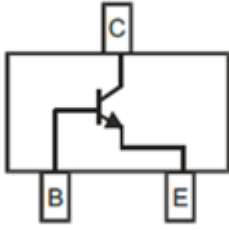


NPN General Purpose Amplifier



SOT-323

Features

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

Applications

- General purpose switching and amplification

Mechanical Data

- **Case:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:**

BC846AWQ=1A	BC847AWQ=1E	BC848AWQ=1J
BC846BWQ=1B	BC847BWQ=1F	BC848BWQ=1K
	BC847CWQ=1G	BC848CWQ=1L

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

Item	Symbol	Unit	Conditions	Value	
Collector-Base Voltage	V_{CBO}	V		BC846AWQ、BC846BWQ	80
				BC847AWQ、BC847BWQ、 BC847CWQ	50
				BC848AWQ、BC848BWQ、 BC848CWQ	30
Collector-Emitter Voltage	V_{CEO}	V		BC846AWQ、BC846BWQ	65
				BC847AWQ、BC847BWQ、 BC847CWQ	45
				BC848AWQ、BC848BWQ、 BC848CWQ	30
Emitter-Base Voltage	V_{EBO}	V		6	
Collector Current -Continuous	I_C	A		0.1	
Total Device Dissipation (*)	P_D	mW		200	
Thermal Resistance Junction to Ambient (*)	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.



BC846AWQ THRU BC848CWQ

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

Item	Symbol	Unit	Conditions	Min	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	BC846AWQ、BC846BWQ	$I_C=10\mu A, I_E=0$	80
			BC847AWQ、 BC847BWQ、BC847CWQ		50
			BC848AWQ、 BC848BWQ、BC848CWQ		30
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	BC846AWQ、BC846BWQ	$I_C=10mA, I_B=0$	65
			BC847AWQ、 BC847BWQ、BC847CWQ		45
			BC848AWQ、 BC848BWQ、BC848CWQ		30
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=10\mu A, I_C=0$	6	
Collector cut-off current	I_{CBO}	nA	BC846AWQ、BC846BWQ	$V_{CB}=70V, I_E=0$	100
			BC847AWQ、 BC847BWQ、BC847CWQ	$V_{CB}=50V, I_E=0$	
			BC848AWQ、 BC848BWQ、BC848CWQ	$V_{CB}=30V, I_E=0$	
Collector cut-off current	I_{CEO}	nA	BC846AWQ、BC846BWQ	$V_{CE}=60V, I_B=0$	100
			BC847AWQ、 BC847BWQ、BC847CWQ	$V_{CE}=45V, I_B=0$	
			BC848AWQ、 BC848BWQ、BC848CWQ	$V_{CE}=30V, I_B=0$	
Emitter cut-off current	I_{EBO}	nA	$V_{EB}=5V, I_C=0$		100
DC current gain	h_{FE}		BC846AWQ、 BC847AWQ、BC848AWQ	$V_{CE}=5.0V, I_C=2mA$	110
			BC846BWQ、 BC847BWQ、BC848BWQ		200
			BC847CWQ、BC848CWQ		420
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
Transition frequency	f_T	MHz	$V_{CE}=5V_{dc}, I_C=10mA, f=30MHz$	150	
Collector output capacitance	C_{ob}	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
BC846AWQ、BC846BWQ BC847AWQ、BC847BWQ、BC847CWQ BC848AWQ、BC848BWQ、BC848CWQ	F2	Approximate 0.005	3000	30000	120000	7" reel



BC846AWQ THRU BC848CWQ

Characteristics (Typical)

Fig. 1-Static Characteristic

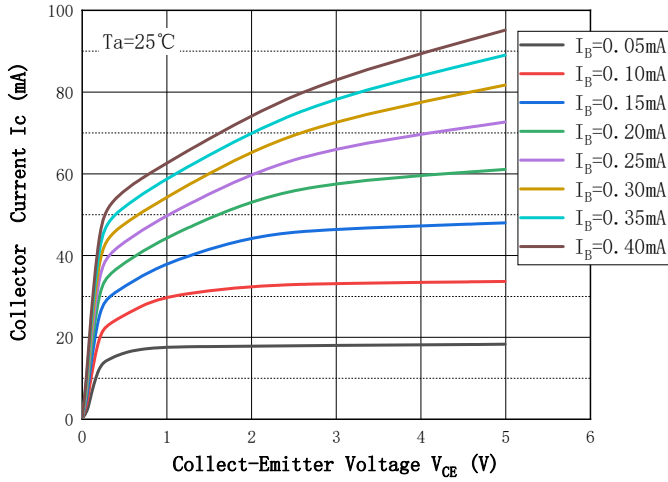


Fig. 2 - DC Current Gian

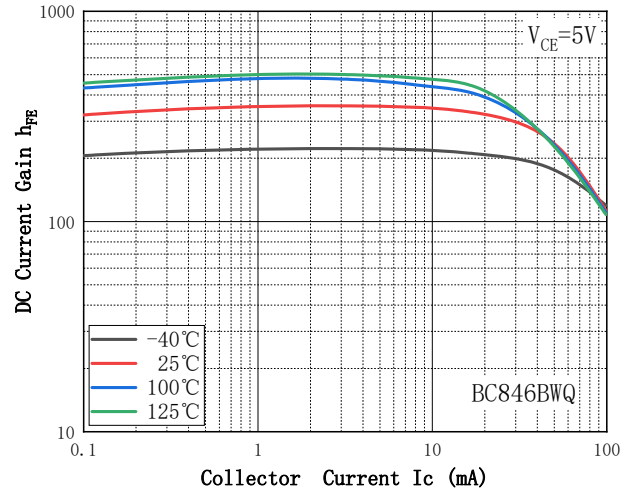


Fig. 3 - Collect-Emittor Saturation Voltage

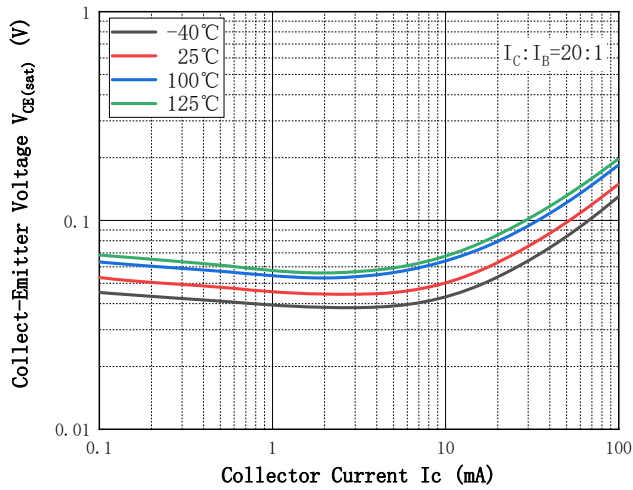


Fig. 4 - Base-Emittor Voltage

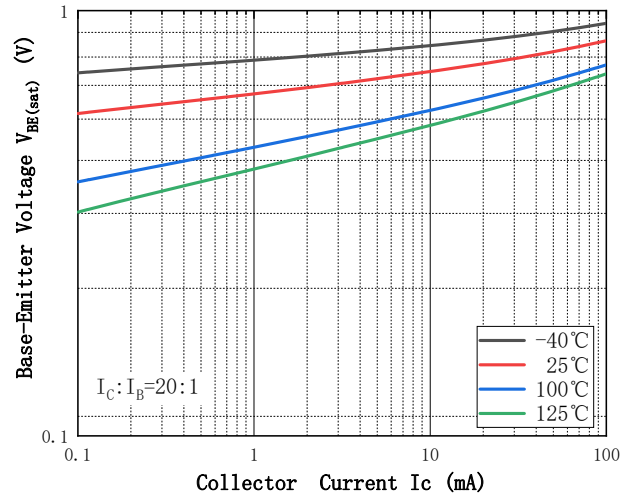


Fig. 5 - Base-Emittor On Voltage

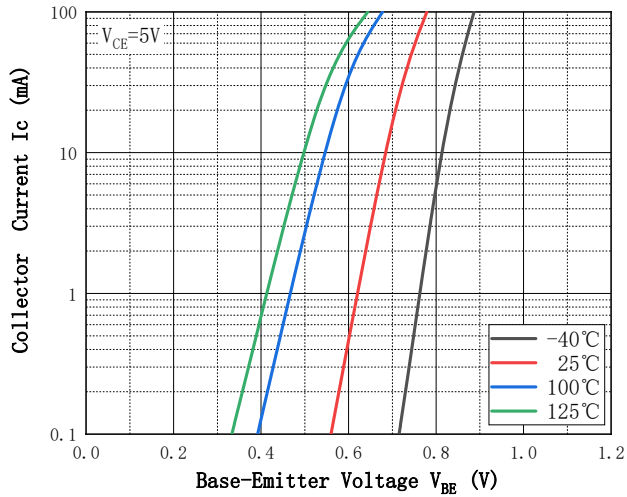
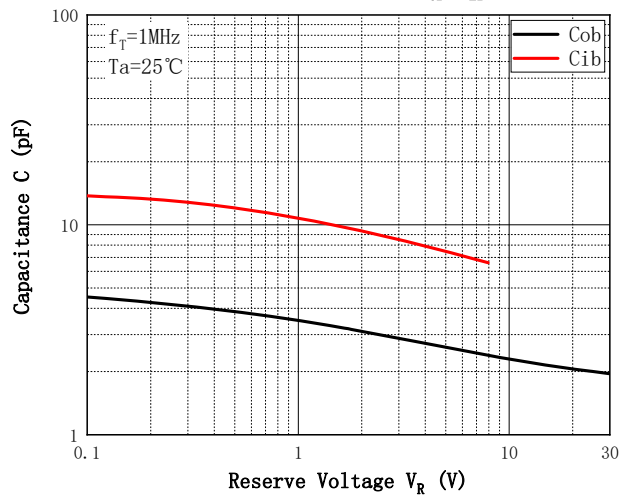


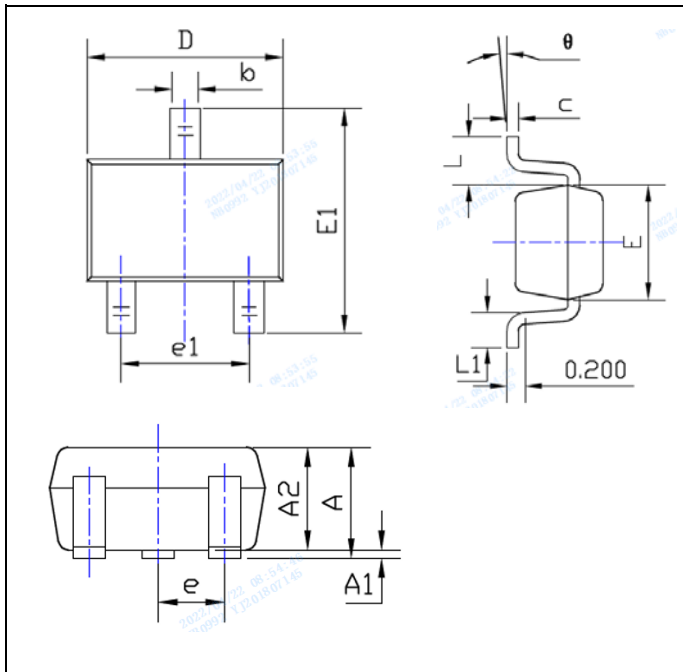
Fig. 6 - Cob/Cib— V_{CB}/V_{EB}





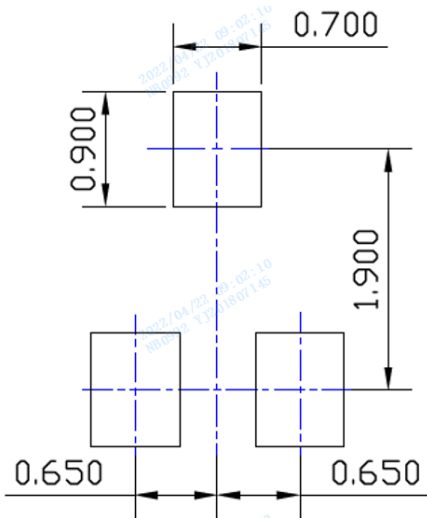
BC846AWQ THRU BC848CWQ

■SOT-323 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	0.016	0.150	0.400
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-323 Suggested Pad Layout



Unit: mm



BC846AWQ THRU BC848CWQ

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