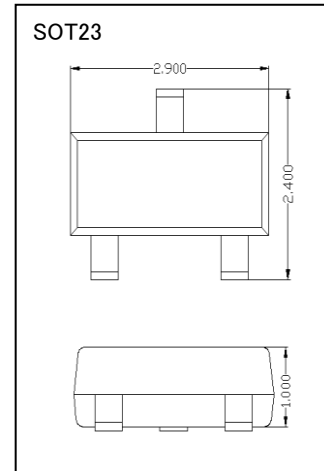
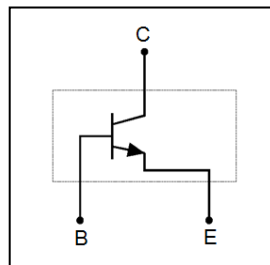


General Purpose Transistors NPN Silicon

**BC846; BC847; BC848; BC849**

- ◇ For Complementary PNP Type BC856/BC857
- ◇ Epoxy Meets UL 94 V-0 Flammability Rating
- ◇ Surface Mount SOT-23 Package
- ◇ RoHS compliant / Green EMC
- ◇ AEC-Q101 qualified (Automotive grade with suffix " Q")

Equivalent Circuit



**Maximum Ratings (Ta=25°C Unless Otherwise Noted)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	BC846A,BC846B	80
		BC847A,BC847B,BC847C	50
		BC848A,BC848B,BC848C	30
		BC849B,BC849C	30
V <sub>CEO</sub>	Collector-Emitter Voltage	BC846A,BC846B	65
		BC847A,BC847B,BC847C	45
		BC848A,BC848B,BC848C	30
		BC849B,BC849C	30
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current	100	mA
P <sub>C</sub>	Collector Power Dissipation*	225	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	556	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

\*Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

**Device Marking**

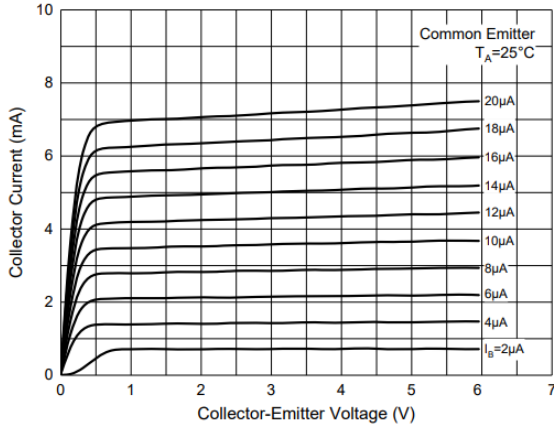
BC846A	BC846B	BC847A	BC847B	BC847C	BC848A	BC848B	BC848C	BC849B	BC849C
1A	1B	1E	1F	1G	1J	1K	1L	49B	49C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

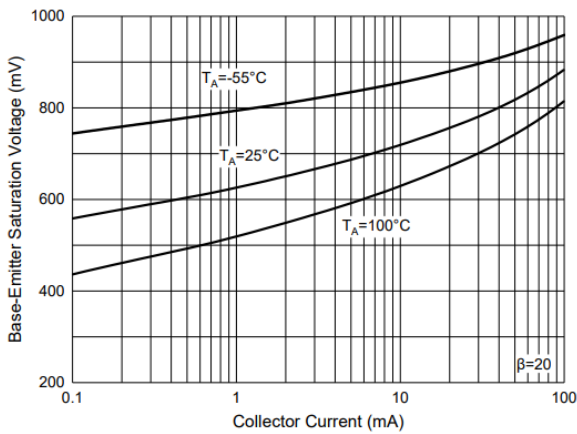
Symbol	Parameter	Test Conditions		Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=10mA, I_B=0$	BC846A,BC846B	65		V
			BC847A,BC847B,BC847C	45		
			BC848A,BC848B,BC848C	30		
			BC849B,BC849C	30		
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=10\mu A, I_E=0$	BC846A,BC846B	80		V
			BC847A,BC847B,BC847C	50		
			BC848A,BC848B,BC848C	30		
			BC849B,BC849C	30		
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=10\mu A, I_C=0$		6.0		V
$I_{CBO}$	Collector-Base Cutoff Current	$V_{CB}=70V, I_E=0V$	BC846A,BC846B	100		nA
		$V_{CB}=50V, I_E=0V$	BC847A,BC847B,BC847C			
		$V_{CB}=30V, I_E=0V$	BC848A,BC848B,BC848C			
			BC849B,BC849C			
$I_{CEO}$	Collector-Emitter Cutoff Current	$V_{CE}=60V, I_B=0$	BC846A,BC846B	100		nA
		$V_{CE}=45V, I_B=0$	BC847A,BC847B,BC847C			
		$V_{CE}=30V, I_B=0$	BC848A,BC848B,BC848C			
			BC849B,BC849C			
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5V, I_C=0$			100	nA
$h_{FE}$	DC Current Gain*	$V_{CE}=5V, I_C=2mA$	BC846A,BC847A,BC848A	110	220	
			BC846B,BC847B,BC848B,BC849B	200	450	
			BC847C,BC848C,BC849C	420	800	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=100mA, I_B=5mA$			0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=100mA, I_B=5mA$			1.1	V
$f_T$	Transition frequency	$I_C=10mA, V_{CE}=5V, f=100MHz$		100		MHZ
$C_{ob}$	Collector Output Capacitance	$V_{CB}=10V, f=1MHz$			4.5	pF

\* Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

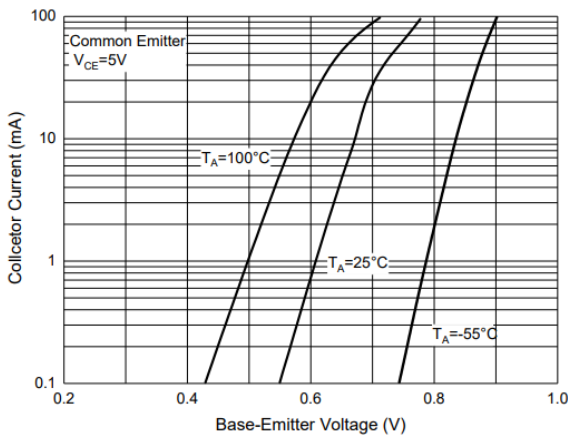
Typical Characteristics



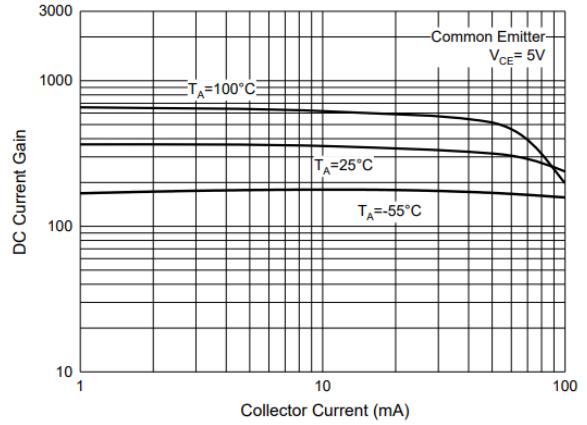
Static Characteristics



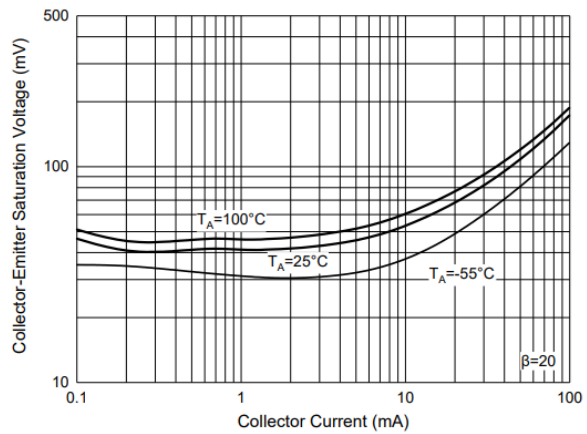
Base-Emitter Saturation Voltage Characteristics



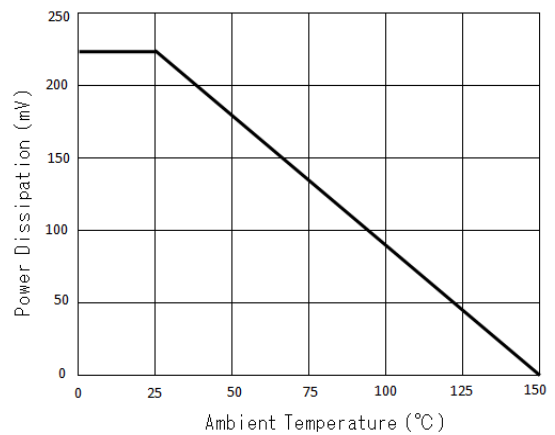
Base-Emitter Voltage Characteristics



DC Current Gain Characteristics



Collector-Emitter Saturation Voltage Characteristics



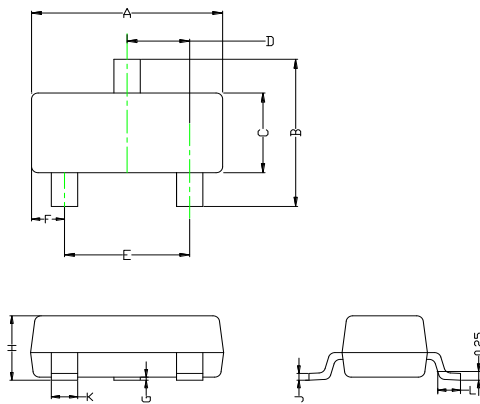
Collector Power Derating Curve

Ordering Information

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
BC84X	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

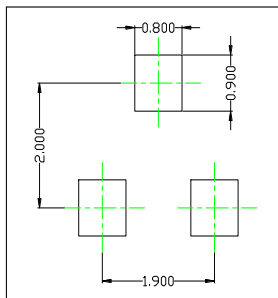
Package Dimensions

Package outline : SOT23



Symbol	Dimensions in mm	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.890	1.030
E	1.780	2.050
F	0.450	0.600
G	0.013	0.100
H	0.900	1.110
J	0.085	0.180
K	0.370	0.510
L	0.300	0.500

SOT23 Package Outline



Land Pattern Recommendation

Notice:

1. Lead plating: Pb free solder
2. Lead thickness includes solder plating
3. Lead frame: CAC-5
4. Other Tolerance:  $\pm 0.05$