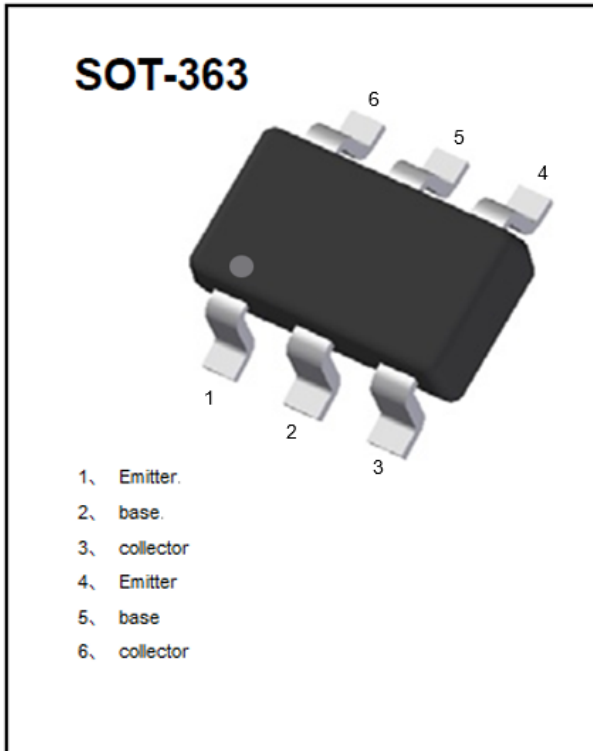


## Dual NPN+PNP Small Signal Transistor



### Features

- Epoxy meets UL-94 V-0 flammability rating
- Surface mount package ideally Suited for Automatic Insertion
- Reduces number of components and board space
- No mutual interference between the transistors
- Part no. with suffix "Q" means AEC-Q101 qualified

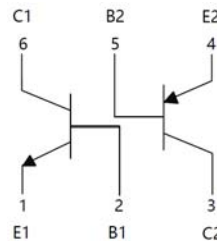
### Application

- General purpose Switching and amplification

### Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** PJ

### Equivalent circuit



### ■TR1 NPN Pin1、 2、 6 Maximum Ratings ( Ta=25°C Unless otherwise specified)

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
Collector Power Dissipation <sup>(*)</sup>	$P_D$	mW	200
Thermal Resistance Junction to Ambient <sup>(*)</sup>	$R_{thJA}$	K/W	625
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



# BC846BPNQ

## ■TR1 NPN Pin1、 2、 6 Electrical Characteristics (Ta=25°C unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C=10\mu A, I_E=0$	80		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C=10mA, I_B=0$	65		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E=10\mu A, I_C=0$	6		
Collector-Base cut-off current	$I_{CBO}$	nA	$V_{CB}=30V, I_E=0$			15
Emitter-Base Cut-off current	$I_{EBO}$	nA	$V_{EB}=5V, I_C=0$			100
DC current gain	$h_{FE}$		$V_{CE}=5V, I_C=2mA$	200		450
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=10mA, I_B=0.5mA$			0.25
			$I_C=100mA, I_B=5mA$			0.6
Baser-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=10mA, I_B=0.5mA$			0.85
			$I_C=100mA, I_B=5mA$			1.1
Base-emitter Voltage	$V_{BE}$	V	$V_{CE}=5V, I_C=2mA$			0.7
			$V_{CE}=5V, I_C=10mA$			0.77
Transition frequency	$f_T$	MHZ	$V_{CE}=5V, I_C=10mA, f=100MHz$	100		

## ■TR2 PNP Pin3、 4、 5 Maximum Ratings ( Ta=25°C Unless otherwise specified )

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
Collector Power Dissipation <sup>(*)</sup>	$P_D$	mW	200
Thermal Resistance Junction to Ambient <sup>(*)</sup>	$R_{thJA}$	K/W	625
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



# BC846BPNQ

## ■TR2 PNP Pin3、4、5 Electrical Characteristics (Ta=25°C unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C=-10\mu A, I_E=0$	-80		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C=-10mA, I_B=0$	-65		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E=-10\mu A, I_C=0$	-6		
Collector-Base cut-off current	$I_{CBO}$	nA	$V_{CB}=-30V, I_E=0$			-15
Emitter-Base Cut-off current	$I_{EBO}$	nA	$V_{EB}=-6V, I_C=0$			-100
DC current gain	$h_{FE}$		$V_{CE}=-5V, I_C=-2mA$	200		450
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=-10mA, I_B=-0.5mA$			-0.3
			$I_C=-100mA, I_B=-5mA$			-0.65
Baser-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=-10mA, I_B=-0.5mA$			-0.85
			$I_C=-100mA, I_B=-5mA$			-1.1
Base-emitter Voltage	$V_{BE}$	V	$V_{CE}=-5V, I_C=-2mA$			-0.75
			$V_{CE}=-5V, I_C=-10mA$			-0.82
Transition frequency	$f_T$	MHz	$V_{CE}=-5V, I_C=-10mA, f=100MHz$	100		

## ■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BC846BPNQ	F2	Approximate 0.009g	3000	30000	120000	7" reel



## ■ TR1 NPN Pin1、2、6 Characteristics (Typical)

Fig.1-Static Characteristic

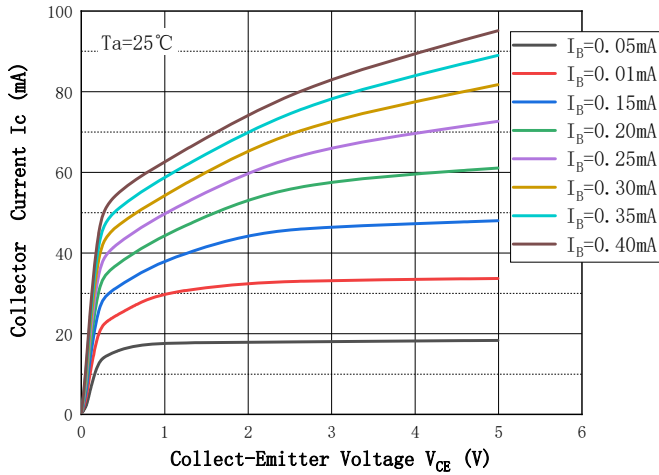


Fig.2 - DC Current Gain

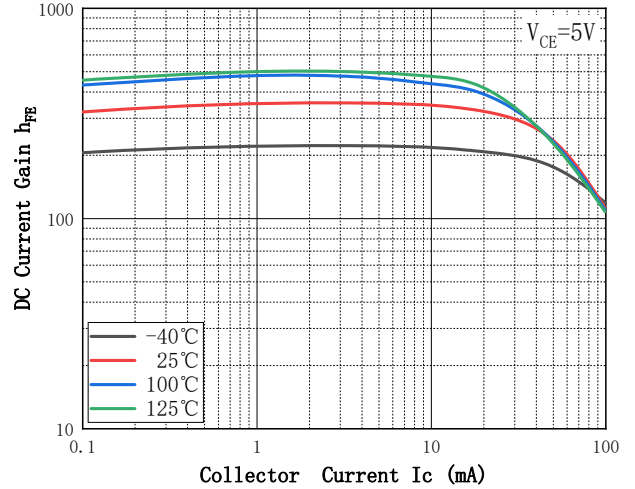


Fig.3 - Collect-Emittor Saturation Voltage

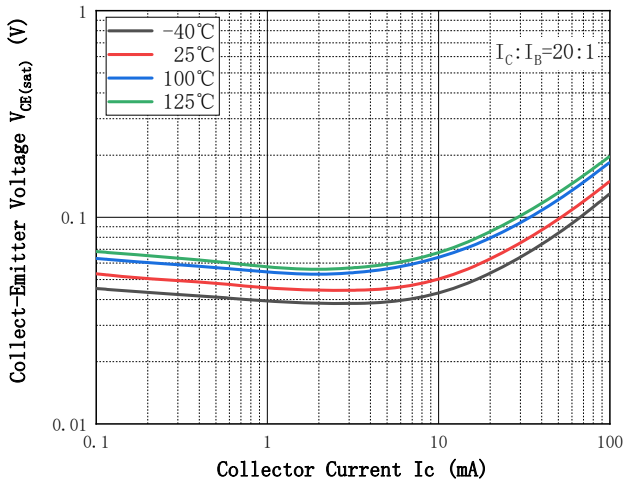


Fig.4 - Base-Emittor Voltage

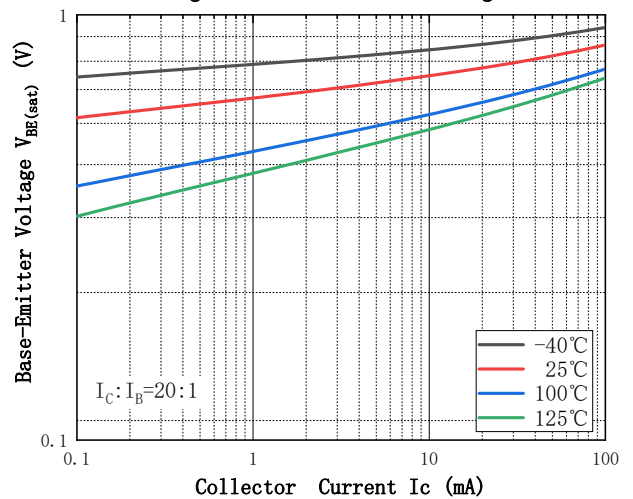


Fig.5 - Base-Emittor On Voltage

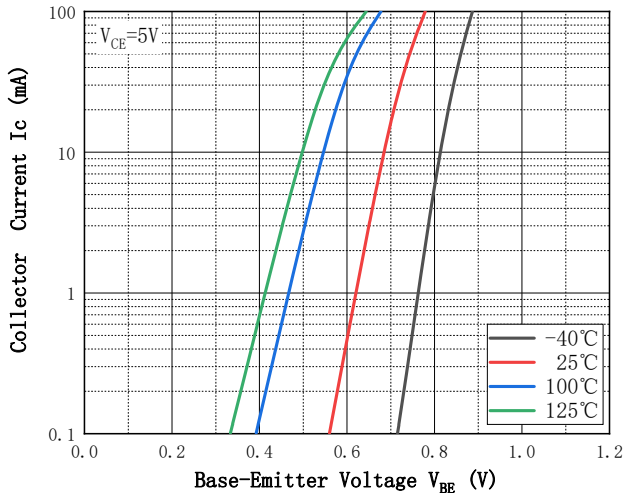
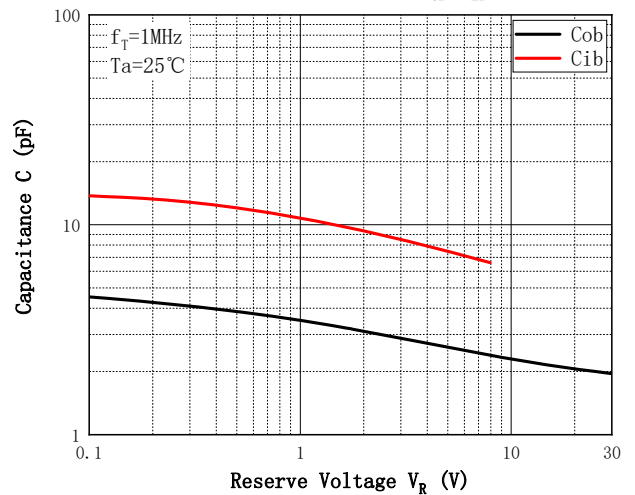


Fig.6 - Cob/Cib— $V_{CE}/V_{BE}$





■ TR2 PNP Pin3、4、5 Characteristics (Typical)

Fig.1 - Static characteristic

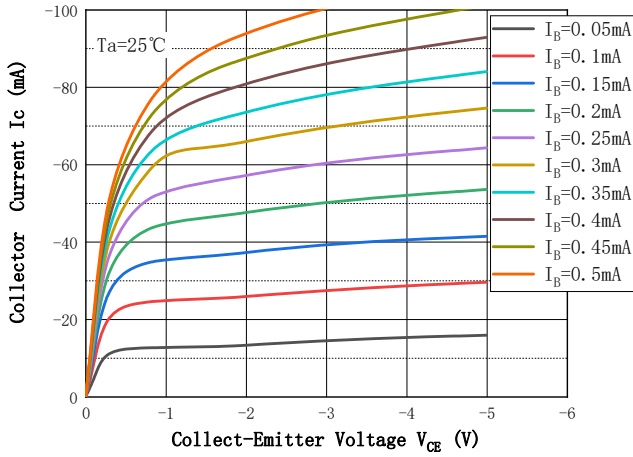


Fig.2 - DC Current Gain

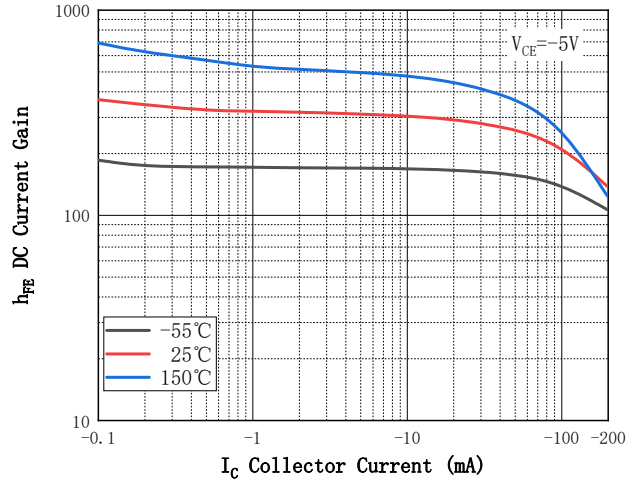


Fig.3 - Collect-Emitter Saturation Voltage

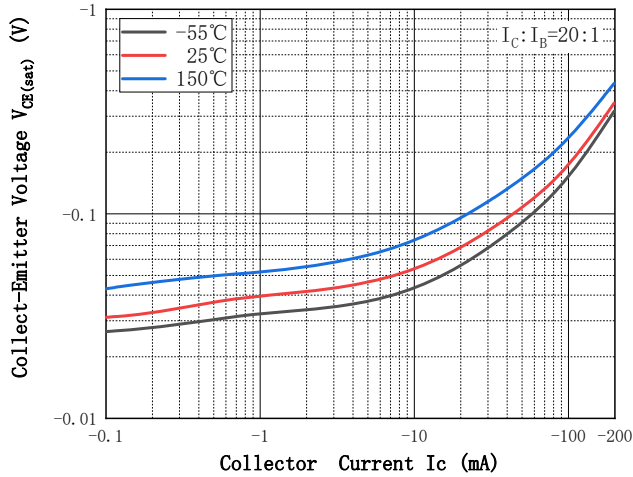


Fig.4 - Base-Emitter Voltage

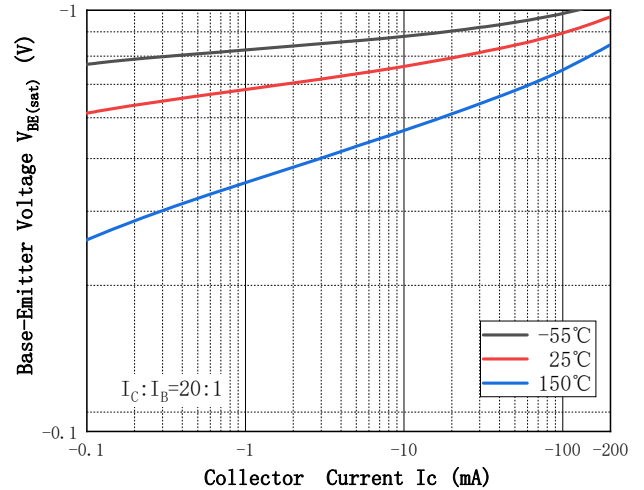


Fig.5 - Base-Emitter On Voltage

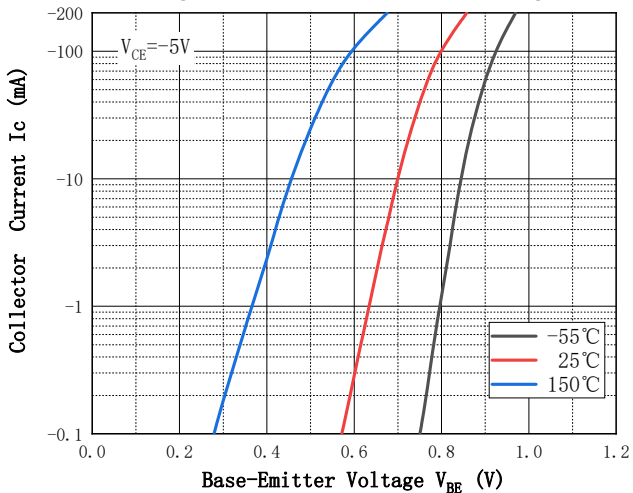
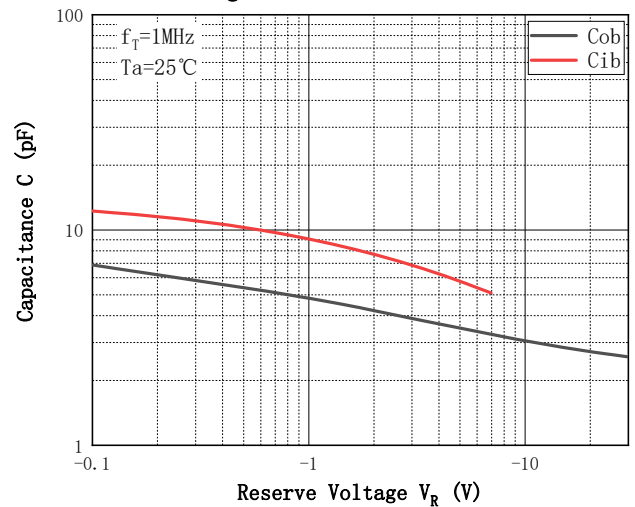


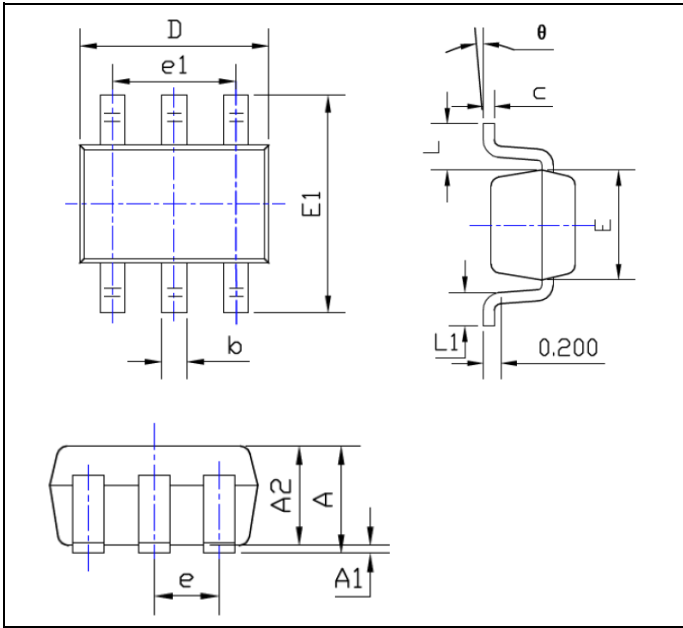
Fig.6 - Cob/Cib—VCB/VEB





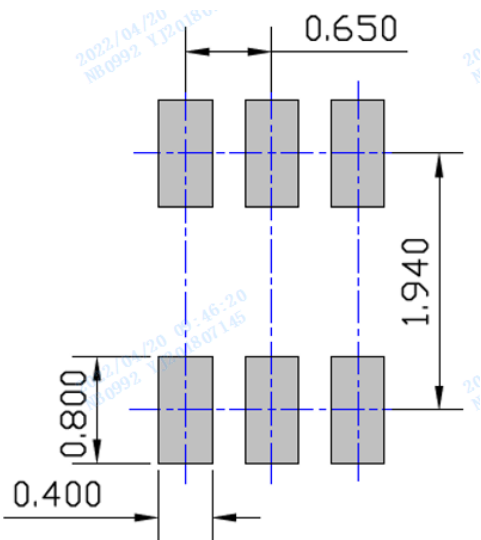
# BC846BPNQ

## ■SOT-363 Package Outline Dimensions



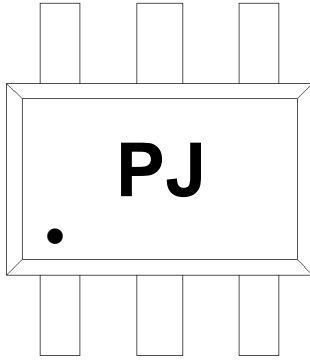
SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

## ■SOT-363 Soldering Footprint



Unit: mm

## ■Marking Information



**Note:**

1. All marking is at middle of the product body
2. All marking is in laser marking
3. PJ is Marking Code
4. Body color: Black



## BC846BPNQ

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