



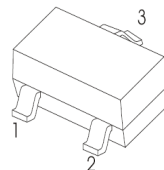
TRANSISTOR (NPN)

**FEATURES**

- Ideally suited for automatic insertion
- For switching and AF amplifier applications

**SOT-23**

1. BASE  
2. EMITTER  
3. COLLECTOR

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	BC846	80
		BC847	50
		BC848	30
V <sub>CE0</sub>	Collector-Emitter Voltage	BC846	65
		BC847	45
		BC848	30
V <sub>EB0</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current –Continuous	0.1	A
P <sub>C</sub>	Collector Power Dissipation	200	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	625	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

**DEVICE MARKING**

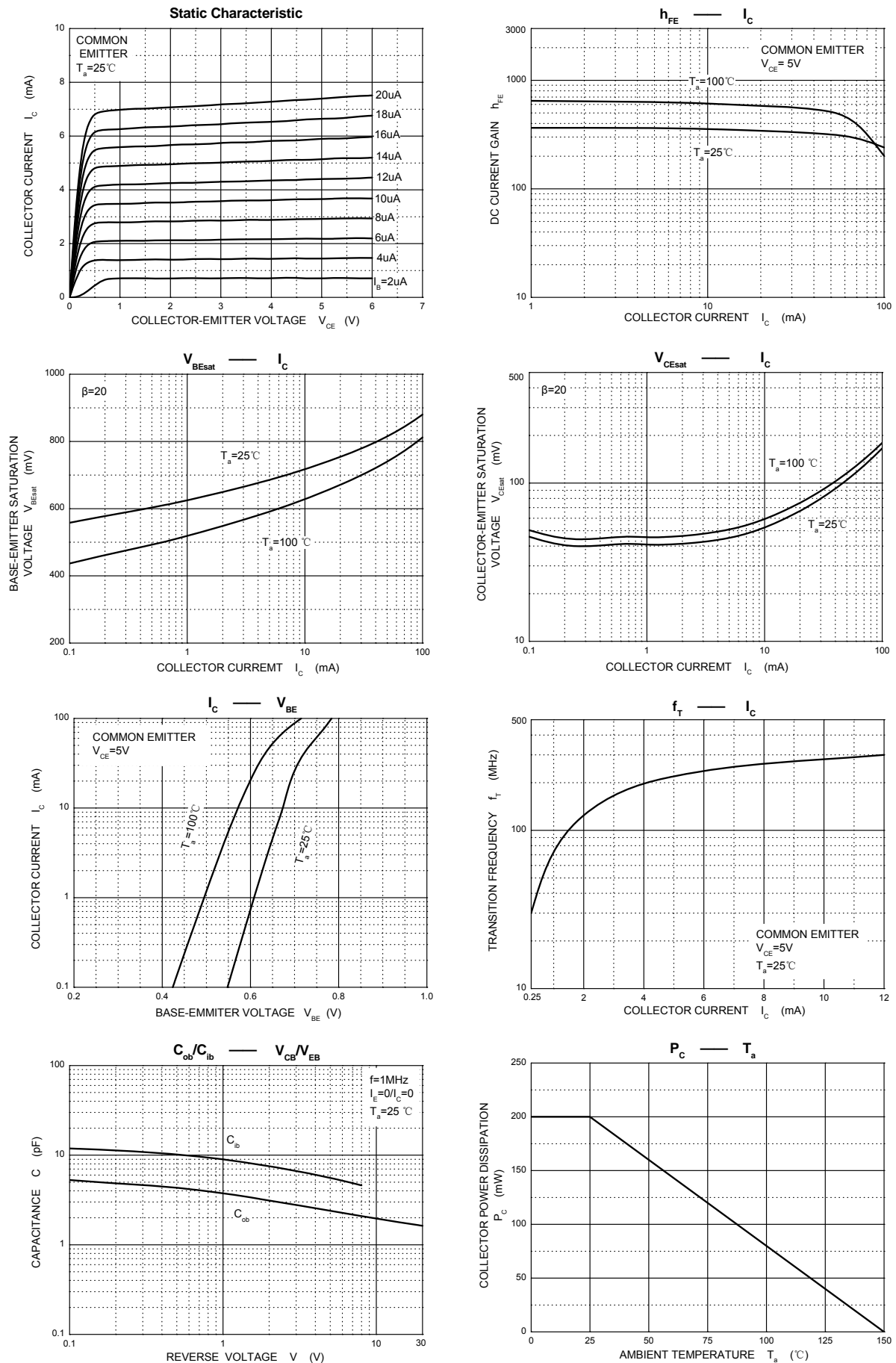
BC846A=1A; BC846B=1B;  
BC847A=1E; BC847B=1F; BC847C=1G;  
BC848A=1J; BC848B=1K; BC848C=1L



ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)

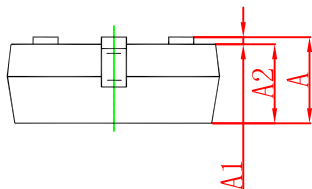
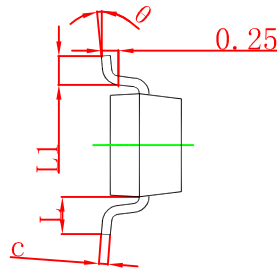
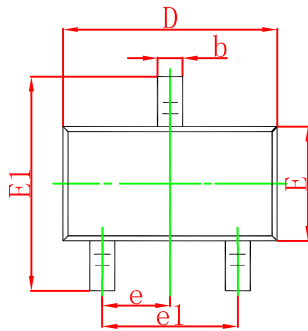
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BC846 BC847 BC848	$V_{CBO}$ $I_C=10\mu\text{A}, I_E=0$	80 50 30			V
Collector-emitter breakdown voltage	BC846 BC847 BC848	$V_{CEO}$ $I_C=10\text{mA}, I_B=0$	65 45 30			V
Emitter-base breakdown voltage		$V_{EBO}$ $I_E=10\mu\text{A}, I_C=0$	6			V
Collector cut-off current	BC846 BC847 BC848	$I_{CBO}$ $V_{CB}=70\text{V}, I_E=0$ $V_{CB}=50\text{V}, I_E=0$ $V_{CB}=30\text{V}, I_E=0$			0.1	$\mu\text{A}$
Collector cut-off current	BC846 BC847 BC848	$I_{CEO}$ $V_{CE}=60\text{V}, I_B=0$ $V_{CE}=45\text{V}, I_B=0$ $V_{CE}=30\text{V}, I_B=0$			0.1	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$ $V_{EB}=5\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	BC846A,847A,848A BC846B,847B,848B BC847C,BC848C	$h_{FE}$ $V_{CE}=5\text{V}, I_C=2\text{mA}$	110 200 420		220 450 800	
Collector-emitter saturation voltage		$V_{CE(sat)}$ $I_C=100\text{mA}, I_B=5\text{mA}$			0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$ $I_C=100\text{mA}, I_B=5\text{mA}$			1.1	V
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

### Typical Characteristics



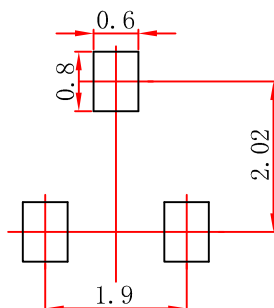


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

## SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.

2. General tolerance:  $\pm 0.05\text{mm}$ .

3. The pad layout is for reference purposes only.