0	50
			BC848AHQ BC848BHQ BC848CHQ		30
Collector-emitter breakdown voltage	V <sub>CEO</sub>	V	BC847AHQ BC847BHQ BC847CHQ	I <sub>C</sub> =10mA, I <sub>B</sub> =0	45
			BC848AHQ BC848BHQ BC848CHQ		30
Emitter-base breakdown voltage	V <sub>EBO</sub>	V	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6	
Collector cut-off current	I <sub>CBO</sub>	nA	BC847AHQ BC847BHQ BC847CHQ	V <sub>CB</sub> =50V, I <sub>E</sub> =0	100
			BC848AHQ BC848BHQ BC848CHQ	V <sub>CB</sub> =30V, I <sub>E</sub> =0	
Emitter cut-off current	I <sub>EBO</sub>	nA	V <sub>EB</sub> =5V, I <sub>C</sub> =0		100
DC current gain	h <sub>FE</sub>		BC847AHQ BC848AHQ	V <sub>CE</sub> =5.0V, I <sub>C</sub> =2mA	110
			BC847BHQ BC848BHQ		200
			BC847CHQ BC848CHQ		420
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		0.5
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	V	I <sub>C</sub> =100mA, I <sub>B</sub> =5mA		1.1
Transition frequency	f <sub>T</sub>	MHz	V <sub>CE</sub> =5Vdc, I <sub>C</sub> =10mA, f=100MHz	100	
Collector output capacitance	C <sub>ob</sub>	pF	V <sub>CB</sub> =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
BC847AHQ THRU BC848CHQ	F2	Approximate 0.01	3000	30000	120000	7" reel



# BC847HQ THRU BC848HQ

## ■BC847AHQ/BC848AHQ Characteristics (Typical)

Fig. 1-Static Characteristic

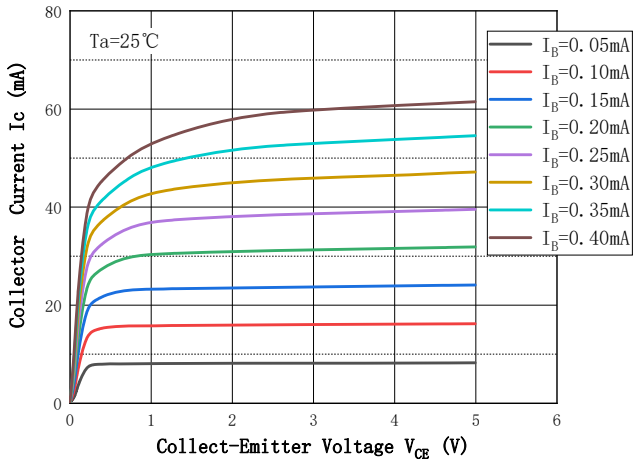


Fig. 2 - DC Current Gian

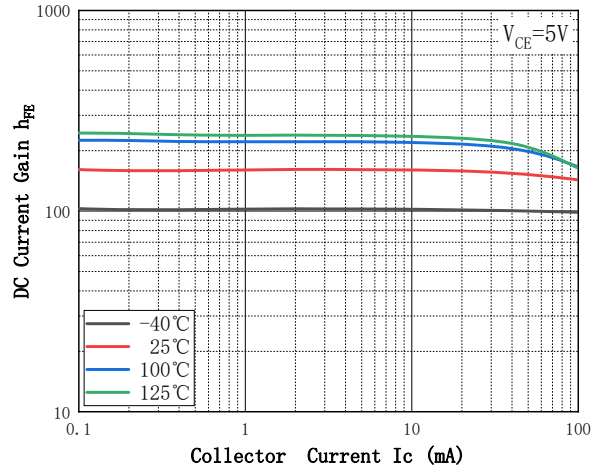


Fig. 3 - Collect-Emittor Saturation Voltage

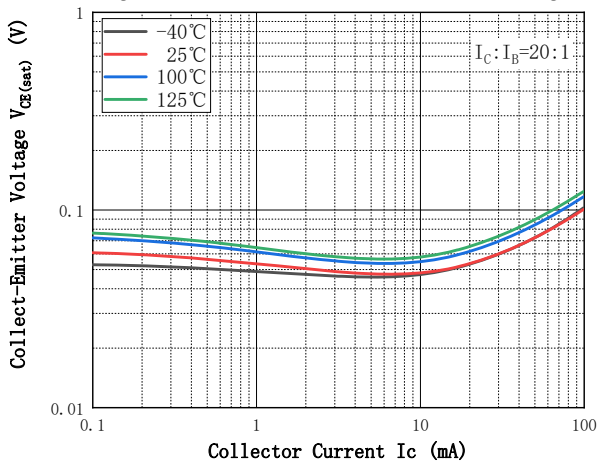


Fig. 4 - Base-Emittor Voltage

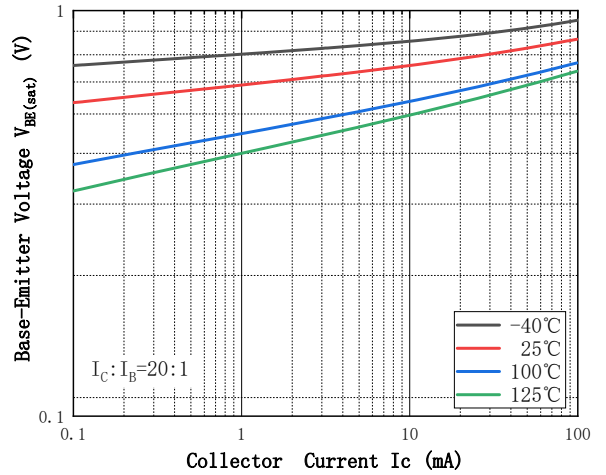


Fig. 5 - Base-Emittor On Voltage

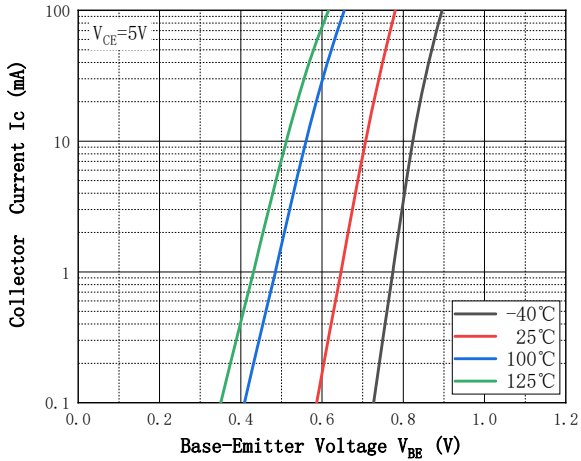
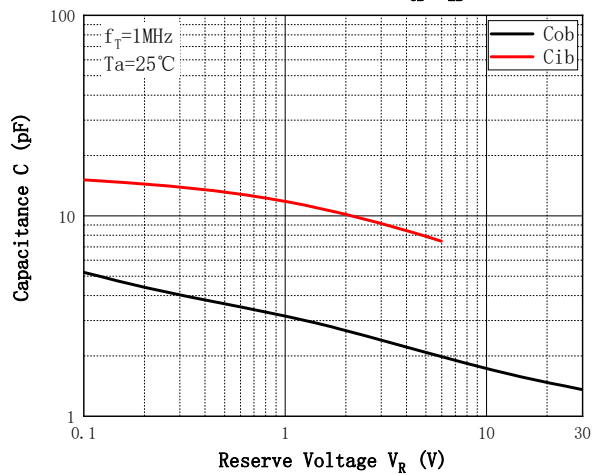


Fig. 6 - Cob/Cib— $V_{CB}/V_{EB}$





# BC847HQ THRU BC848HQ

## ■BC847BHQ/BC848BHQ Characteristics (Typical)

Fig.1-Static Characteristic

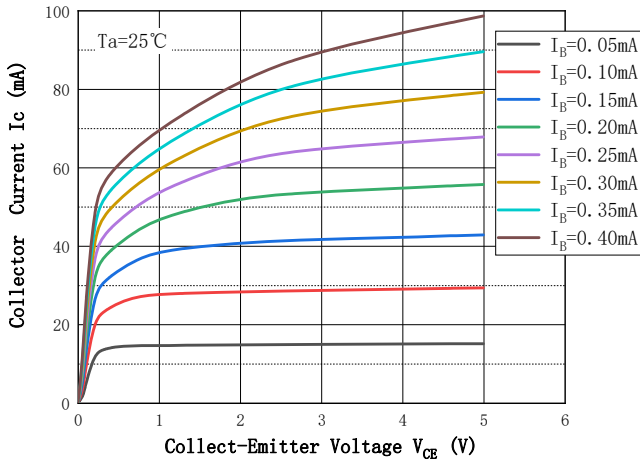


Fig.2 - DC Current Gain

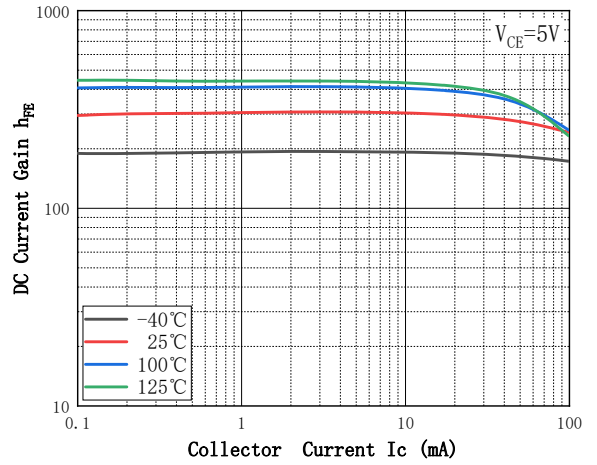


Fig.3 - Collect-Emitter Saturation Voltage

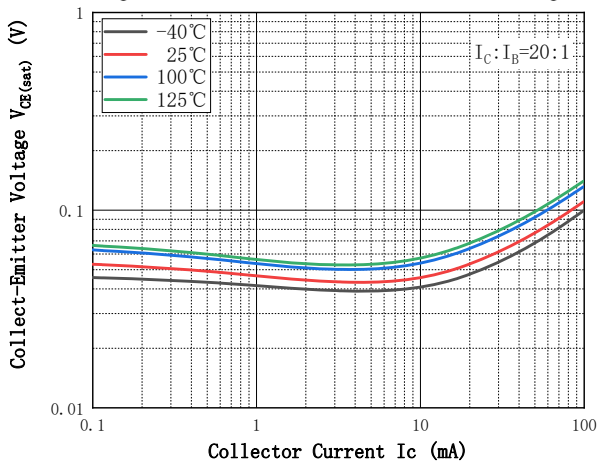


Fig.4 - Base-Emitter Voltage

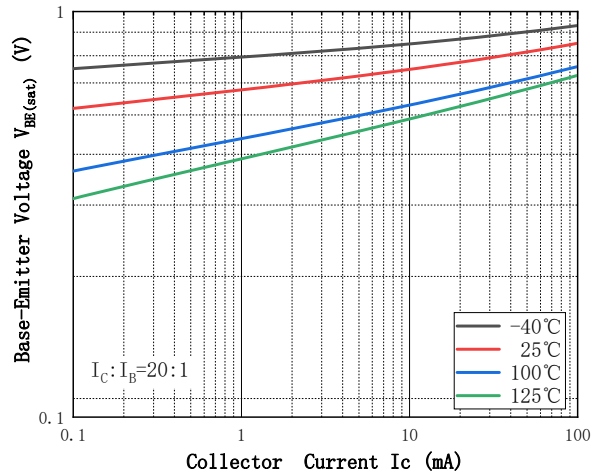


Fig.5 - Base-Emitter On Voltage

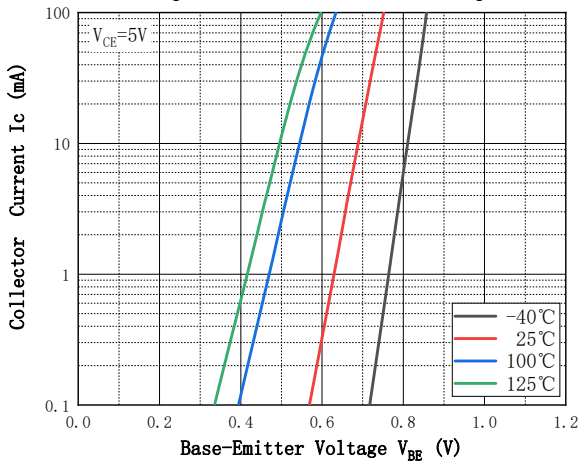
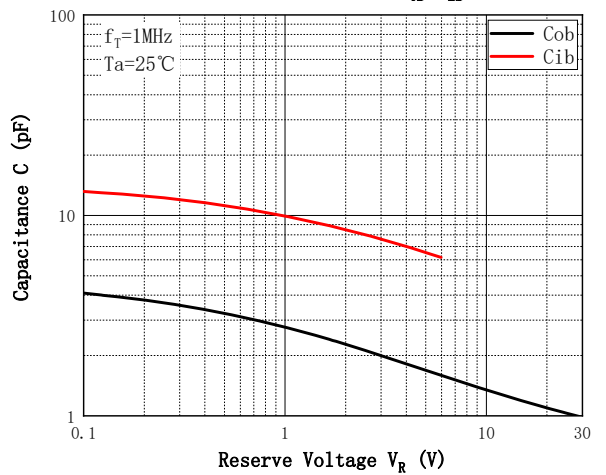


Fig.6 - Cob/Cib—Vcb/Vbe





# BC847HQ THRU BC848HQ

## ■BC847CHQ/BC848CHQ Characteristics (Typical)

Fig.1-Static Characteristic

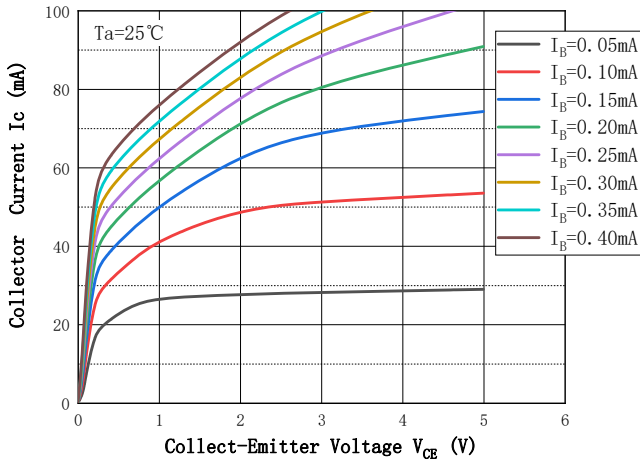


Fig.2 - DC Current Gian

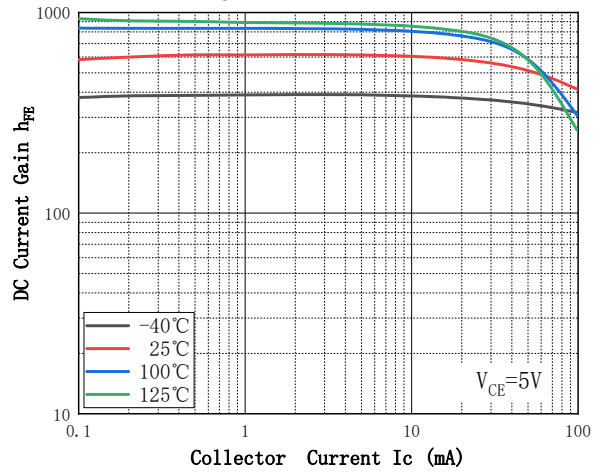


Fig.3 - Collect-Emittor Saturation Voltage

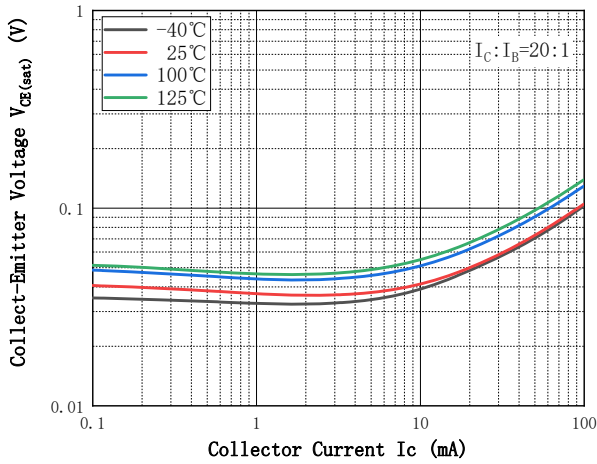


Fig.4 - Base-Emittor Voltage

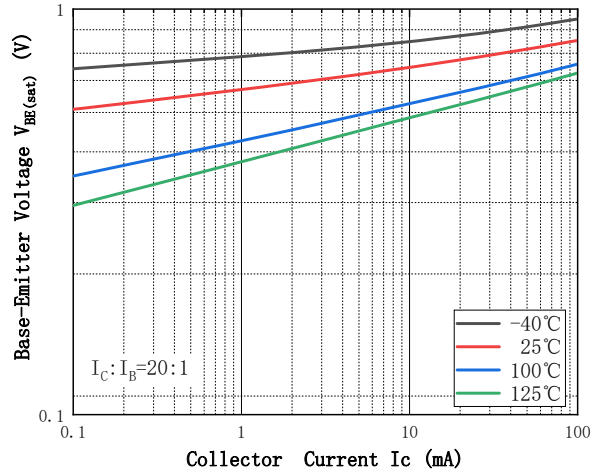


Fig.5 - Base-Emittor On Voltage

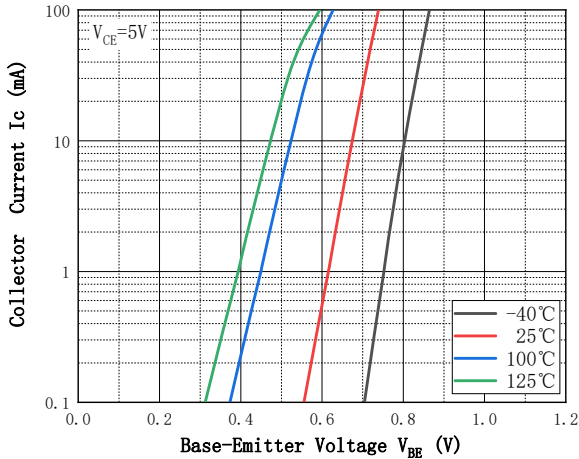
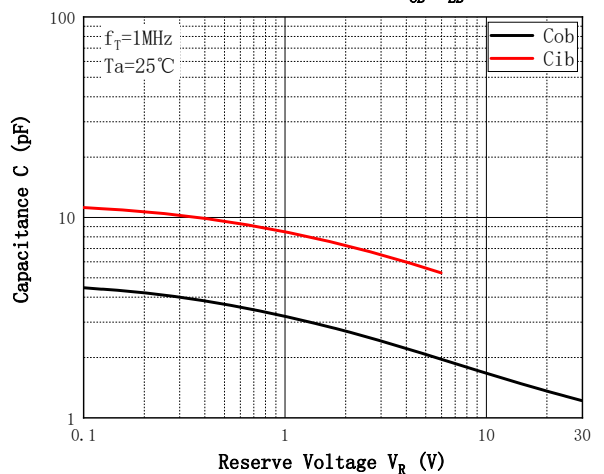


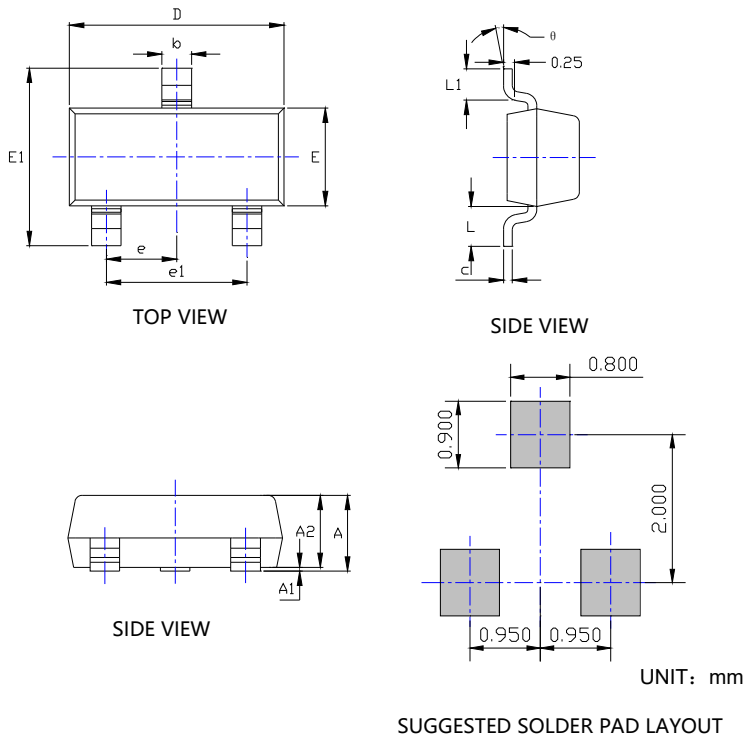
Fig.6 - Cob/Cib— $V_{CE}/V_{BE}$





# BC847HQ THRU BC848HQ

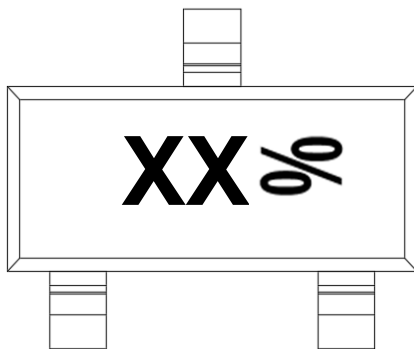
## ■ SOT-23 Package Outline Dimensions & Suggested Pad Layout



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



PN	Marking Code
BC847AHQ	1E %
BC847BHQ	1F %
BC847CHQ	1G %
BC848AHQ	1J %
BC848BHQ	1K %
BC848CHQ	1L %

**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.



## BC847HQ THRU BC848HQ

---

### Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with automotive electronics, are not designed for use in medical, life-saving, lifesustaining, or military, Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.21yangjie.com](http://www.21yangjie.com) , or consult your nearest Yangjie's sales office for further assistance.