

## FEATURES

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

SOT-23



1. BASE  
2. Emitter  
3. COLLECTOR

## MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

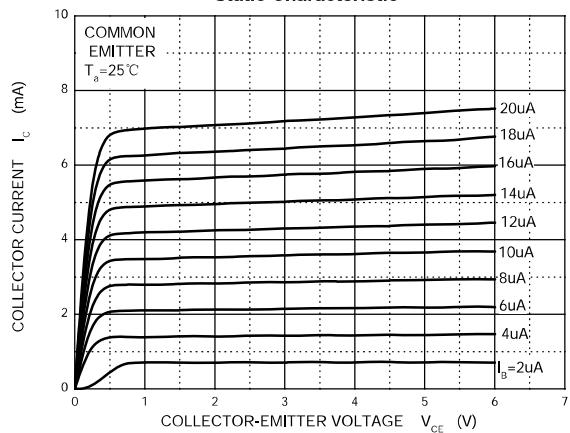
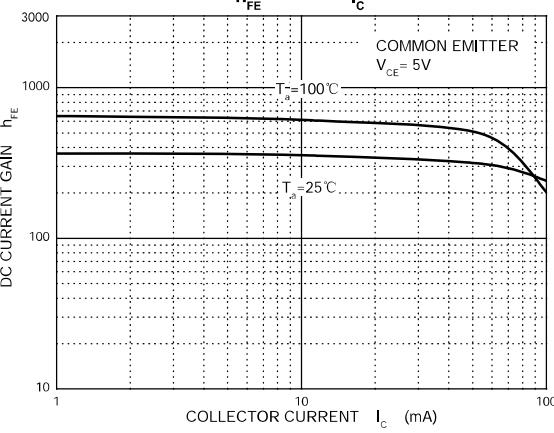
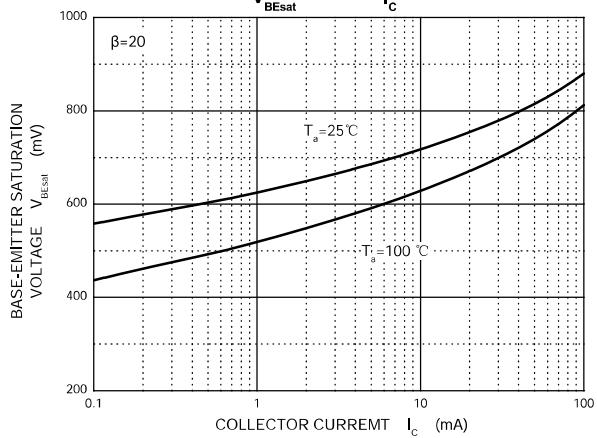
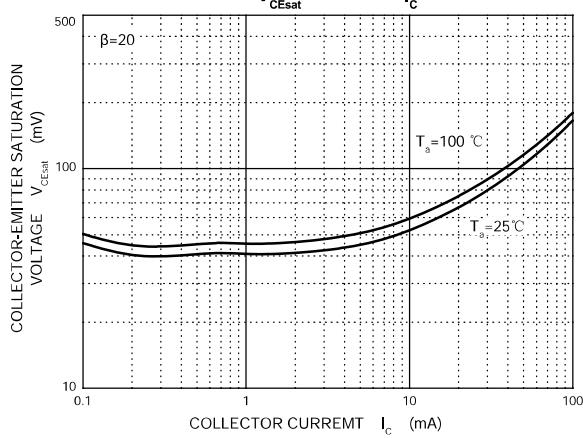
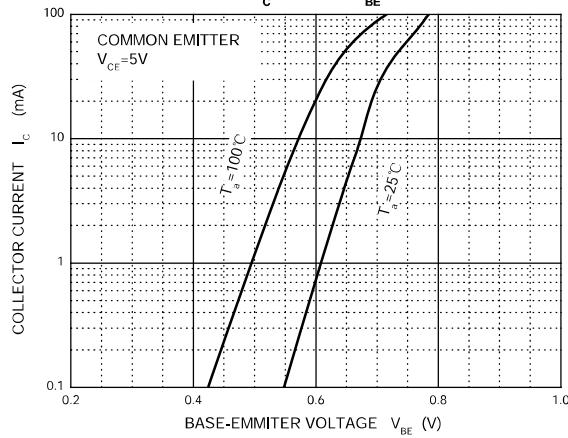
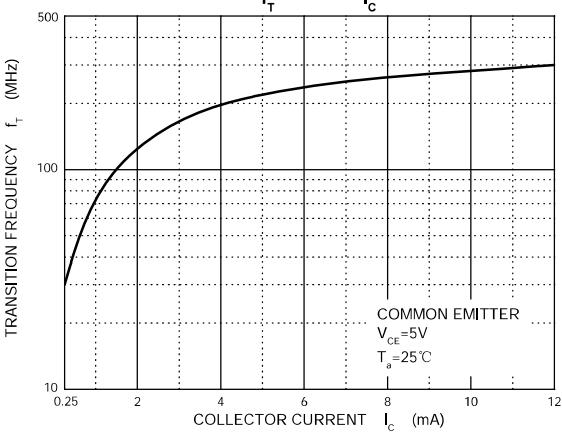
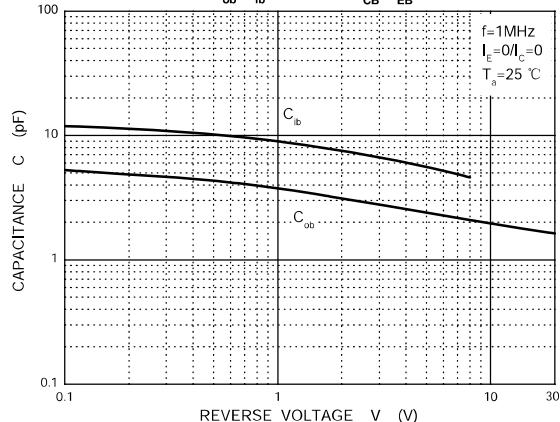
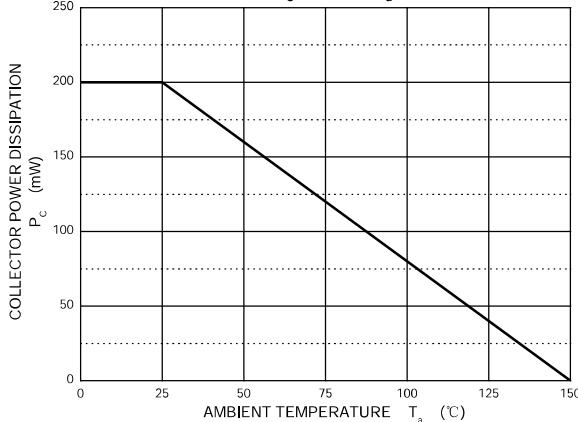
Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage		
	BC846	80	V
	BC847	50	
$V_{CEO}$	Collector-Emitter Voltage		
	BC846	65	V
	BC847	45	
$V_{EBO}$	Emitter-Base Voltage	6	V
	$I_C$	0.1	A
	$P_c$	200	mW
$R_{QJA}$	Thermal Resistance From Junction To Ambient	625	°C/W
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55~+150	°C

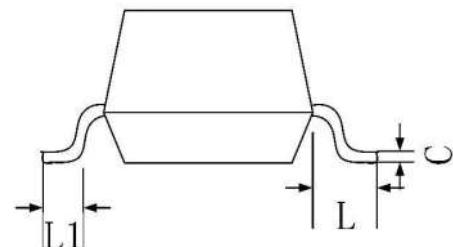
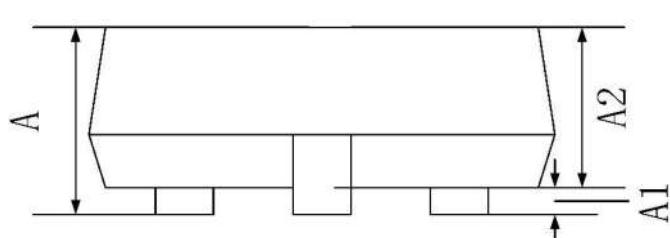
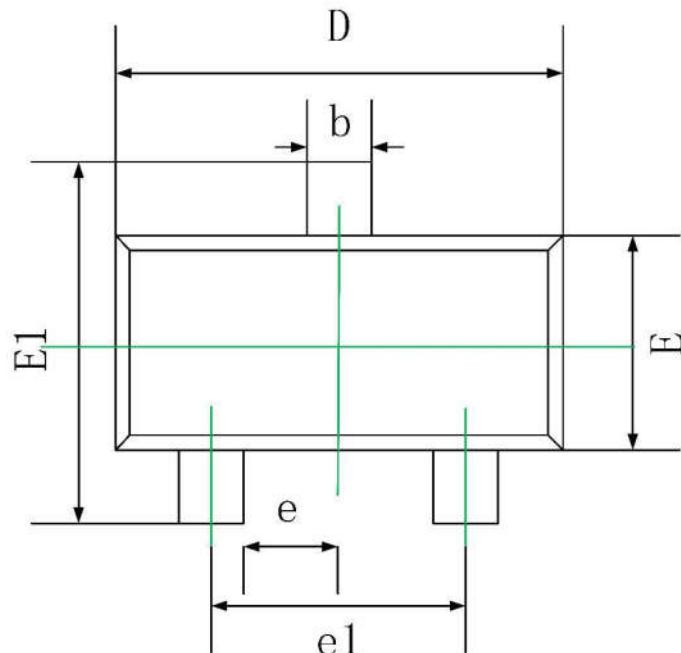
## DEVICE MARKING

**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
<b>Collector-base breakdown voltage</b>	<b>BC846</b>	$V_{CBO}$	$I_c = 10\mu\text{A}, I_E = 0$	80			V
	<b>BC847</b>			50			
	<b>BC848</b>			30			
<b>Collector-emitter breakdown voltage</b>	<b>BC846</b>	$V_{CEO}$	$I_C = 10\text{mA}, I_B = 0$	65			V
	<b>BC847</b>			45			
	<b>BC848</b>			30			
<b>Emitter-base breakdown voltage</b>		$V_{EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6			V
<b>Collector cut-off current</b>	<b>BC846</b>	$I_{CBO}$	$V_{CB} = 70\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
	<b>BC847</b>		$V_{CB} = 50\text{ V}, I_E = 0$				
	<b>BC848</b>		$V_{CB} = 30\text{ V}, I_E = 0$				
<b>Emitter cut-off current</b>		$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$			0.1	$\mu\text{A}$
<b>DC current gain</b>	<b>BC846A,847A,848A</b>	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110		220	
	<b>BC846B,847B,848B</b>			200		450	
	<b>BC847C,BC848C</b>			420		800	
<b>Collector-emitter saturation voltage</b>		$V_{CE(\text{sat})}$	$I_C = 100\text{mA}, I_B = 5\text{mA}$			0.5	V
<b>Base-emitter saturation voltage</b>		$V_{BE(\text{sat})}$	$I_C = 100\text{mA}, I_B = 5\text{mA}$			1.1	V
<b>Transition frequency</b>		$f_T$	$V_{CE} = 5\text{ V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	100			MHz
<b>Collector output capacitance</b>		$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$			4.5	pF

**Typical Characteristics**
**Static Characteristic**

**h<sub>FE</sub>** — **I<sub>c</sub>**

**V<sub>BEsat</sub>** — **I<sub>c</sub>**

**V<sub>CESat</sub>** — **I<sub>c</sub>**

**I<sub>c</sub>** — **V<sub>BE</sub>**

**f<sub>T</sub>** — **I<sub>c</sub>**

**C<sub>ob</sub>/C<sub>ib</sub>** — **V<sub>ce</sub>/V<sub>eb</sub>**

**P<sub>c</sub>** — **T<sub>a</sub>**


**SOT-23 Package Information**


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

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