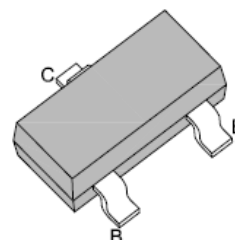


SMD General Purpose Transistor (NPN)

Features

- NPN Silicon Epitaxial Planar Transistor for Switching and Amplifier Applications



Mechanical Data

Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

SOT-23



Marking Information

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

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	BC846	BC847	BC848	Unit	Conditions
V_{CB0}	Collector-Base Voltage	80	50	30	V	
V_{CE0}	Collector-Emitter Voltage	65	45	30	V	
V_{EB0}	Emitter-Base Voltage	6	6	5	V	
I_C	Collector Current	100			mA	
P_{tot}	Power Dissipation	330			mW	Note 1
R_{θJA}	Thermal Resistance, Junction to Ambient	375			° C/W	Note 1
T_J	Junction Temperature	-55 to +150			° C	
T_{STG}	Storage Temperature Range	-55 to +150			° C	

Note: 1. Transistor mounted on FR-4 board 8cm².

SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

Electrical Characteristics ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description		Min.	Typ.	Max.	Unit	Conditions
ICBO	Collector-Base Cut-off Current		-	-	15	nA	V _{CB} =30V, I _E =0
			-	-	5.0	μA	V _{CB} =30V, I _E =0, T _J =150° C
hFE	D.C. Current Gain	BC846/7/8, Suffix 'A'	-	90	-		V _{CE} =5V, I _C =10μA
		BC846/7/8, Suffix 'B'	-	150	-		
		BC847/8, Suffix 'C'	-	270	-		
		BC846/7/8, Suffix 'A'	110	180	220		V _{CE} =5V, I _C =2mA
		BC846/7/8, Suffix 'B'	200	290	450		
		BC847/8, Suffix 'C'	420	520	800		
V_{CE(sat)}	Collector-Emitter Saturation Voltage		-	-	0.25	V	I _C =10mA, I _B =0.5mA
			-	-	0.6		I _C =100mA, I _B =5mA
V_{BE(sat)}	Base-Emitter Saturation Voltage		-	0.7	-	V	I _C =10mA, I _B =0.5mA
			-	0.9	-		I _C =100mA, I _B =5mA
V_{BE(on)}	Base-Emitter On Voltage		0.58	0.66	0.7	V	V _{CE} =5V, I _C =2mA
			-	-	0.77		V _{CE} =5V, I _C =10mA
f_T	Current Gain-Bandwidth Product		100	-	-	MHz	V _{CE} =5V, I _C =10mA, f=100MHz
C_{ob}	Collector Output Capacitance		-	-	4.5	pF	V _{CB} =10V, I _E =0, f=1MHz
NF	Noise Figure		-	-	10	dB	V _{CE} =5V, I _C =0.2mA, R _G =2KΩ, f=1KHz

SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

Typical Characteristics Curves

1. BC846A, BC847A, BC848A

Fig.1-Collector Cut-off Current vs. Junction Temperature

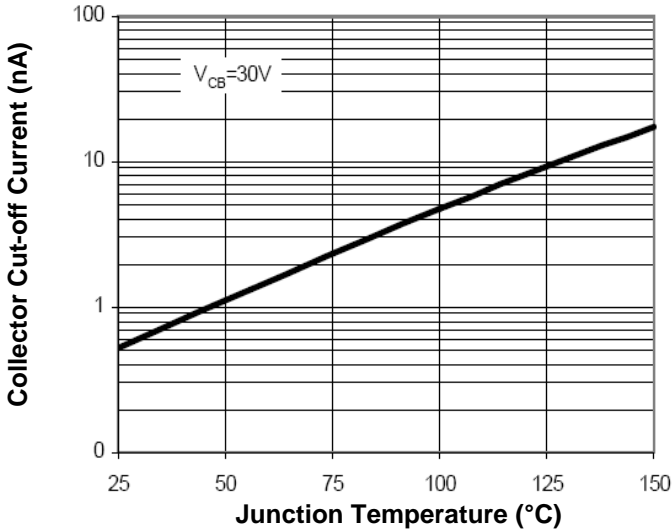


Fig.2- DC Current Gain vs. Collector Current

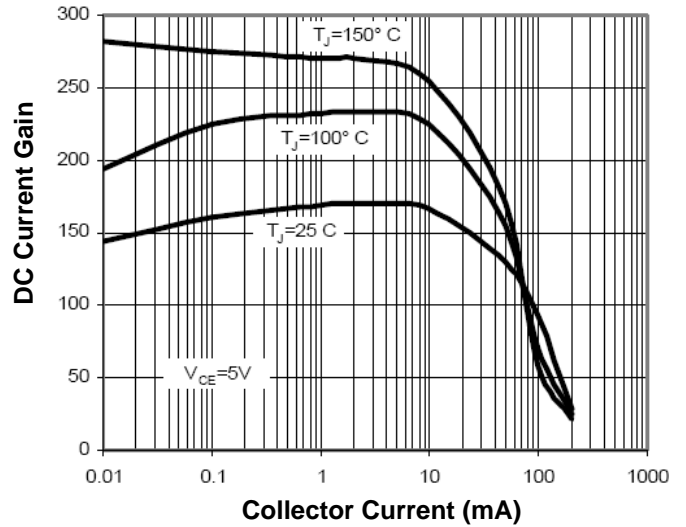


Fig.3-Base-Emitter On Voltage vs. Collector Current

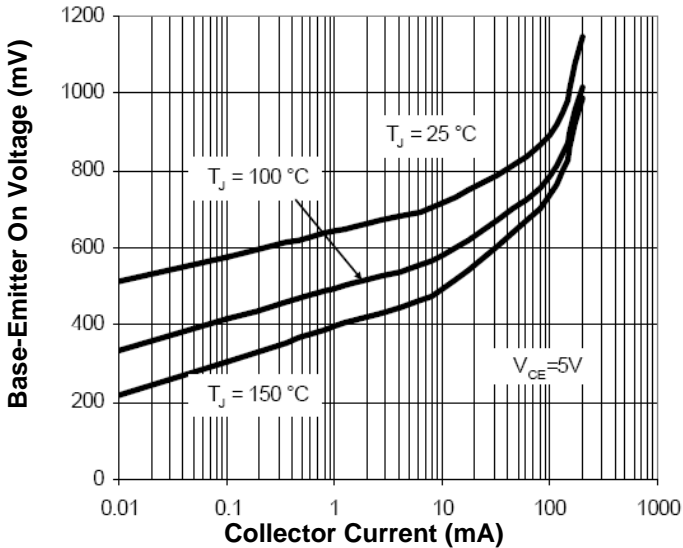
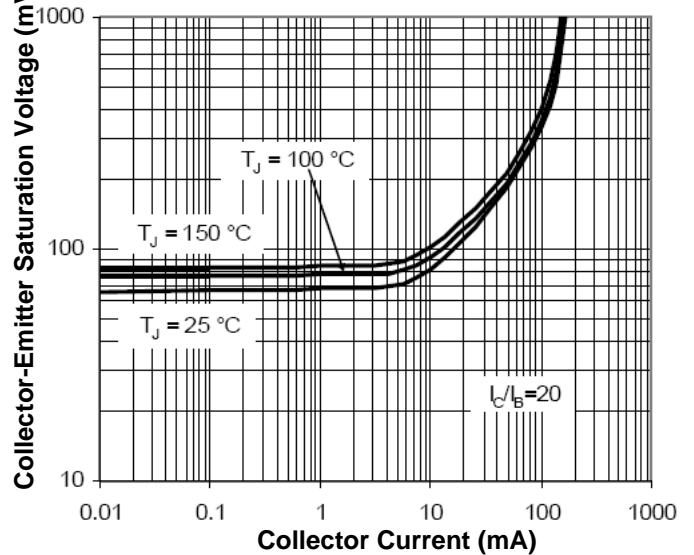


Fig.4- Collector-Emitter Saturation Voltage vs. Collector Current



SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

Fig.5- Base-Emitter Saturation Voltage vs. Collector Current

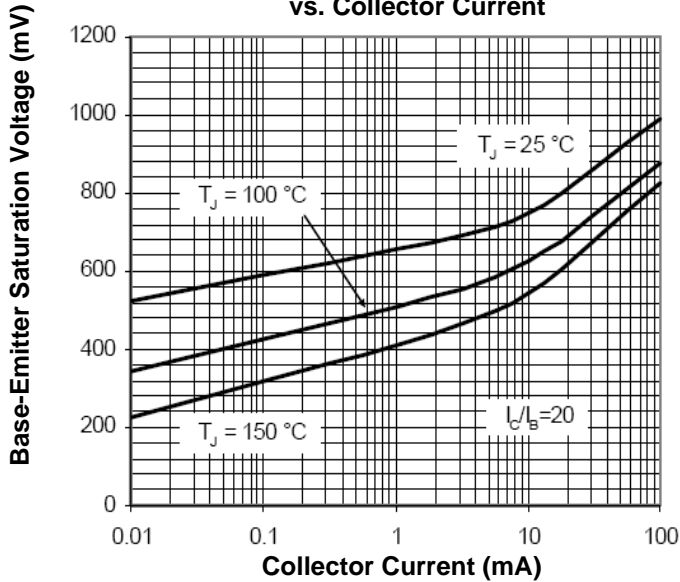
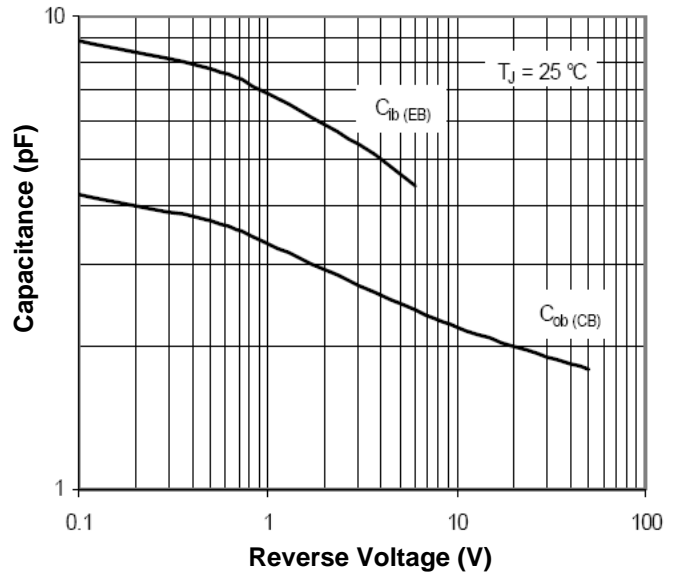


Fig.6- Typical Capacitances vs. Reverse Voltage



2. BC846B, BC847B, BC848B

Fig.1-Collector Cut-off Current vs. Junction Temperature

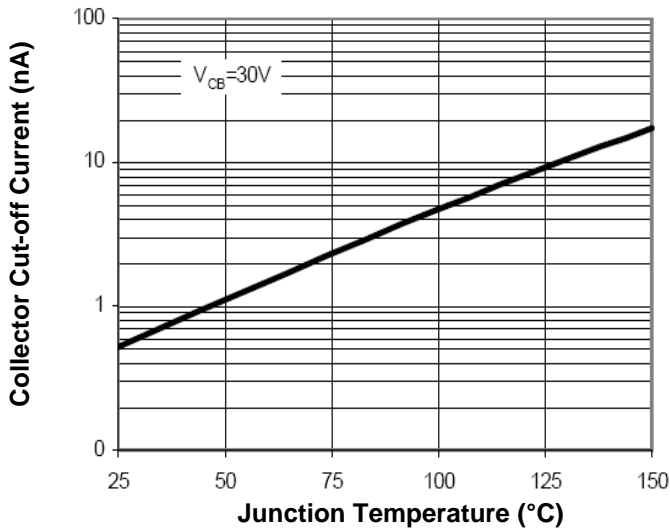
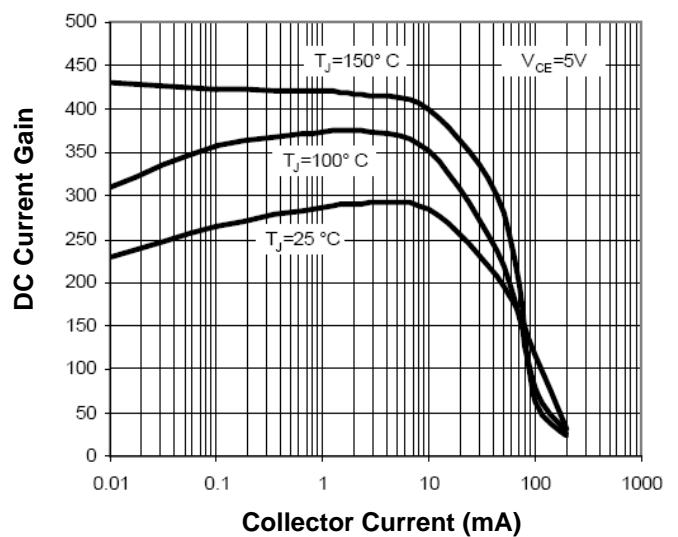


Fig.2- DC Current Gain vs. Collector Current



SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

Fig.3-Base-Emitter On Voltage vs. Collector Current

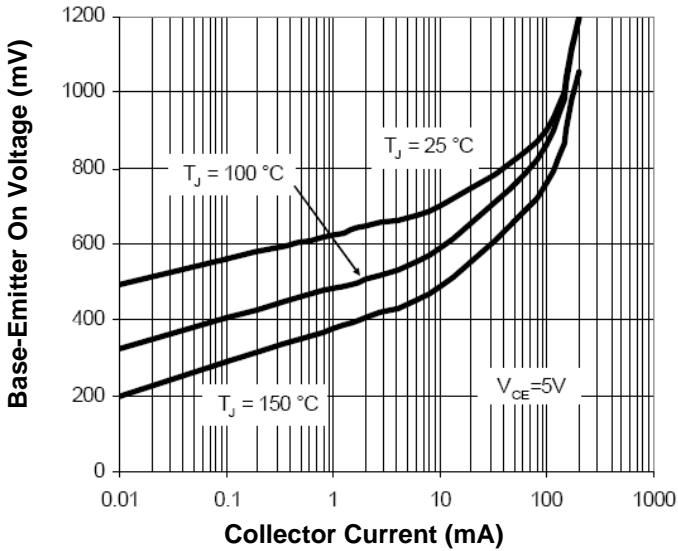


Fig.4- Collector-Emitter Saturation Voltage vs. Collector Current

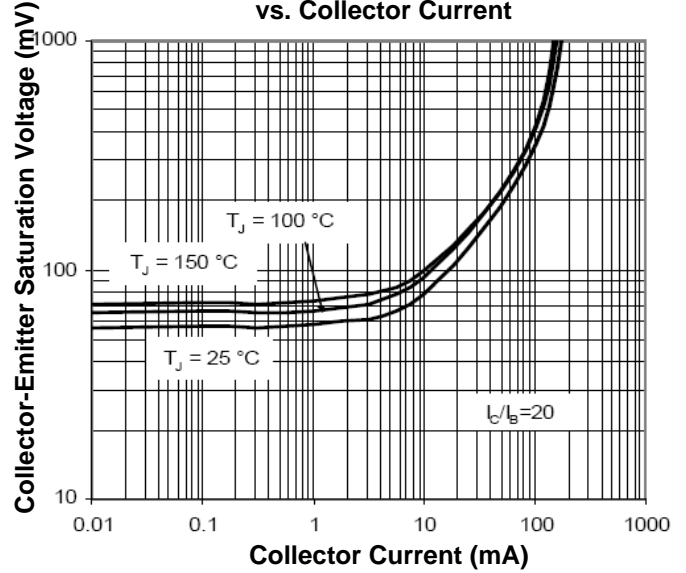


Fig.5- Base-Emitter Saturation Voltage vs. Collector Current

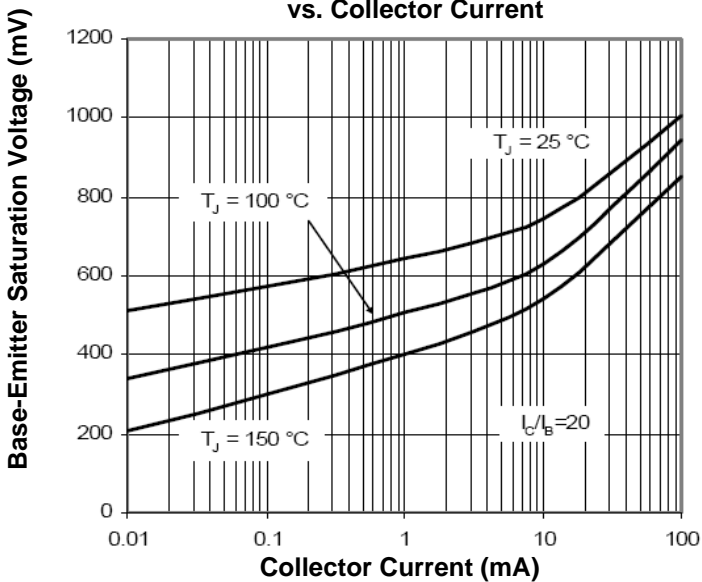
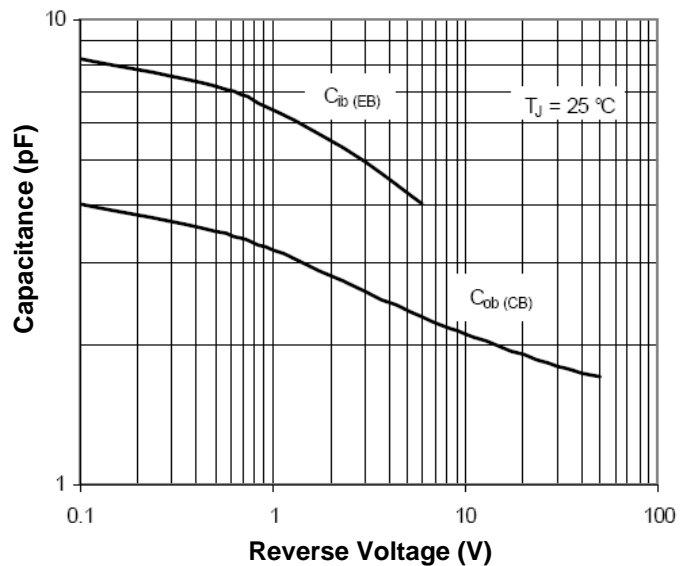


Fig.6- Typical Capacitances vs. Reverse Voltage



SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

3. BC847C, BC848C

Fig.1-Collector Cut-off Current vs. Junction Temperature

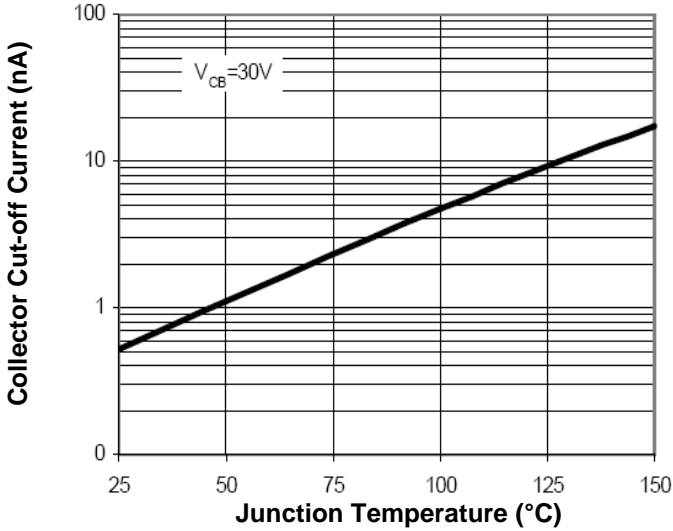


Fig.2- DC Current Gain vs. Collector Current

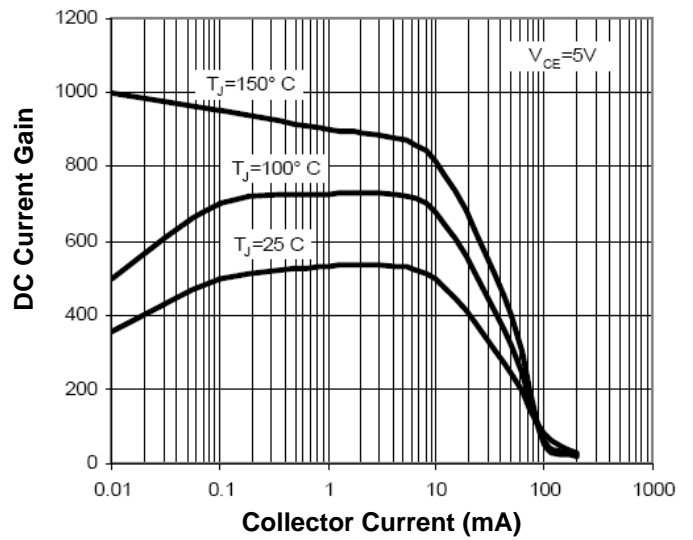


Fig.3-Base-Emitter On Voltage vs. Collector Current

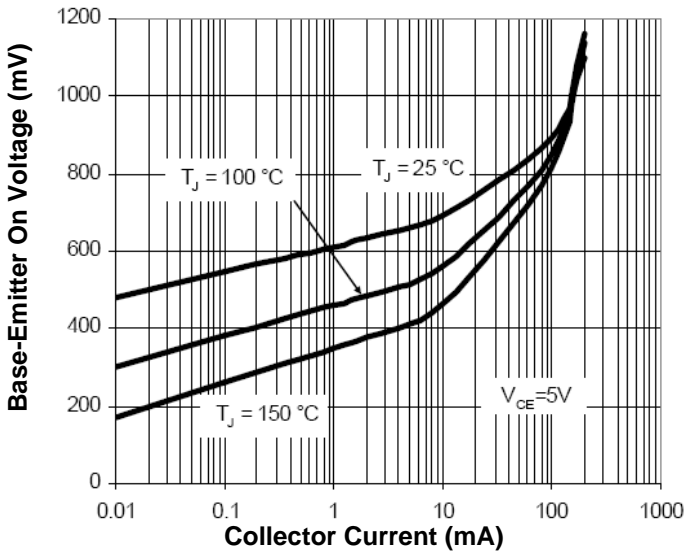
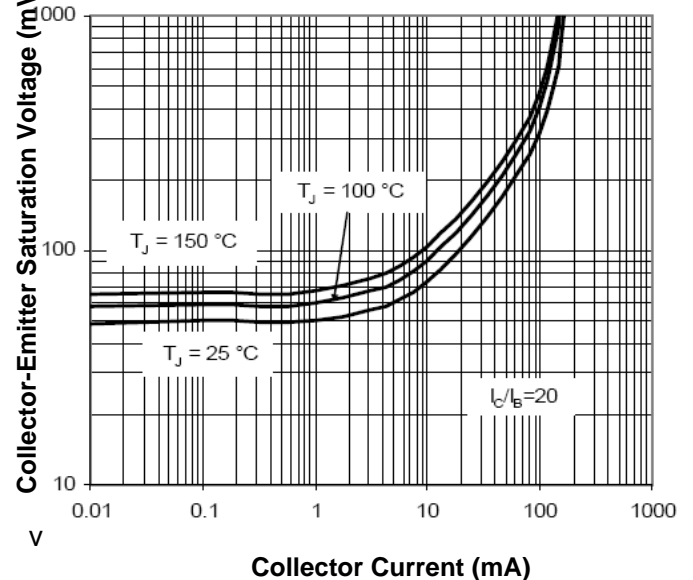


Fig.4- Collector-Emitter Saturation Voltage vs. Collector Current



SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

Fig.5- Base-Emitter Saturation Voltage vs. Collector Current

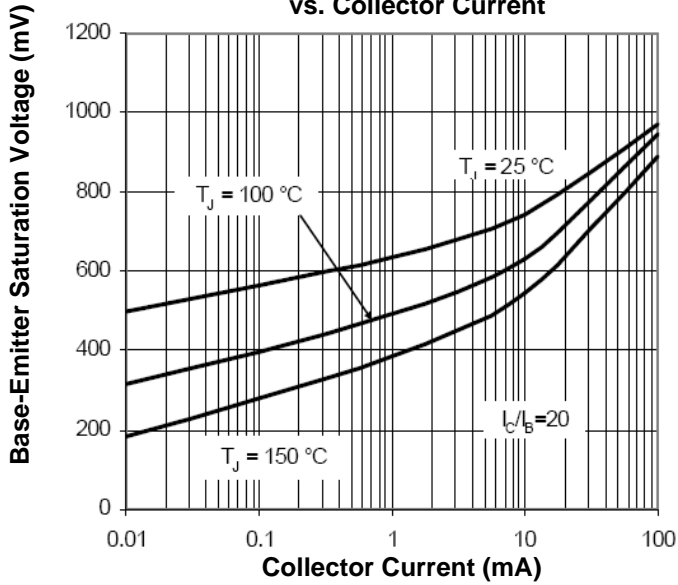
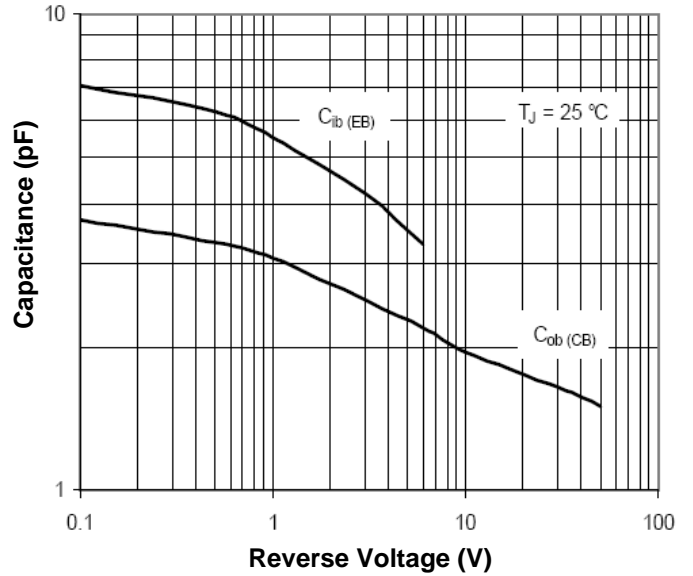
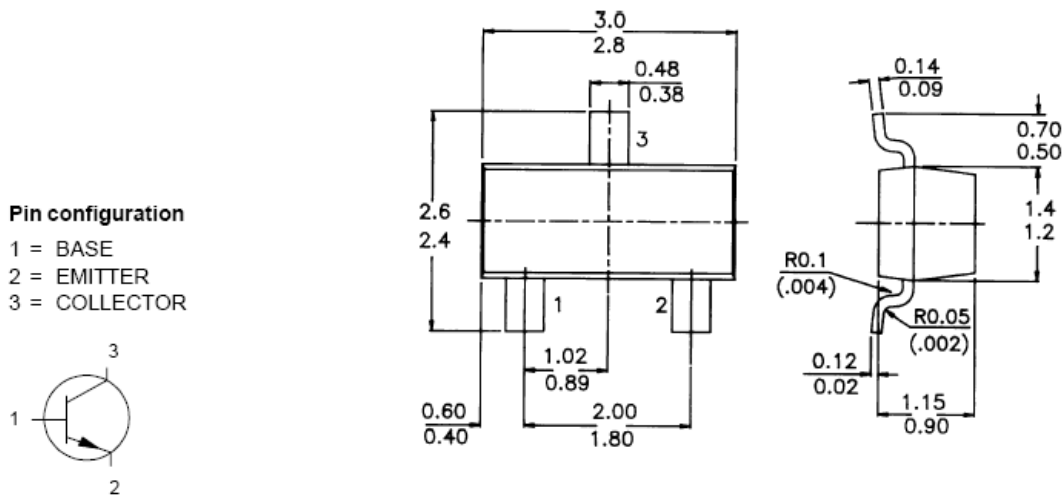


Fig.6- Typical Capacitances vs. Reverse Voltage



Dimensions in mm

SOT-23



SMD General Purpose Transistor (NPN)

BC846/BC847/BC848

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