

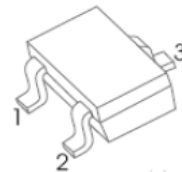


SOT-323 Plastic-Encapsulate Transistor (NPN)

Feature

- Complementary to BC856WQ BC857WQ BC858WQ
- Power Dissipation of 150mW
- AEC-Q101 Qualified
- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications

SOT-323



1. BASE
2. EMITTER
3. COLLECTOR

Mechanical Data

- SOT-323 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

Marking

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

Maximum Ratings & Thermal Characteristics (T_A=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	BC846WQ	80
		BC847WQ	50
		BC848WQ	30
V _{CEO}	Collector-Emitter Voltage	BC846WQ	65
		BC847WQ	45
		BC848WQ	30
V _{EBO}	Emitter-Base Voltage	BC846WQ	6
		BC847WQ	6
		BC848WQ	5
I _C	Collector Current –Continuous	0.1	A
P _C	Collector Power Dissipation	150	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	833	°C/W
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55 to +150	°C



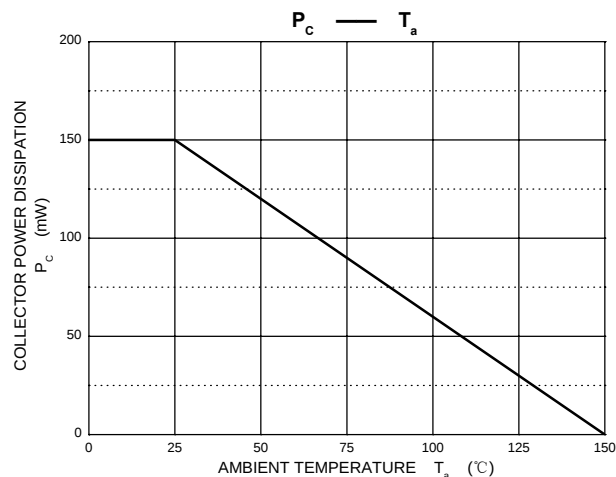
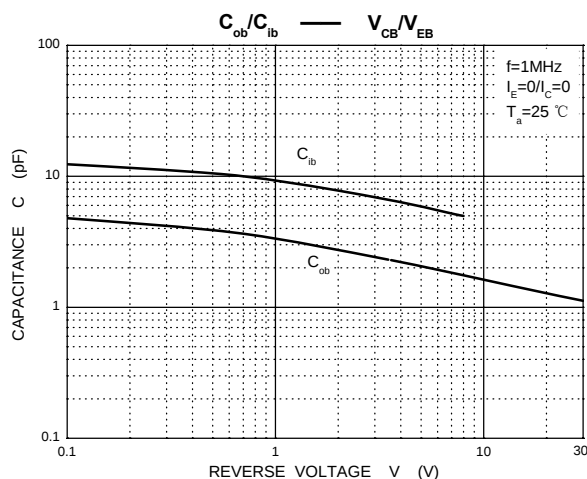
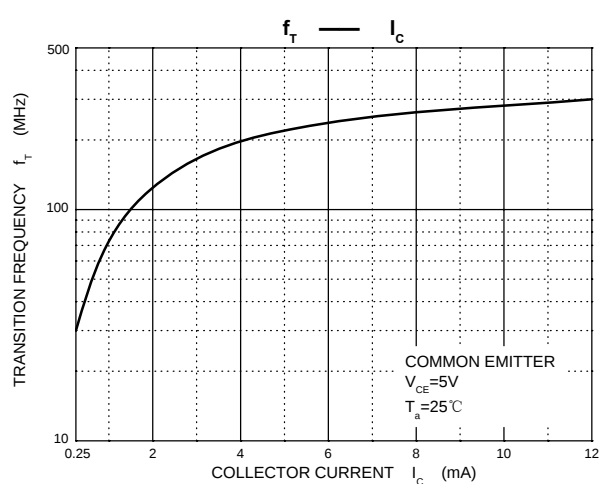
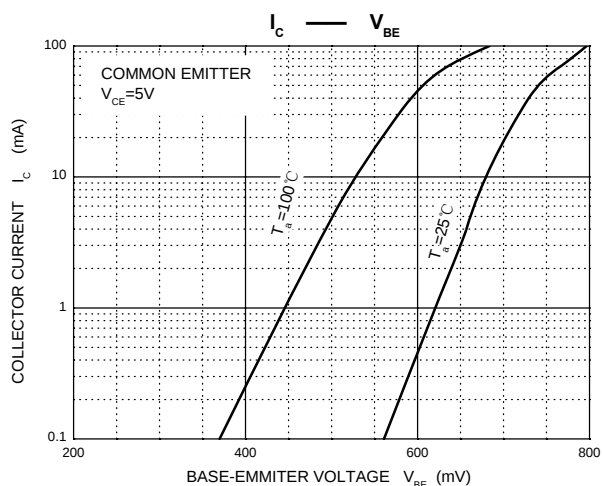
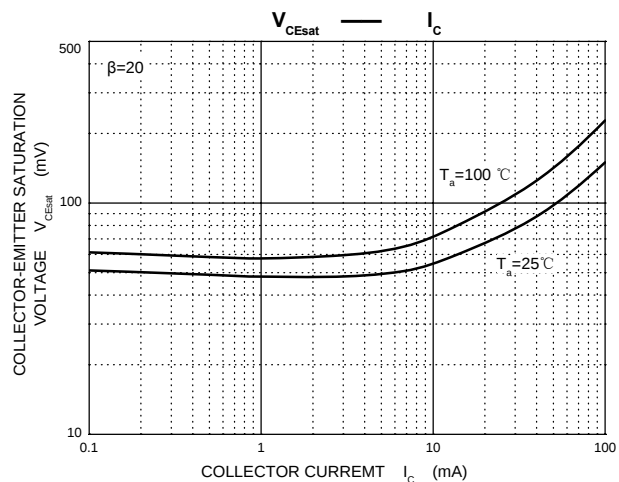
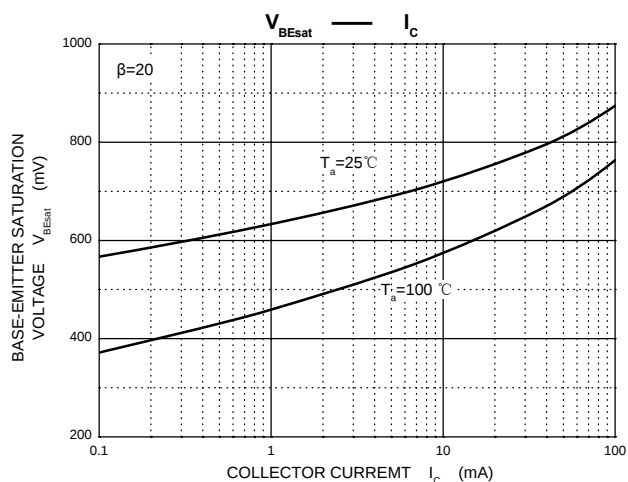
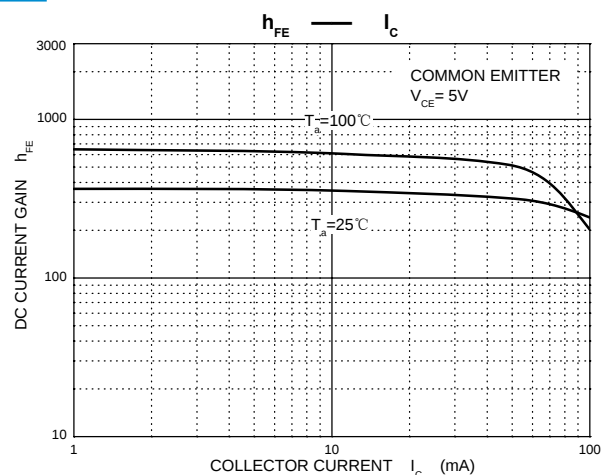
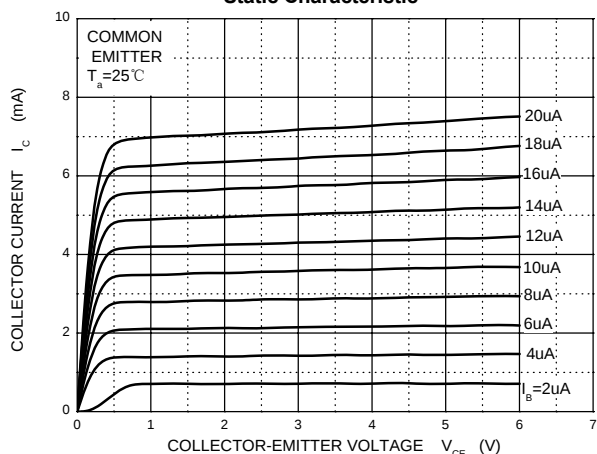
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_C=10\mu\text{A}, I_E=0$	80 50 30			V
Collector-emitter breakdown voltage	V_{CEO}	$I_C=10\text{mA}, I_B=0$	65 45 30			V
Emitter-base breakdown voltage	V_{EBO}	$I_E=1\mu\text{A}, I_C=0$	6 6 5			V
Collector Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}$			15	nA
DC current gain	h_{FE}	$V_{CE}=5\text{V}, I_C=10\mu\text{A}$ $V_{CE}=5\text{V}, I_C=2\text{mA}$	110 200 420	90 150 270	220 450 800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5\text{mA}$			0.25 0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5\text{mA}$		0.7 0.9		V
Base-emitter voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$ $V_{CE}=5\text{V}, I_C=10\text{mA}$	580	660	700 770	mV
Transition frequency	f_T	$V_{CE}=5\text{V}, I_C=10\text{mA}$ $f=100\text{MHz}$	100			MHz
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$			4.5	pF
Noise figure	NF	$V_{CE}=5\text{V}, I_C=0.2\text{mA}$, $f=1\text{KHz}, R_S=2\text{K}\Omega$ $BW=200\text{Hz}$			10 10 4	dB

Typical Characteristics

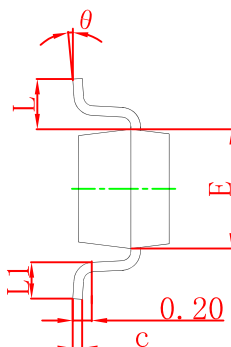
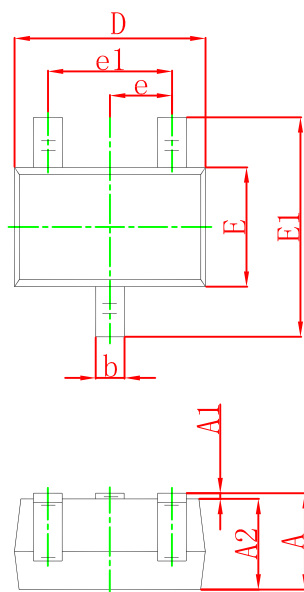


Static Characteristic



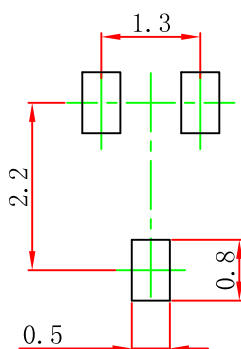


SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Notes:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.