

BC846,BC847,BC848,BC849,BC850 SERIES

NPN GENERAL PURPOSE TRANSISTORS

VOLTAGE 30/45/65 Volt **POWER** 330 mWatt

FEATURES

- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current $I_C = 100\text{mA}$
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

Case: SOT-23, Plastic

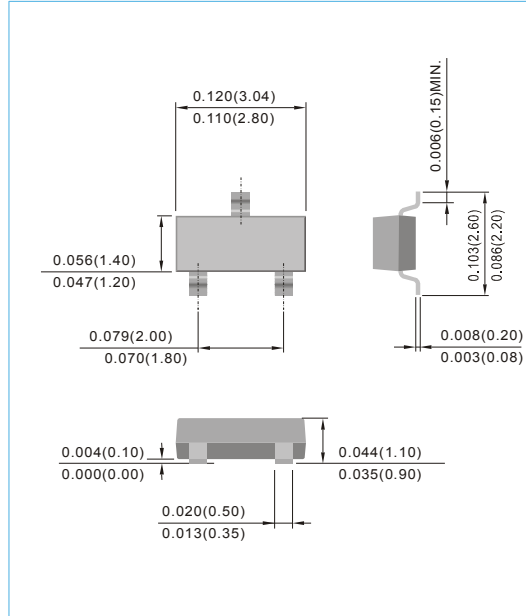
Terminals: Solderable per MIL-STD-750, Method 2026

Approx. Weight: 0.0003 ounce, 0.0084 gram

Device Marking:				
BC846A=46A	BC847A=47A	BC848A=48A		
BC846B=46B	BC847B=47B	BC848B=48B	BC849B=49B	BC850B=50B
	BC847C=47C	BC848C=48C	BC849C=49C	BC850C=50C

SOT-23

Unit : inch(mm)



ABSOLUTE RATINGS

Parameter	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	65	V
		45	
		30	
Collector - Base Voltage	V_{CBO}	80	V
		50	
		30	
Emitter - Base Voltage	V_{EBO}	6	V
		6	
		5	
Collector Current - Continuous	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA

THERMAL CHARACTERISTICS

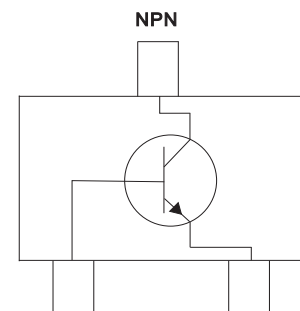
Parameter	Symbol	Value	Units
Max Power Dissipation (Note 1)	P_{TOT}	330	mW
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	375	$^{\circ}\text{C/W}$
Operating Junction Temperature and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

Note 1: Mounted on a FR4 PCB, single-sided copper, standard footprint

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage BC846A/B BC847A/B/C,BC850B/C BC848A/B/C,BC849B/C	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	65 45 30	-	-	V
Collector - Base Breakdown Voltage BC846A/B BC847A/B/C,BC850B/C BC848A/B/C,BC849B/C	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80 50 30	-	-	V
Emitter - Base Breakdown Voltage BC846A/B BC847A/B/C,BC850B/C BC848A/B/C,BC849B/C	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$	6 6 5	-	-	V
Emitter-Base Cutoff Current	I_{EBO}	$V_{EB}=5$	-	-	100	nA
Collector-Base Cutoff Current	I_{CBO}	$V_{CB}=30V, I_E=0$ $V_{CB}=30V, I_E=0, T_J=150^{\circ}C$	-	-	15 5	nA μA
DC Current Gain BC846~BC848 Suffix "A" BC846~BC850 Suffix "B" BC847~BC850 Suffix "C"	h_{FE}	$I_C=10\mu A, V_{CE}=5V$	-	90 150 270	-	-
DC Current Gain BC846~BC848 Suffix "A" BC846~BC850 Suffix "B" BC847~BC850 Suffix "C"	h_{FE}	$I_C=2mA, V_{CE}=5V$	110 200 420	180 290 520	220 450 800	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA$	-	-	0.25 0.6	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA$	-	0.7 0.9	-	V
Base - Emitter Voltage	$V_{BE(ON)}$	$I_C=2mA, V_{CE}=5V$ $I_C=10mA, V_{CE}=5V$	0.58 -	0.66 -	0.70 0.77	V
Collector - Base Capacitance	C_{CBO}	$V_{CB}=10V, I_E=0, f=1MHz$	-	-	4.5	pF



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ELECTRICAL CHARACTERISTICS CURVE (BC846A,BC847A,BC848A)

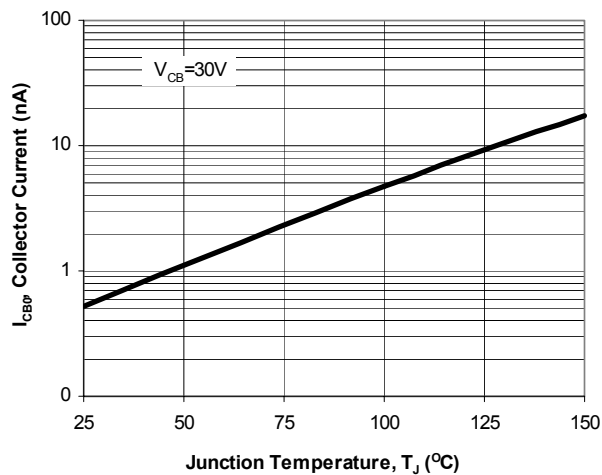


Fig. 1. Typical I_{CB0} vs. Junction Temperature

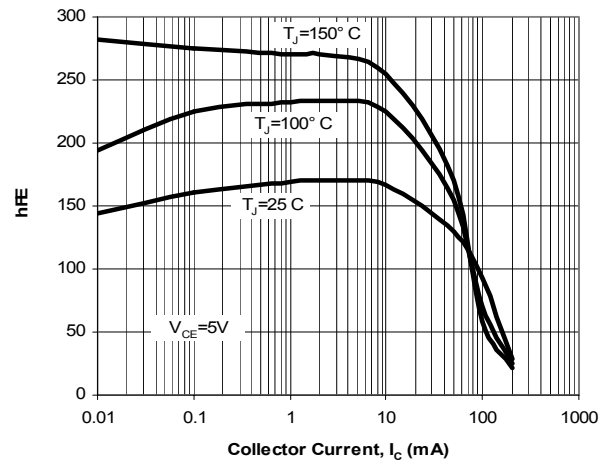


Fig. 2. Typical h_{FE} vs. Collector Current

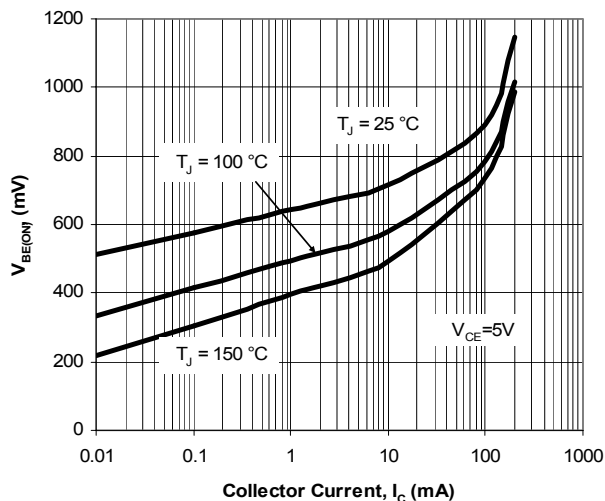


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

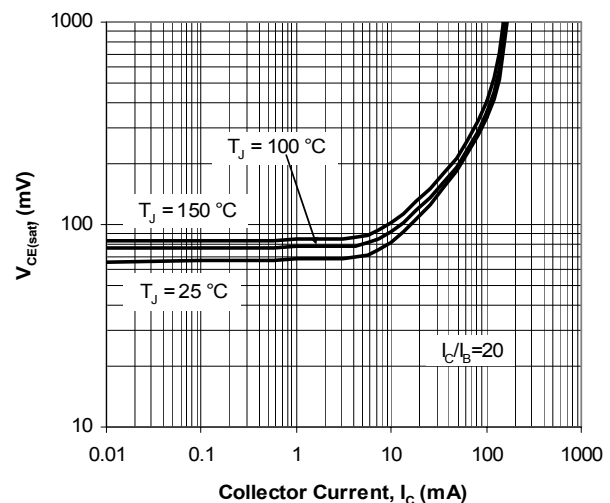


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

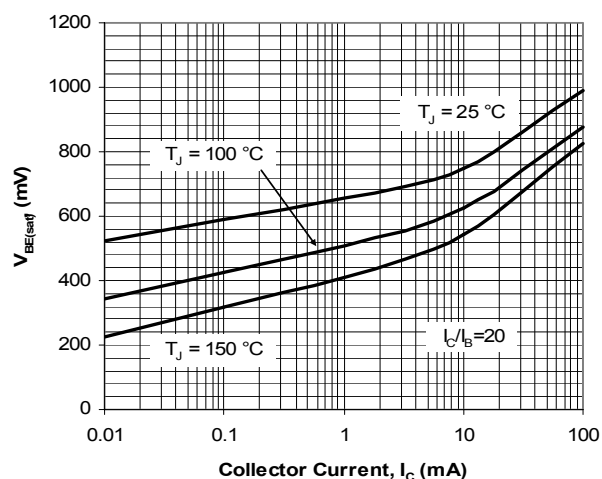


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

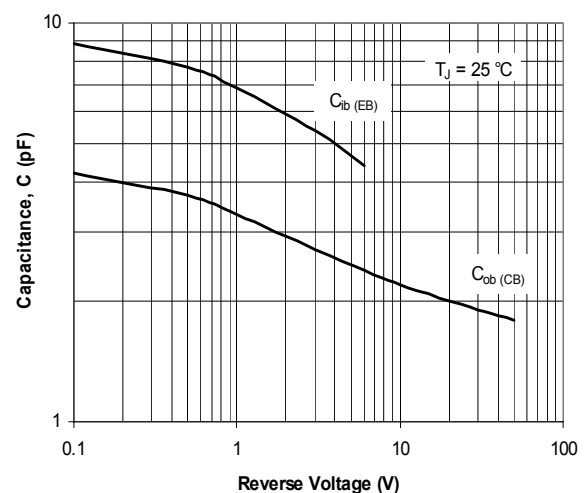


Fig. 6. Typical Capacitances vs. Reverse Voltage

BC846,BC847,BC848,BC849,BC850 SERIES

ELECTRICAL CHARACTERISTICS CURVE (BC846B,BC847B,BC848B,BC849B,BC850B)

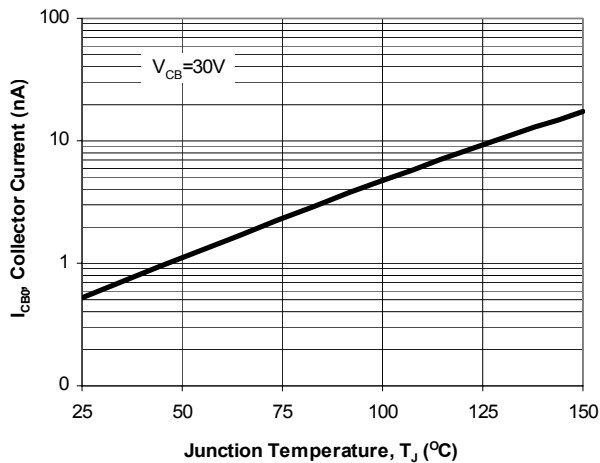


Fig. 1. Typical I_{CB0} vs. Junction Temperature

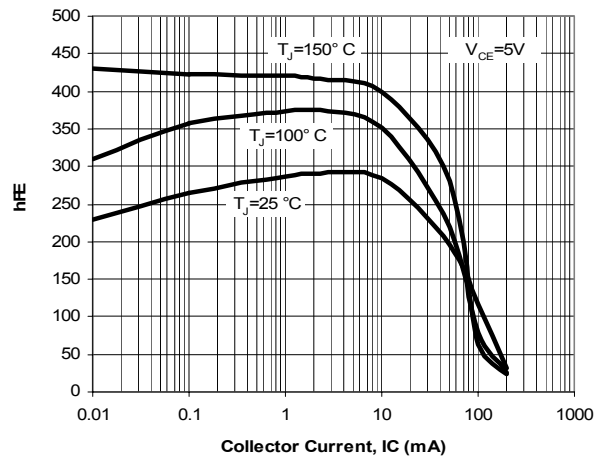


Fig. 2. Typical h_{FE} vs. Collector Current

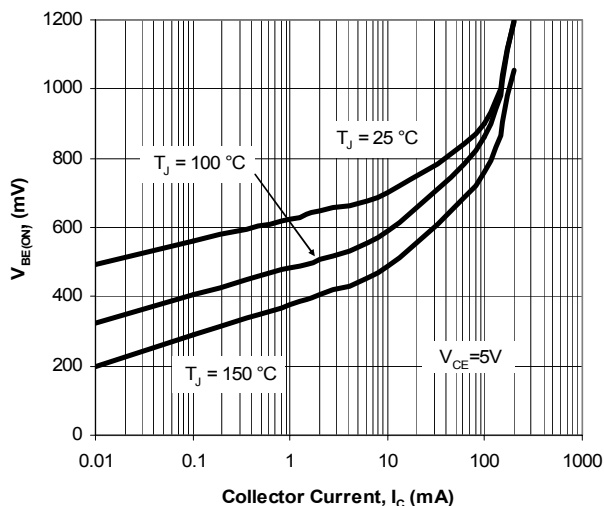


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

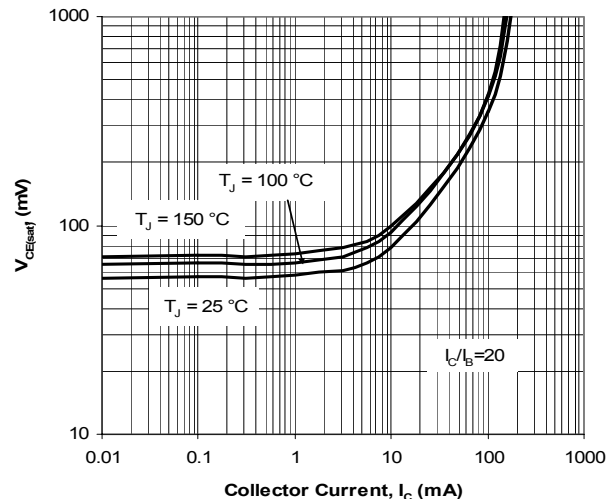


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

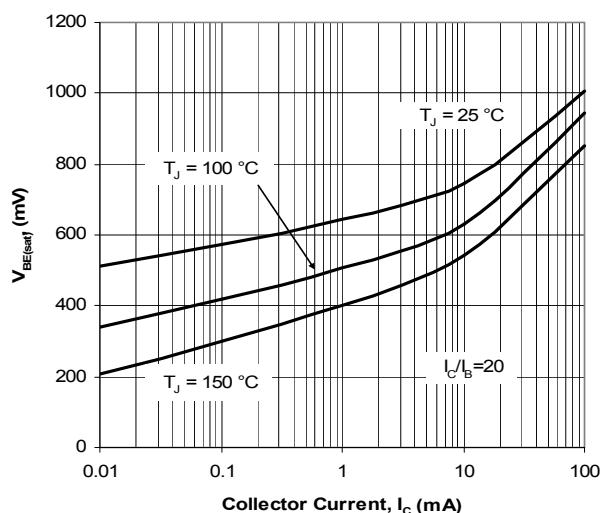


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

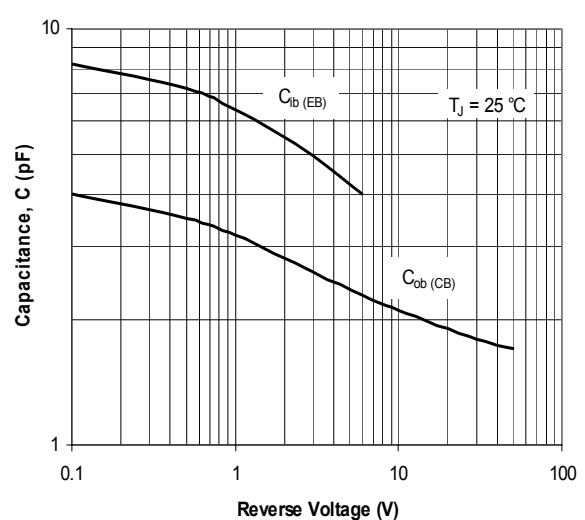


Fig. 6. Typical Capacitances vs. Reverse Voltage

BC846,BC847,BC848,BC849,BC850 SERIES

ELECTRICAL CHARACTERISTICS CURVE (BC847C,BC848C,BC849C,BC850C)

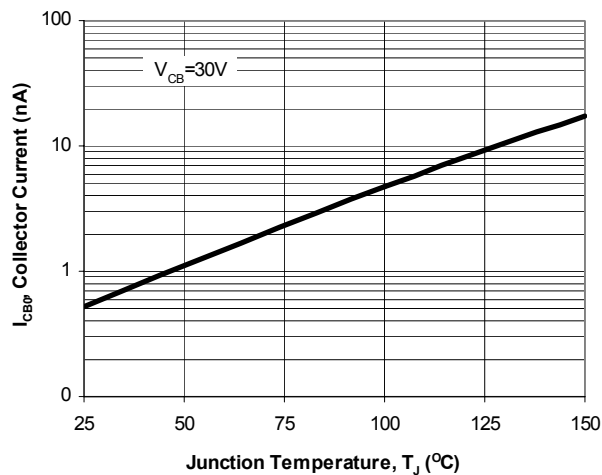


Fig. 1. Typical I_{CBO} vs. Junction Temperature

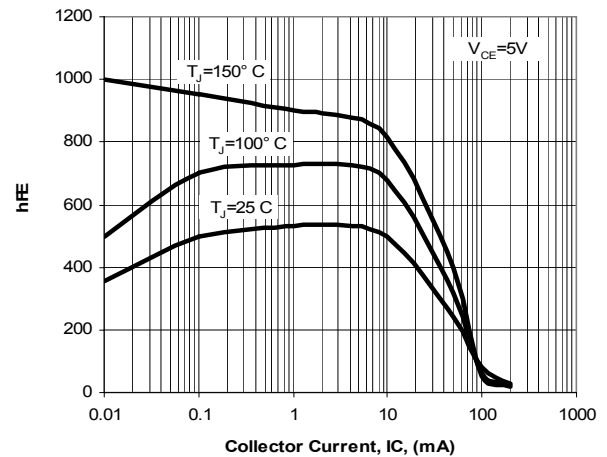


Fig. 2. Typical h_{FE} vs. Collector Current

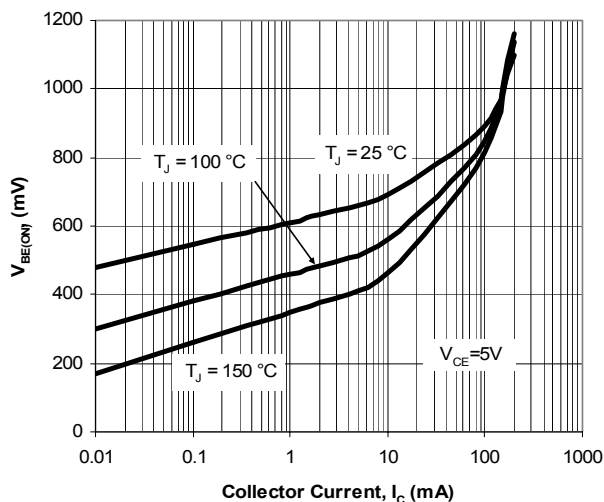


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

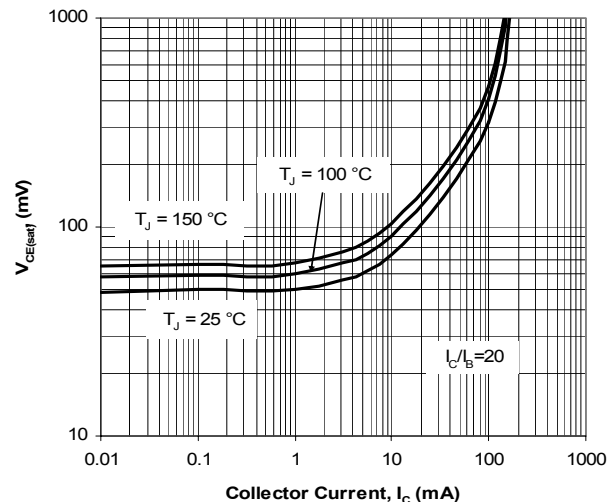


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

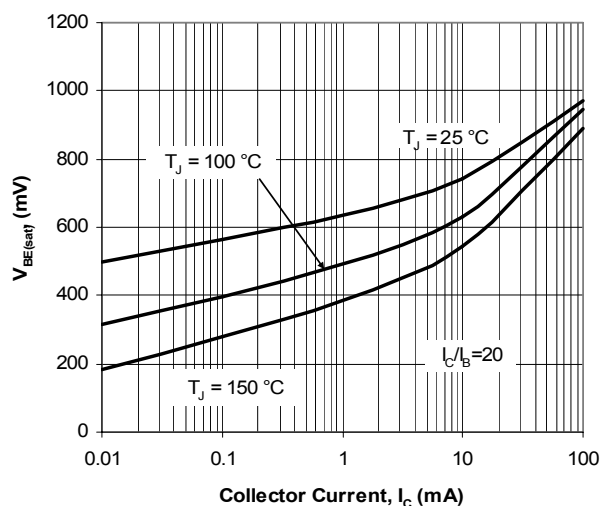


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

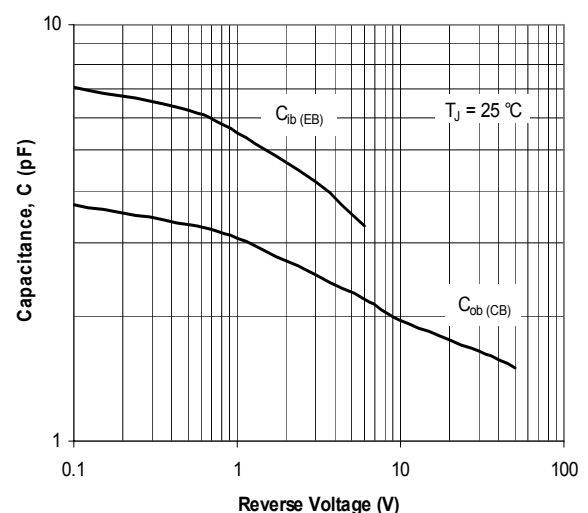


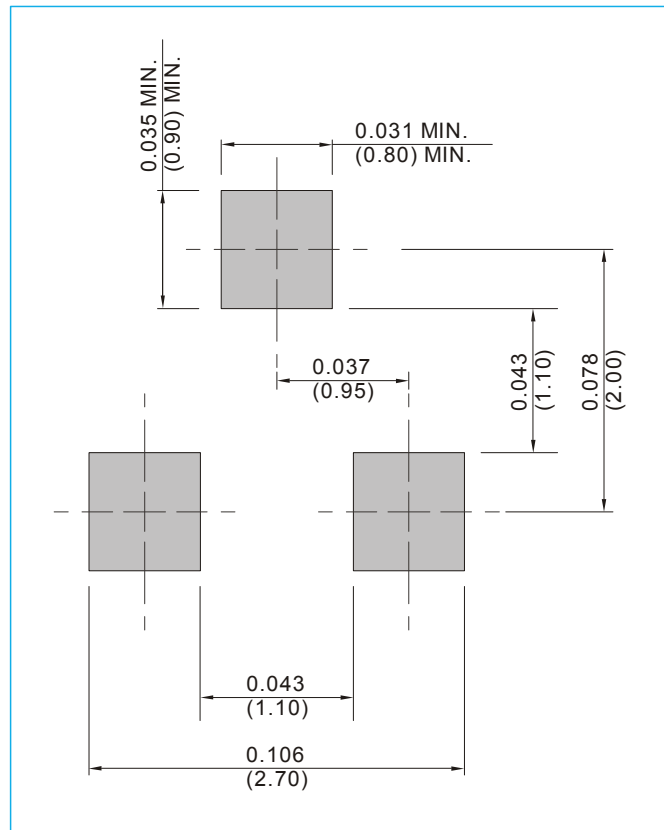
Fig. 6. Typical Capacitances vs. Reverse Voltage

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MOUNTING PAD LAYOUT

SOT-23

Unit : inch(mm)



ORDER INFORMATION

- Packing information
 - T/R - 12K per 13" plastic Reel
 - T/R - 3K per 7" plastic Reel



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Part No._packing code_Version

BC846_R1_00001

BC846_R2_00001

For example :

RB500V-40_R2_00001

Part No.

• Serial number

• Version code means Halogen free RoHS compliant

• Packing size code means 13"

• Packing type means T/R

Packing Code XX				Version Code X		Serial number XXXX
Packing type	1 st Code	Packing size code	2 nd Code	HSF Level	1 st Code	2 nd _5 th Code
Tape and Ammunition Box (T/B)	A	N/A	0	Halogen free RoHS compliant	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS compliant	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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