



NPN GENERAL PURPOSE TRANSISTORS

VOLTAGE 30/45/65 Volts **CURRENT** 225 mWatts

SOT-23

Unit: inch (mm)

FEATURES

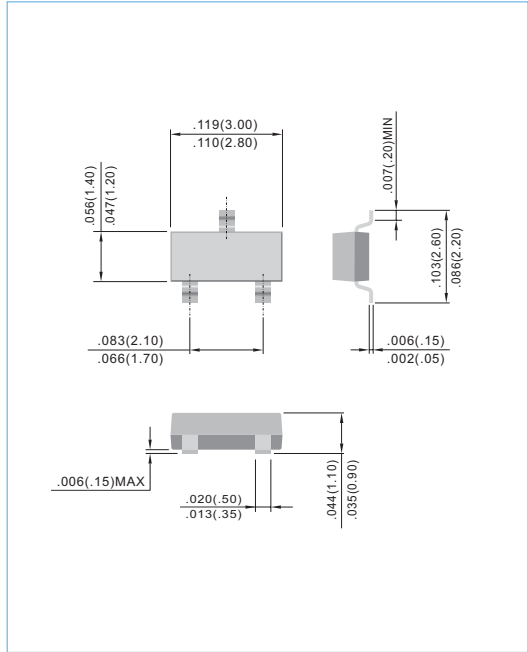
- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current IC = 100mA
- Pb free product are available : 99% Sn above can meet Rohs environment substance directive request

MECHANICAL DATA

Case: SOT-23, Plastic

Terminals: Solderable per MIL-STD-202G, Method 208

Approx. Weight: 0.008 gram



Device Marking:				
BC 846A=46A	BC 847A=47A	BC 848A=48A		
BC 846B=46B	BC 847B=47B	BC 848B=48B	BC 849B=49B	BC 850B=50B
	BC 847C=47C	BC 848C=48C	BC 849C=49C	BC 850C=50C

ABSOLUTE RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	V _{CEO}	BC846	65
		BC847,BC850	45
		BC848,BC849	30
Collector - Base Voltage	V _{CBO}	BC846	80
		BC847,BC850	50
		BC848,BC849	30
Emitter - Base Voltage	V _{EBO}	BC846	6.0
		BC847,BC850	6.0
		BC848,BC849	5.0
Collector Current - Continuous	I _c	100	mA

THERMAL CHARACTERISTICS

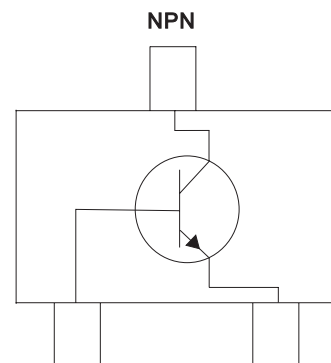
PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	P _{TOT}	225	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556	°C/W
Junction Temperature	T _J	-55 to 150	°C
Storage Temperature	T _{STG}	-55 to 150	°C

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



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	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6.0 6.0 5.0	-	-	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 5.0	nA uA
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}	$I_C=2.0mA, V_{CE}=5V$	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	$V_{CE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5.0mA$	-	0.7 0.9	-	V
Base - Emitter Voltage	$V_{CE(SAT)}$	$I_C=2mA, V_{CE}=5.0V$ $I_C=10mA, V_{CE}=5.0V$	0.58 -	0.660 -	0.70 0.77	V
Collector - Base Capacitance	C_{CBO}	$V_{CB}=10V, I_E=0, f=1MH$	-	-	4.5	pF





ELECTRICAL CHARACTERISTICS CURVE (BC846A, BC847A, BC848A)

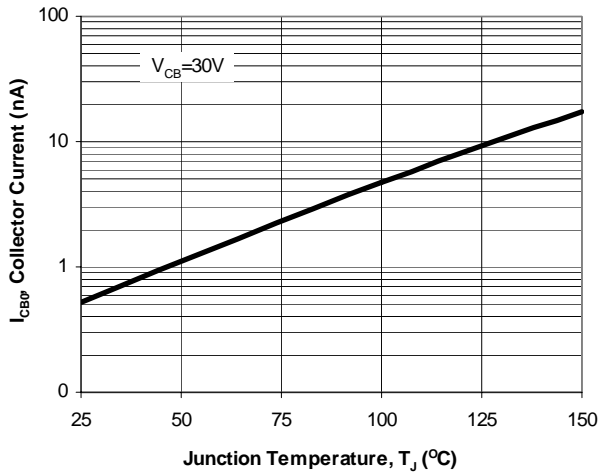


Fig. 1. Typical I_{CB0} vs. Junction Temperature

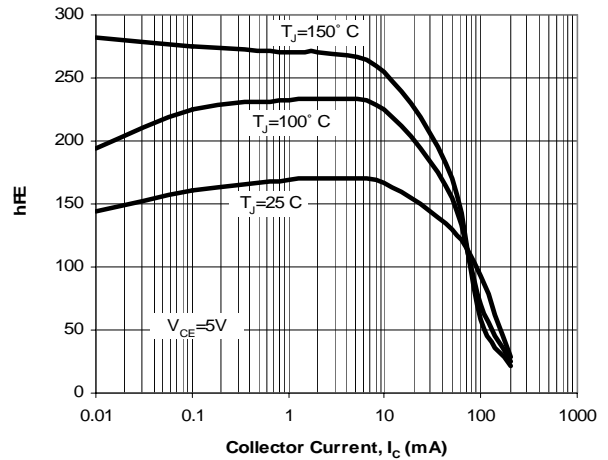


Fig. 2. Typical h_{FE} vs. Collector Current

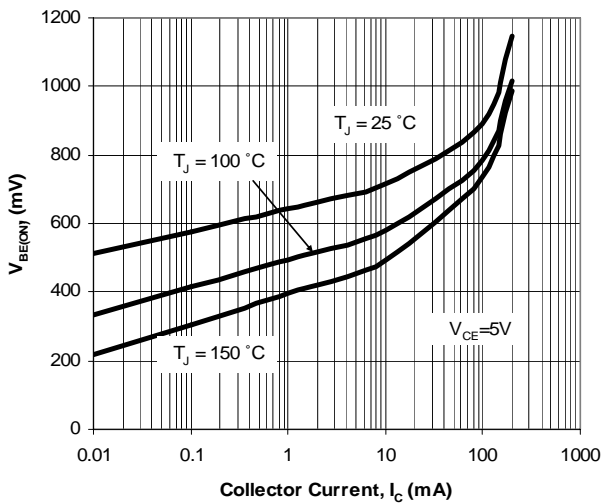


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

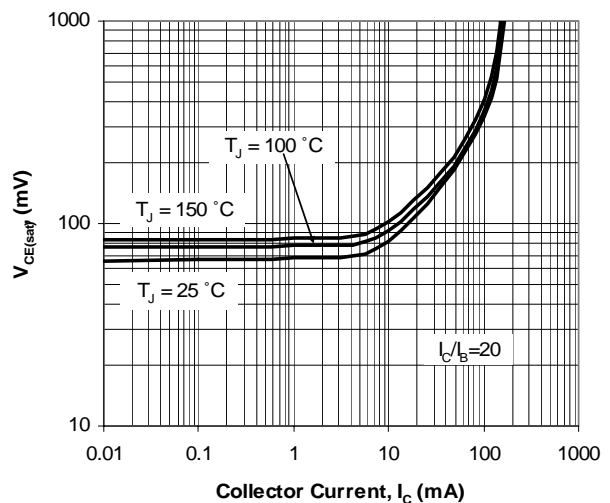


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

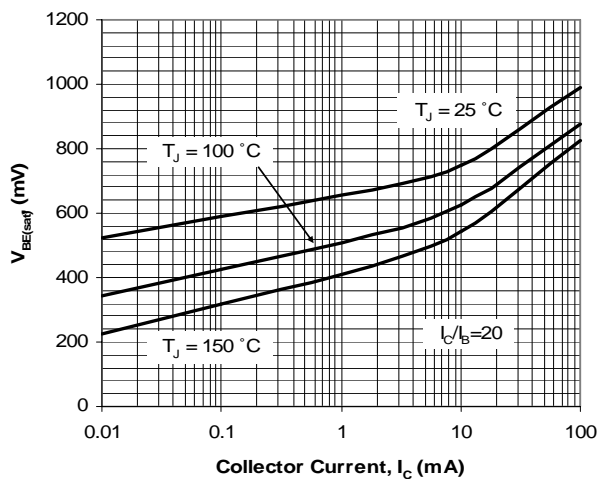


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

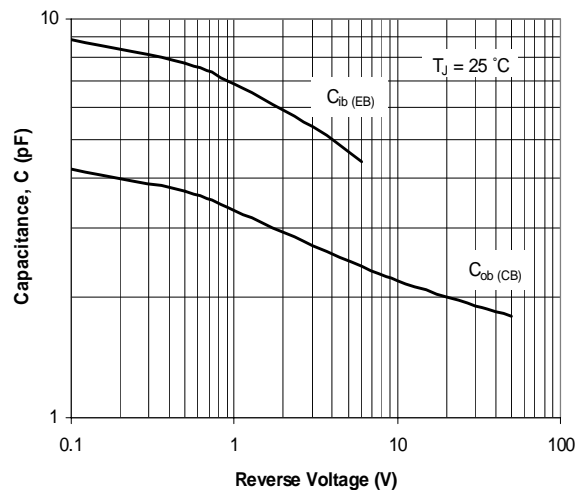


Fig. 6. Typical Capacitances vs. Reverse Voltage



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

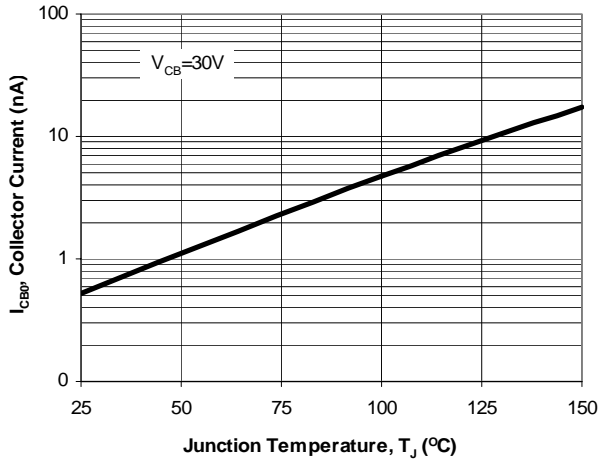


Fig. 1. Typical I_{CBO} vs. Junction Temperature

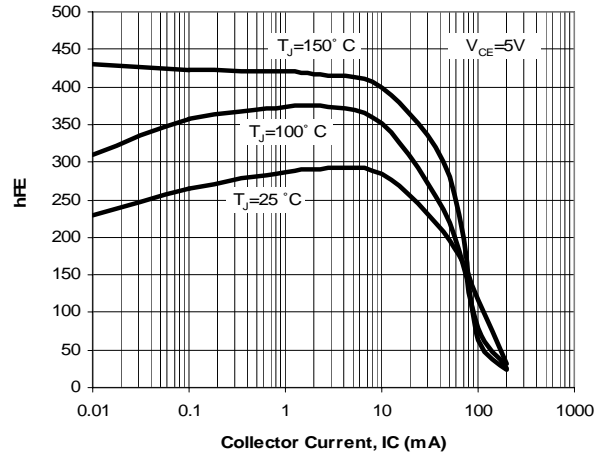


Fig. 2. Typical h_{FE} vs. Collector Current

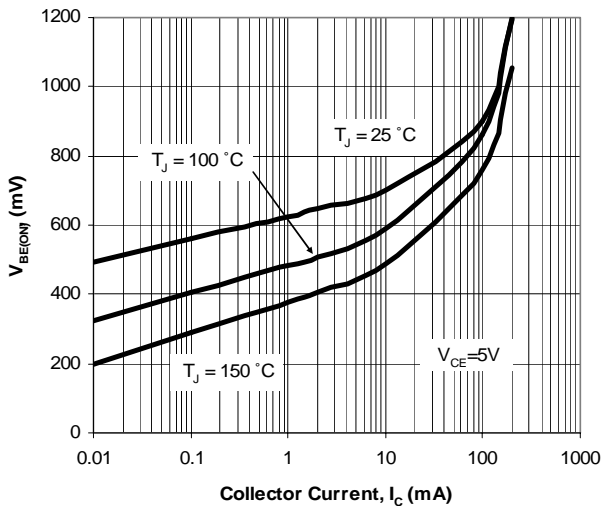


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

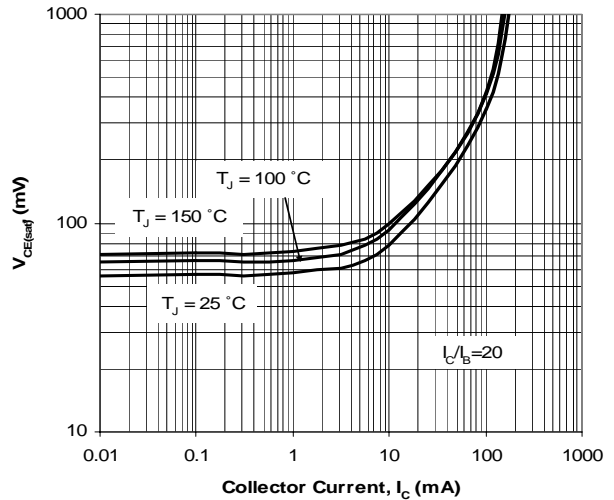


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

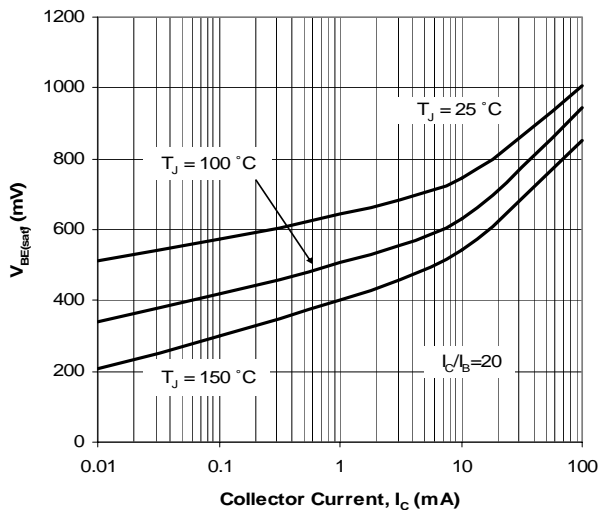


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

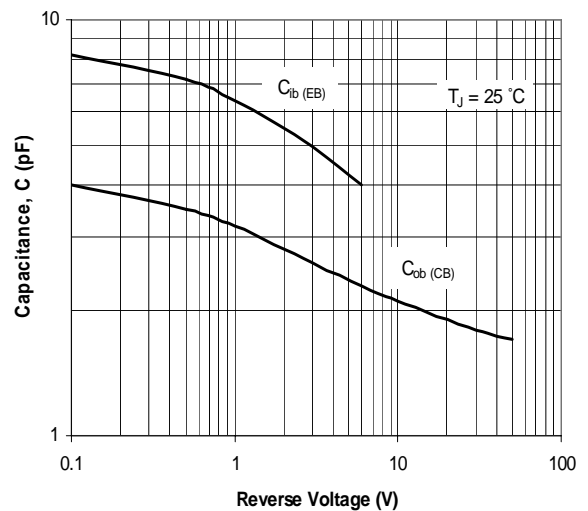


Fig. 6. Typical Capacitances vs. Reverse Voltage



ELECTRICAL CHARACTERISTICS CURVE (BAC847C, BC848C, BC849C, BC850C)

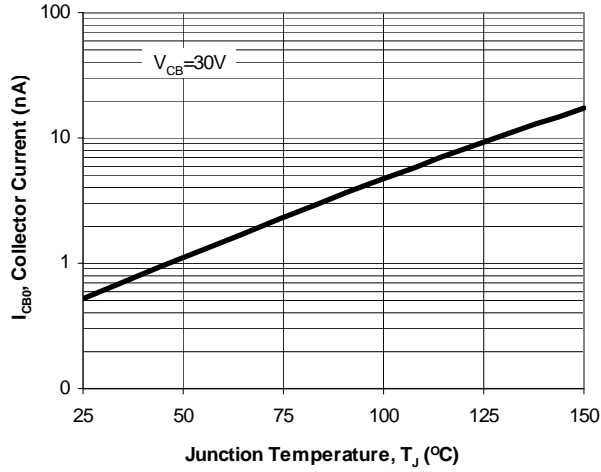


Fig. 1. Typical I_{CBO} vs. Junction Temperature

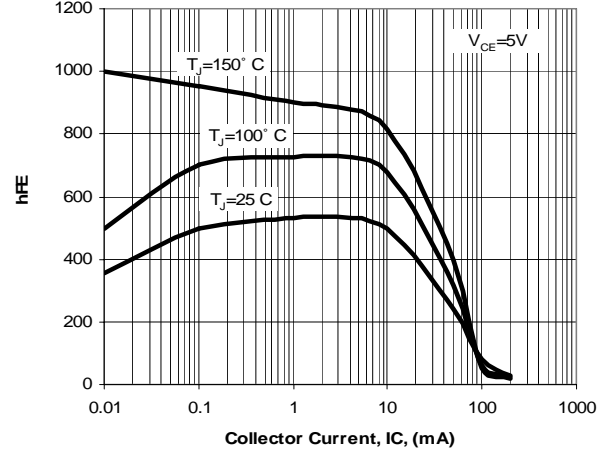


Fig. 2. Typical h_{FE} vs. Collector Current

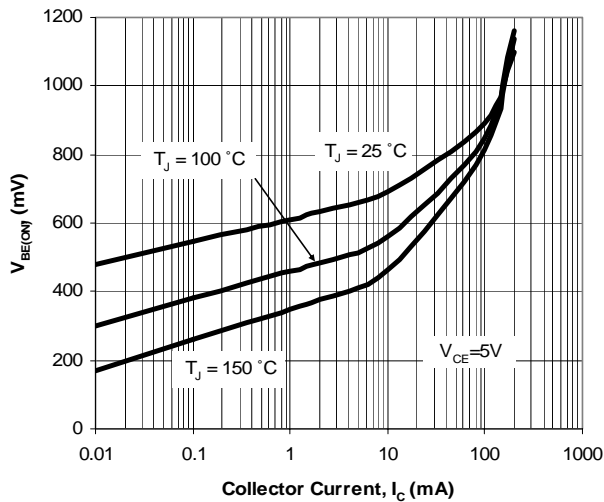


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

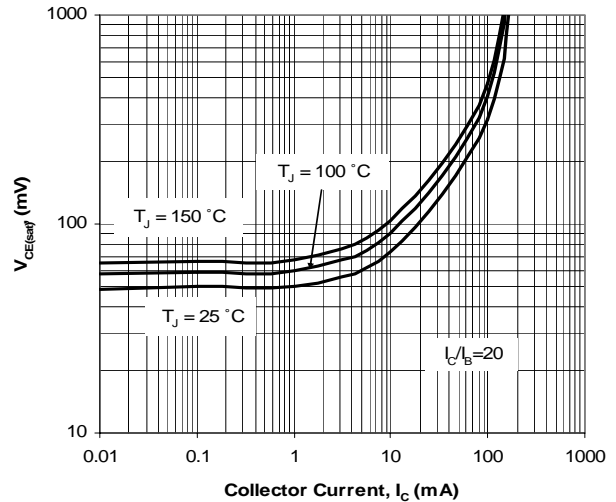


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

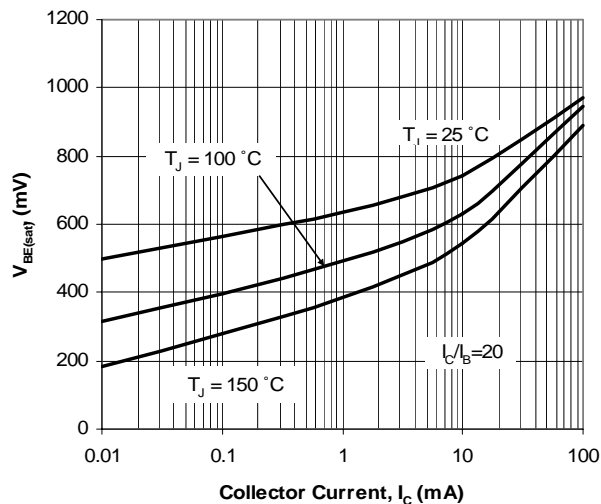


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

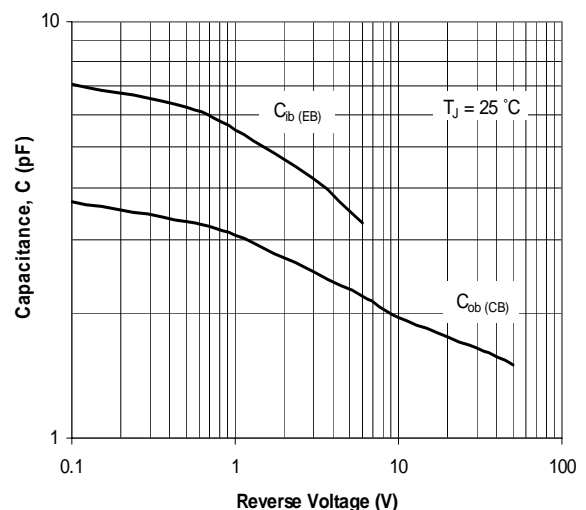
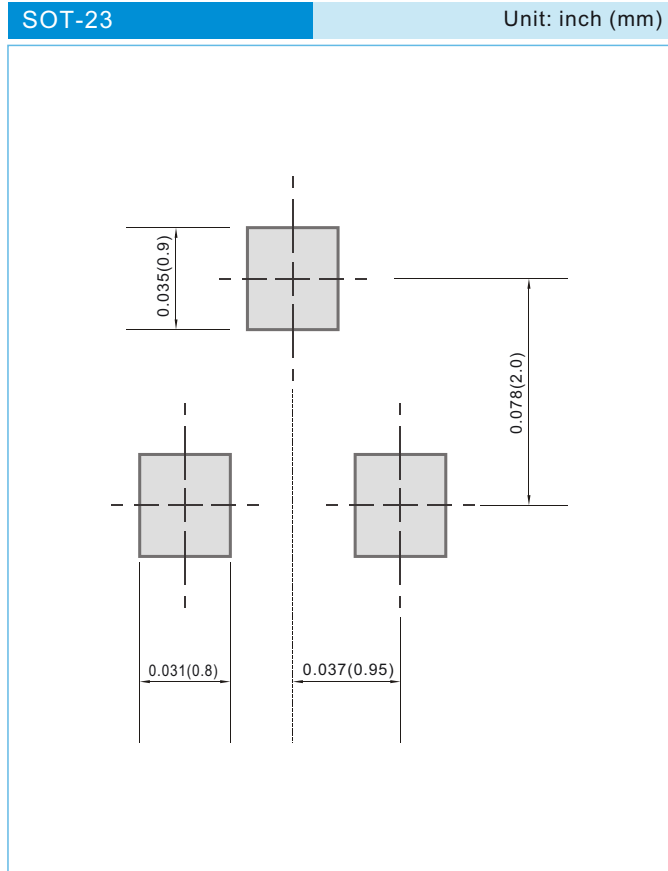


Fig. 6. Typical Capacitances vs. Reverse Voltage



MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
 - T/R - 12K per 13" plastic Reel
 - T/R - 3.0K per 7" plastic Reel

LEGAL STATEMENT

IMPORTANT NOTICE

This information is intended to unambiguously characterize the product in order to facilitate the customer's evaluation of the device in the application. The information will help the customer's technical experts determine that the device is compatible and interchangeable with similar devices made by other vendors. The information in this data sheet is believed to be reliable and accurate. The specifications and information herein are subject to change without notice. New products and improvements in products and product characterization are constantly in process. Therefore, the factory should be consulted for the most recent information and for any special characteristics not described or specified.

Copyright Pan Jit International Inc. 2003

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.

The information presented in this document does not form part of any quotation or contract. The information presented is believed to be accurate and reliable, and may change without notice in advance. No liability will be accepted by the publisher for any consequence of use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights.