

BC846AW-AU ~ BC850CW-AU

NPN GENERAL PURPOSE TRANSISTORS

VOLTAGE 30/45/65 Volt **POWER** 250 mWatt

SOT-323

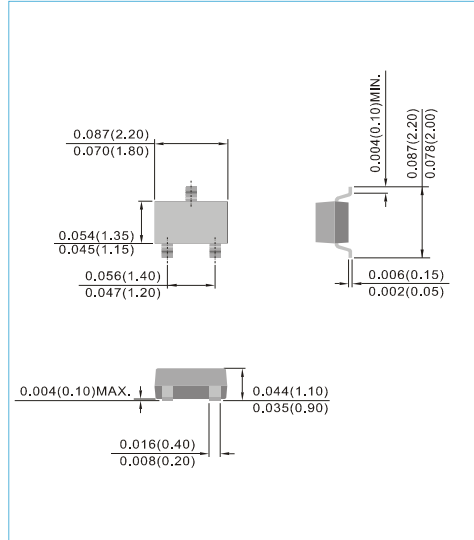
Unit : inch(mm)

FEATURES

- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current $I_C = 100\text{mA}$
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

MECHANICAL DATA

- Case: SOT-323, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0001 ounce, 0.005 gram



Device Marking:				
BC846AW-AU=46A	BC847AW-AU=47A	BC848AW-AU=48A		
BC846BW-AU=46B	BC847BW-AU=47B	BC848BW-AU=48B	BC849BW-AU=49B	BC850BW-AU=50B
	BC847CW-AU=47C	BC848CW-AU=48C	BC849CW-AU=49C	BC850CW-AU=50C

ABSOLUTE RATINGS

Parameter	Symbol	Value	Units
Collector - Emitter Voltage	V_{CE0}	65	V
		45	
		30	
Collector - Base Voltage	V_{CB0}	80	V
		50	
		30	
Emitter - Base Voltage	V_{EB0}	6	V
		6	
		5	
Collector Current - Continuous	I_C	100	mA

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Max Power Dissipation (Note 1)	P_{TOT}	250	mW
Typical thermal Resistance	$R_{\theta JA}$	500	$^{\circ}\text{C/W}$
	$R_{\theta JC}$	100	
Junction Temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$

Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in.

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage BC846AW-AU,BW-AU BC847AW-AU/BW-AU/CW-AU,BC850BW-AU/CW-AU BC848AW-AU/BW-AU/CW-AU,BC849BW-AU/CW-AU	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	65 45 30	-	-	V
Collector - Base Breakdown Voltage BC846AW-AU,BW-AU BC847AW-AU/BW-AU/CW-AU,BC850BW-AU/CW-AU BC848AW-AU/BW-AU/CW-AU,BC849BW-AU/CW-AU	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80 50 30	-	-	V
Emitter - Base Breakdown Voltage BC846AW-AU,BW-AU BC847AW-AU/BW-AU/CW-AU,BC850BW-AU/CW-AU BC848AW-AU/BW-AU/CW-AU,BC849BW-AU/CW-AU	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$	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 "AW-AU" BC846~BC850 Suffix "BW-AU" BC847~BC850 Suffix "CW-AU"	h_{FE}	$I_C=10\mu A, V_{CE}=5V$	-	90 150 270	-	-
DC Current Gain BC846~BC848 Suffix "AW-AU" BC846~BC850 Suffix "BW-AU" BC847~BC850 Suffix "CW-AU"	h_{FE}	$I_C=2mA, V_{CE}=5V$	110 200 420	180 290 520	220 450 800	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5.0mA$	-	-	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 -	0.7 0.77	V
Collector - Base Capacitance	C_{CBO}	$V_{CB}=10V, I_E=0, f=1MHz$	-	-	4.5	pF

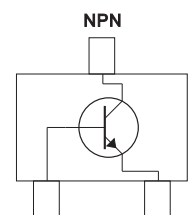


Fig.34

BC846AW-AU ~ BC850CW-AU

ELECTRICAL CHARACTERISTICS CURVE (BC846AW-AU, BAC847AW-AU, BC848AW-AU)

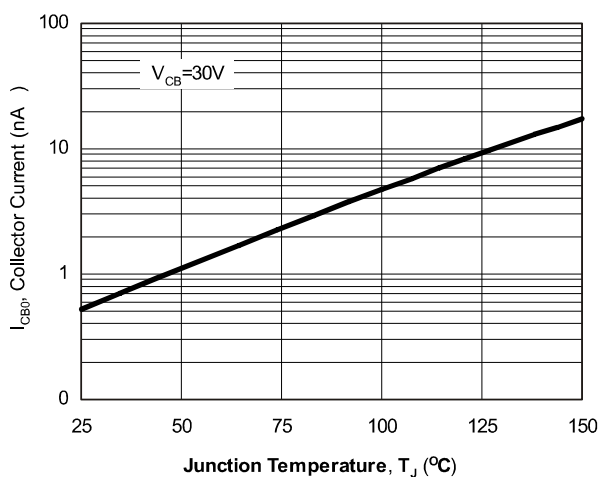


Fig.1 Typical I_{CBO} vs. Junction Temperature

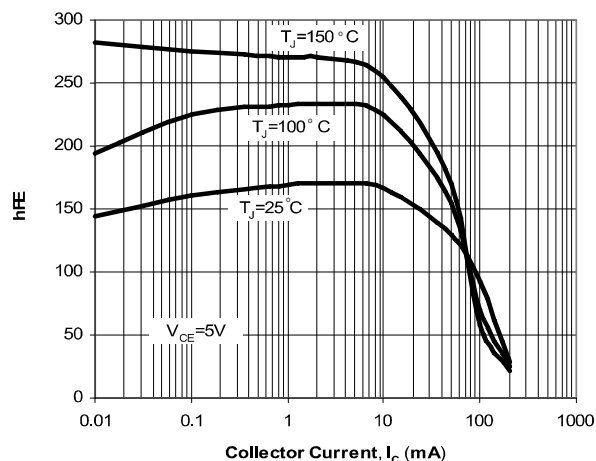


Fig.2 Typical h_{FE} vs. Collector Current

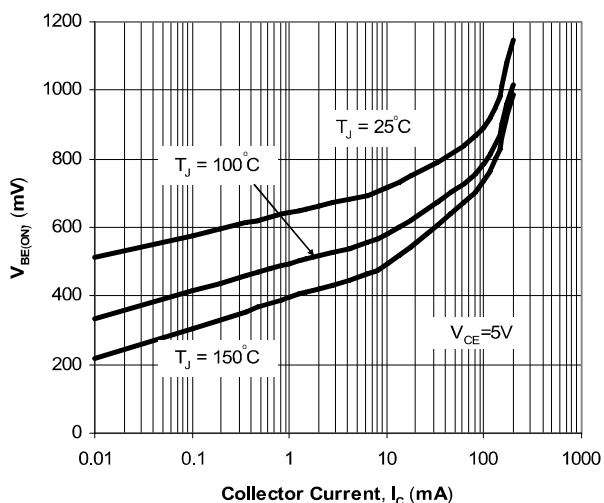


Fig.3 Typical $V_{BE(ON)}$ vs. Collector Current

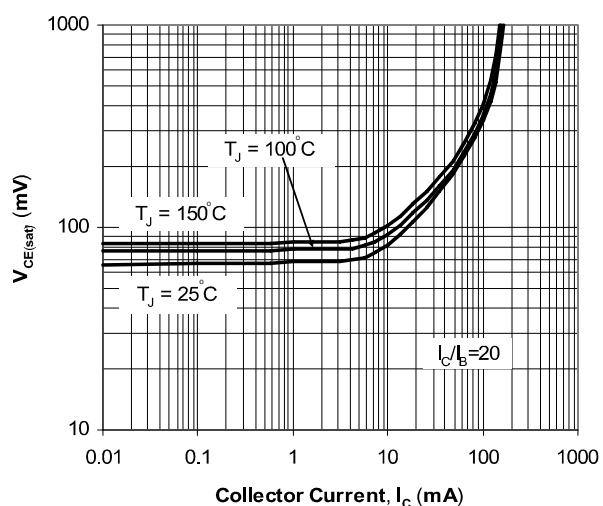


Fig.4 Typical $V_{CE(SAT)}$ vs. Collector Current

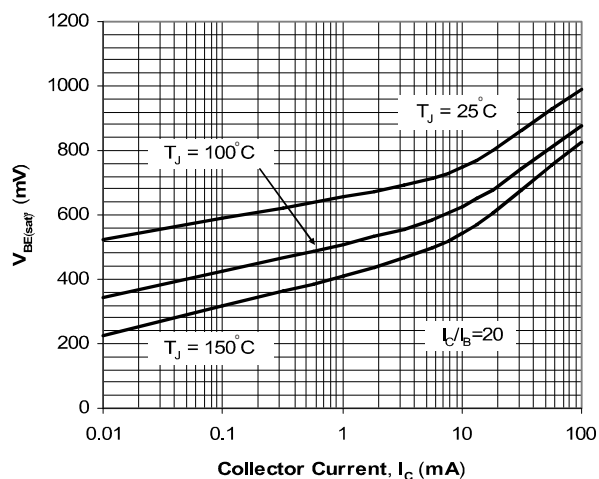


Fig.5 Typical $V_{BE(SAT)}$ vs. Collector Current

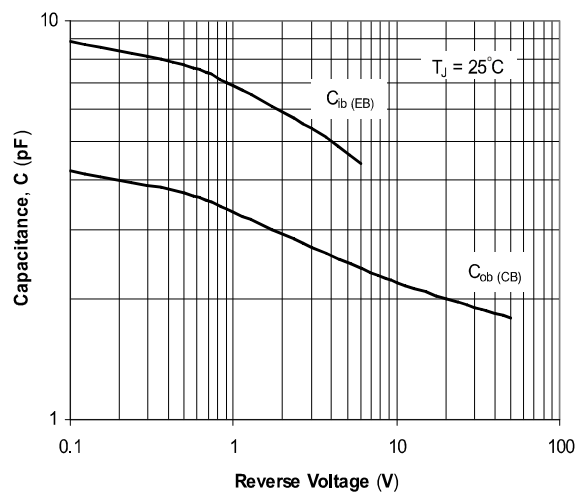


Fig.6 Typical Capacitances vs. Reverse Voltage

BC846AW-AU ~ BC850CW-AU

ELECTRICAL CHARACTERISTICS CURVE (BC846BW-AU, BAC847BW-AU, BC848BW-AU, BC849BW-AU) (BC850BW-AU)

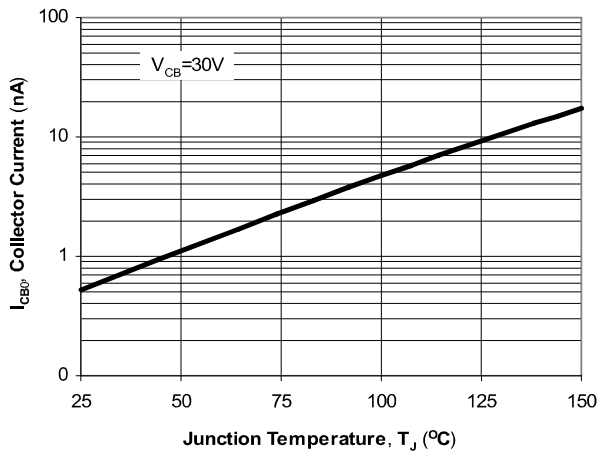


Fig.1 Typical I_{CBO} vs. Junction Temperature

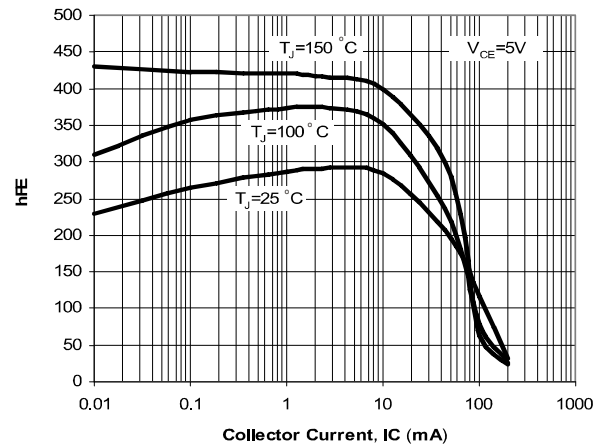


Fig.2 Typical h_{FE} vs. Collector Current

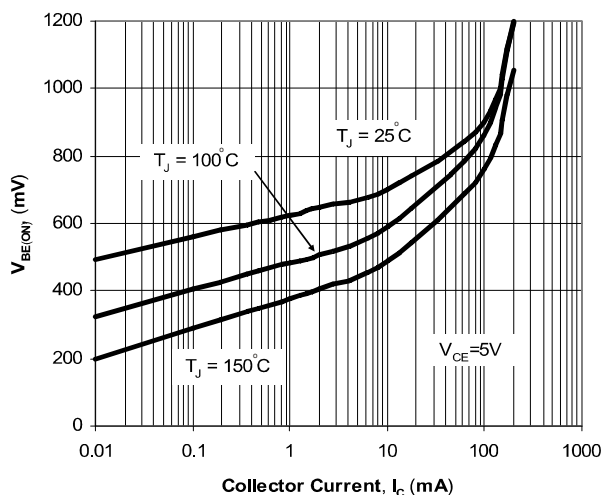


Fig.3 Typical $V_{BE(ON)}$ vs. Collector Current

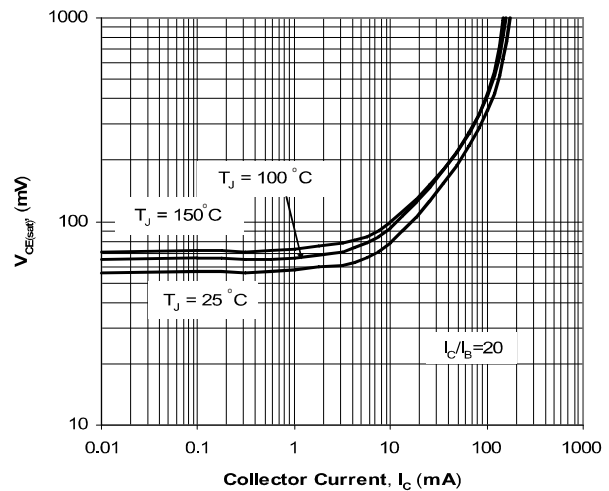


Fig.4 Typical $V_{CE(SAT)}$ vs. Collector Current

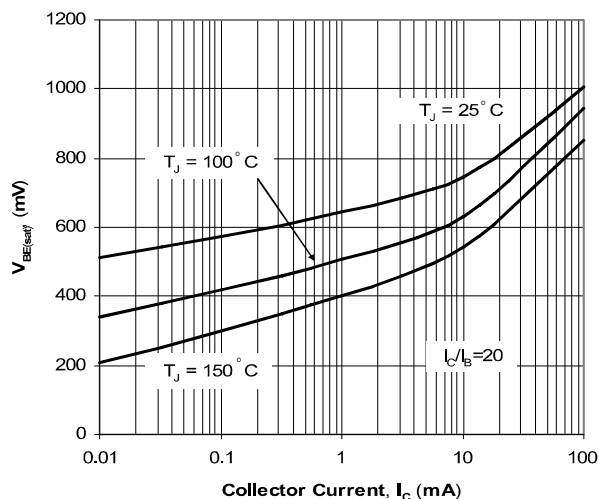


Fig.5 Typical $V_{BE(SAT)}$ vs. Collector Current

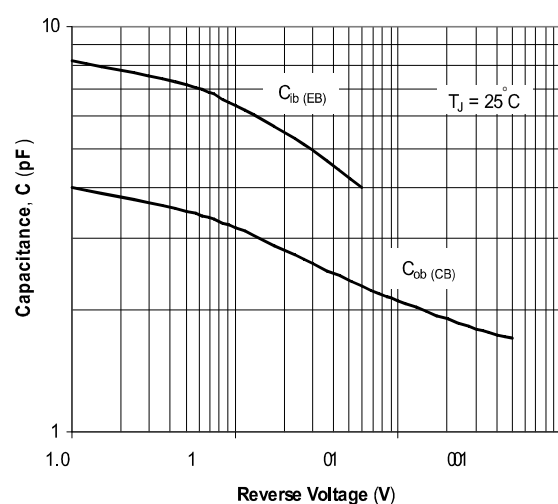


Fig.6 Typical Capacitances vs. Reverse Voltage

BC846AW-AU ~ BC850CW-AU

ELECTRICAL CHARACTERISTICS CURVE (BAC847CW-AU,BC848CW-AU,BC849CW-AU,BC850CW-AU)

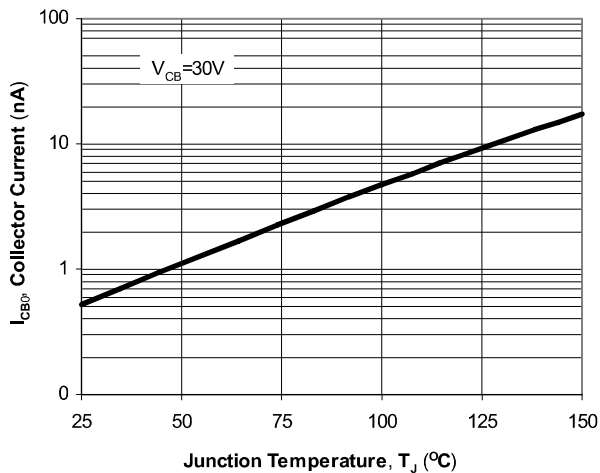


Fig.1 Typical I_{CBO} vs. Junction Temperature

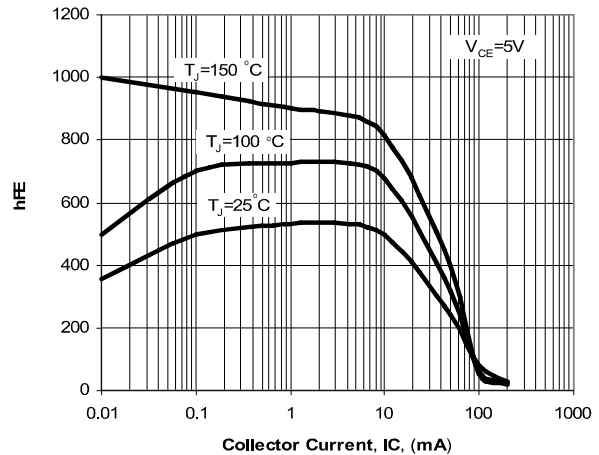


Fig.2 Typical h_{FE} vs. Collector Current

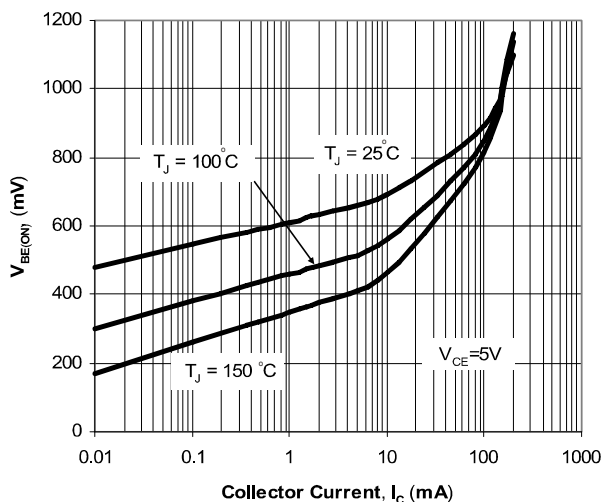


Fig.3 Typical $V_{BE(ON)}$ vs. Collector Current

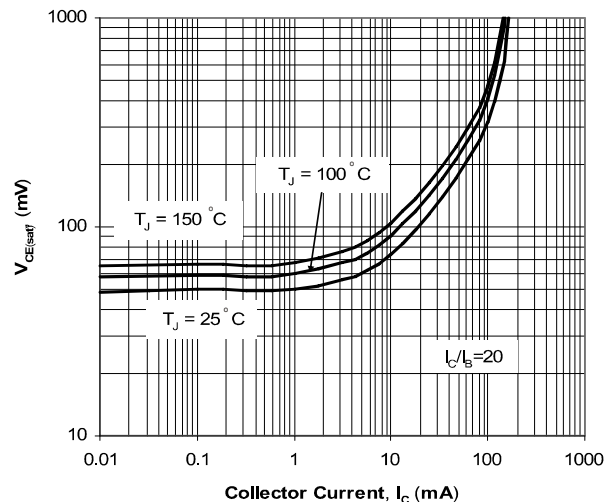


Fig.4 Typical $V_{CE(SAT)}$ vs. Collector Current

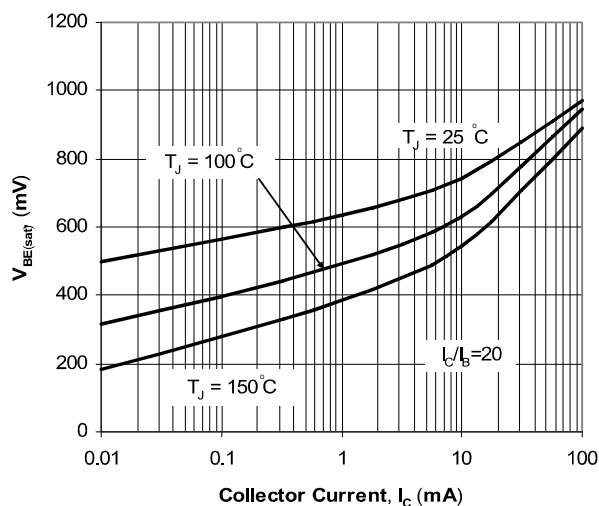


Fig.5 Typical $V_{BE(SAT)}$ vs. Collector Current

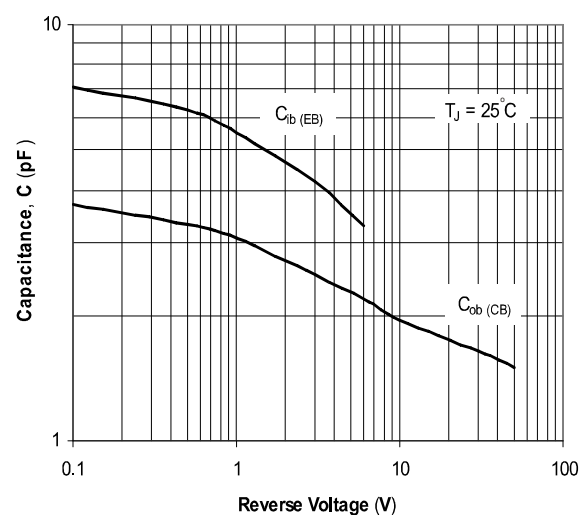


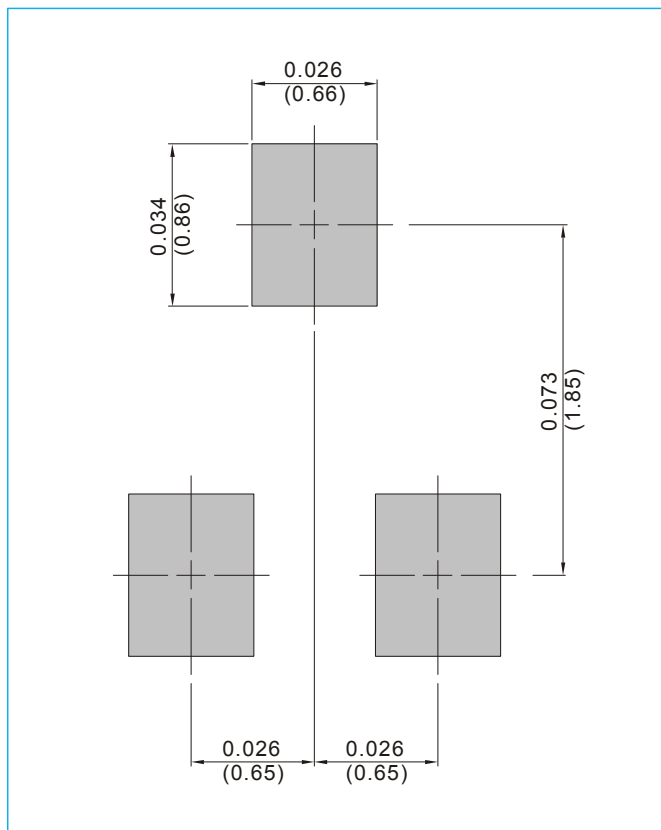
Fig.6 Typical Capacitances vs. Reverse Voltage

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MOUNTING PAD LAYOUT

SOT-323

Unit : inch(mm)



ORDER INFORMATION

- Packing information

T/R - 12K per 13" plastic Reel

T/R - 3K per 7" plastic Reel

BC846AW-AU ~ BC850CW-AU

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