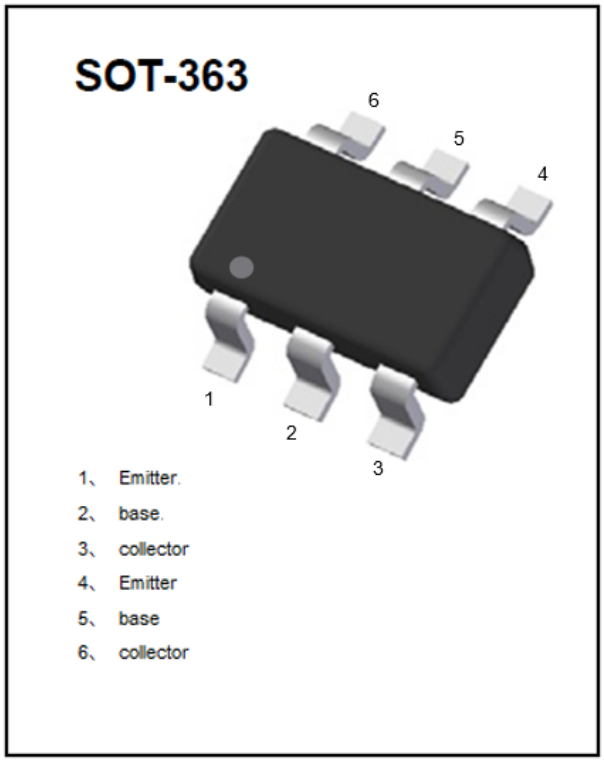
Dual NPN+PNP Small Signal Transistor



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

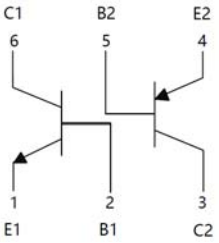
Application

- 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℃ 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(*)	P_D	mW	200
Thermal Resistance Junction to Ambient (*)	R_{thJA}	K/W	625
Junction Temperature	T_j	℃	-55 to +150
Storage Temperature	T_{stg}	℃	-55 to +150

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

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	V_{CBO}	V	I_C=10μA,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=10μA,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
		V	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℃ 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(*)	P_D	mW	200
Thermal Resistance Junction to Ambient (*)	R_{thJA}	K/W	625
Junction Temperature	T_j	℃	-55 to +150
Storage Temperature	T_{stg}	℃	-55 to +150

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

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

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	V_{CBO}	V	I_C=-10μA,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=-10μA,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

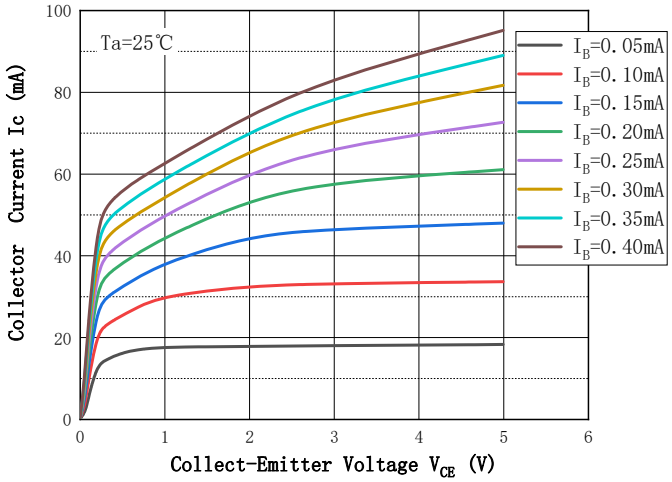


Fig.2 - DC Current Gian

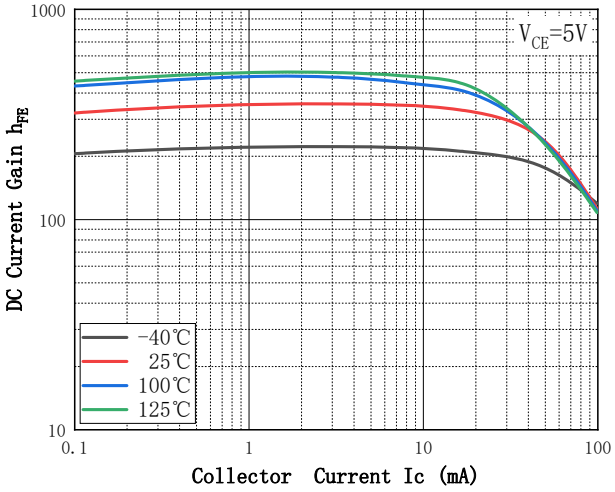


Fig.3 - Collect-Emitter Saturation Voltage

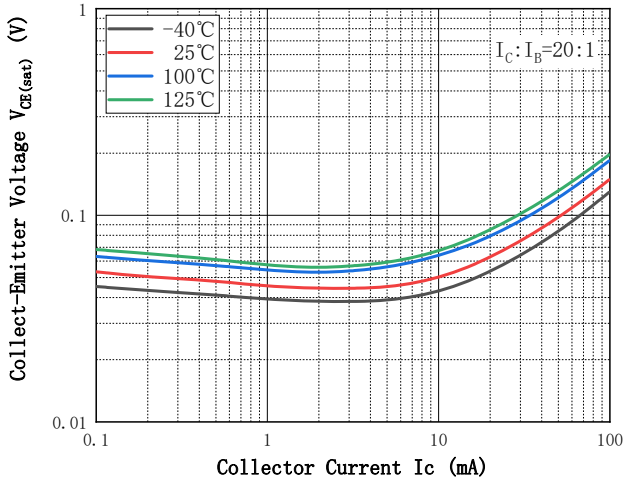


Fig.4 - Base-Emitter Voltage

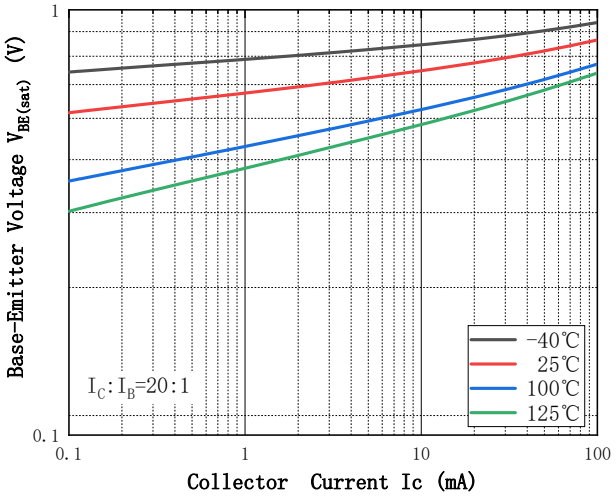


Fig.5 - Base-Emitter On Voltage

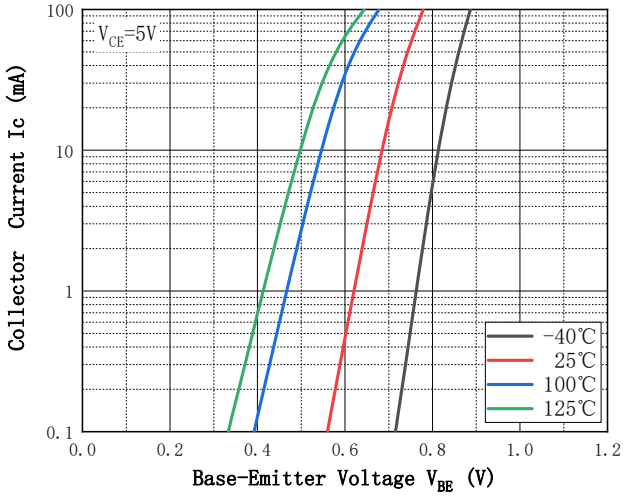
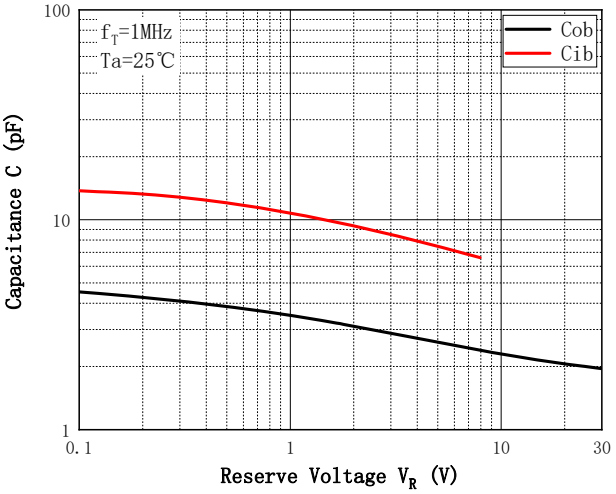


Fig.6 - Cob/Cib—V_{CB}/V_{EB}



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

Fig. 1 - Static characteristic

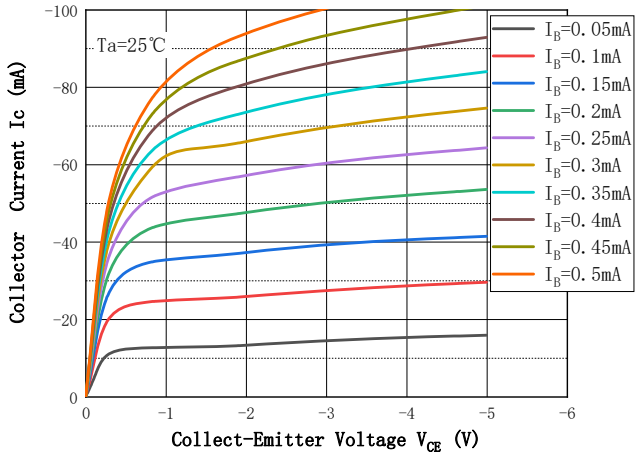


Fig. 2 - DC Current Gain

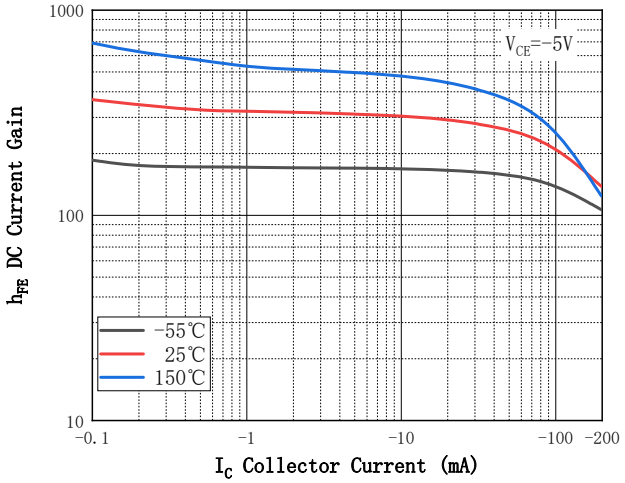


Fig. 3 - Collect-Emitter Saturation Voltage

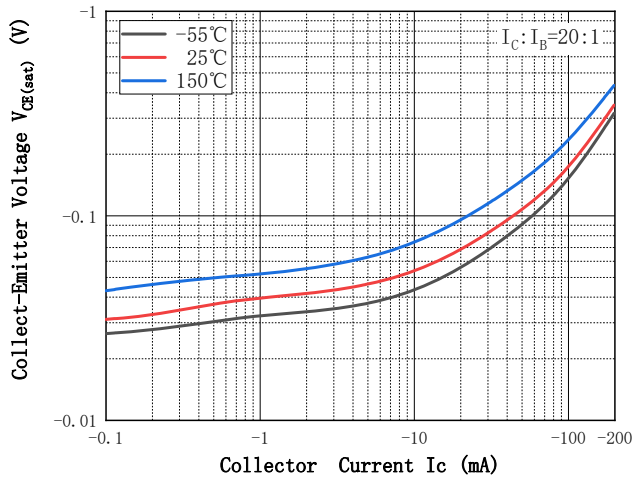


Fig. 4 - Base-Emitter Voltage

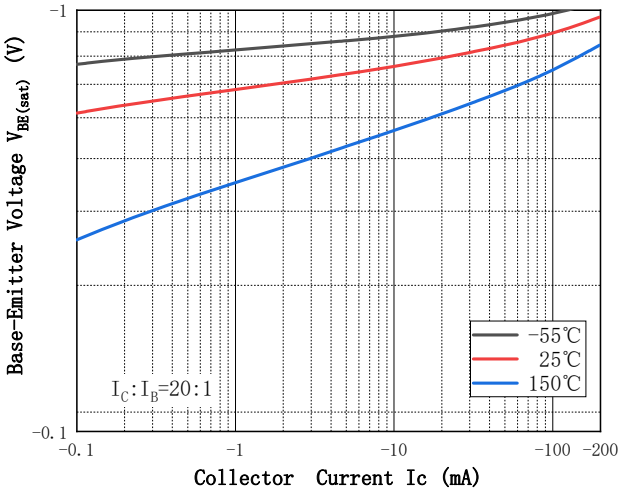


Fig. 5 - Base-Emitter On Voltage

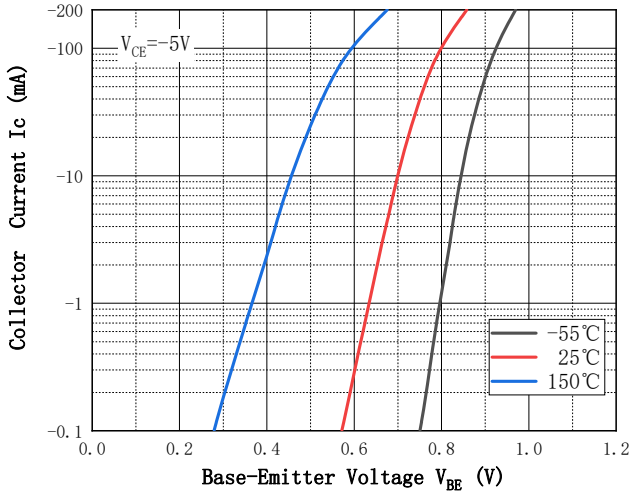
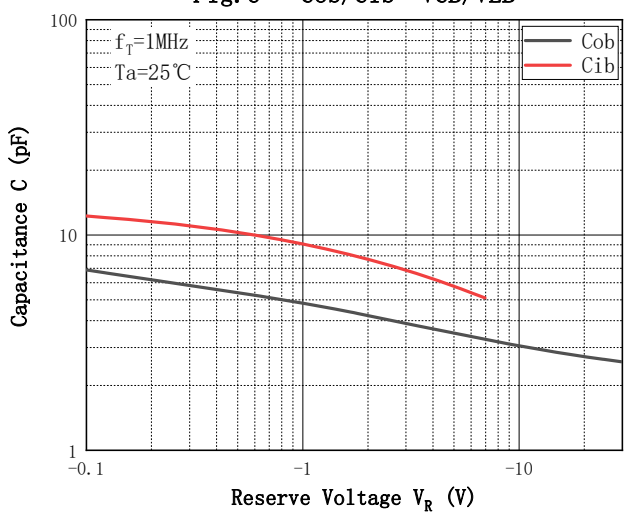
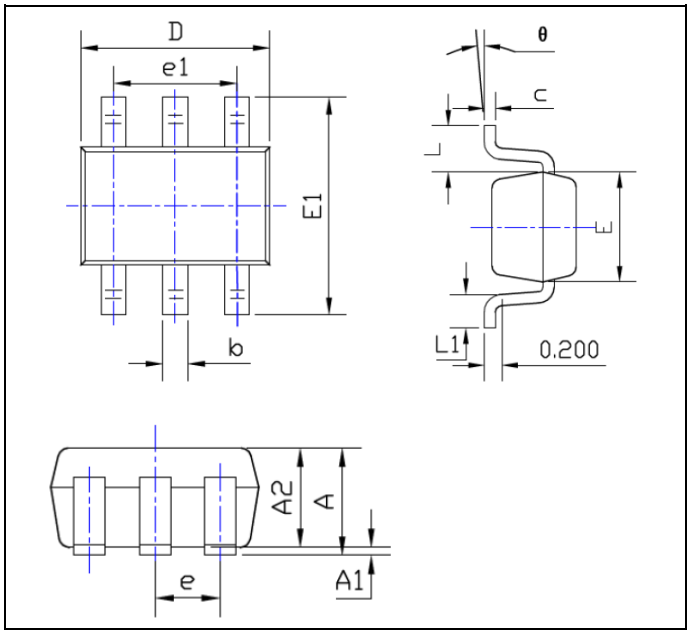


Fig. 6 - Cob/Cib—VCB/VEB

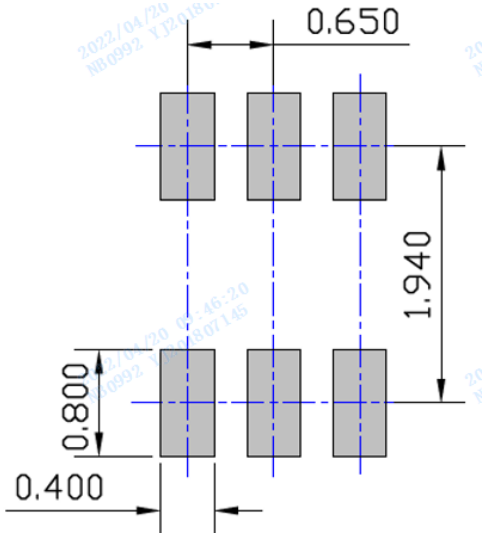


■SOT-363 Package Outline Dimensions



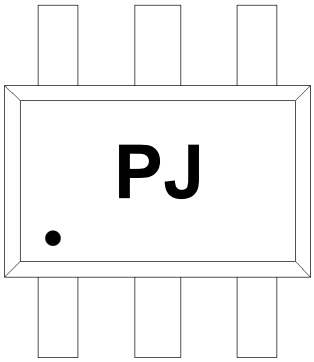
SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	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

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