



BC846-AU,BC847-AU,BC848-AU,BC849-AU,BC850-AU SERIES

NPN GENERAL PURPOSE TRANSISTORS

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

SOT-23

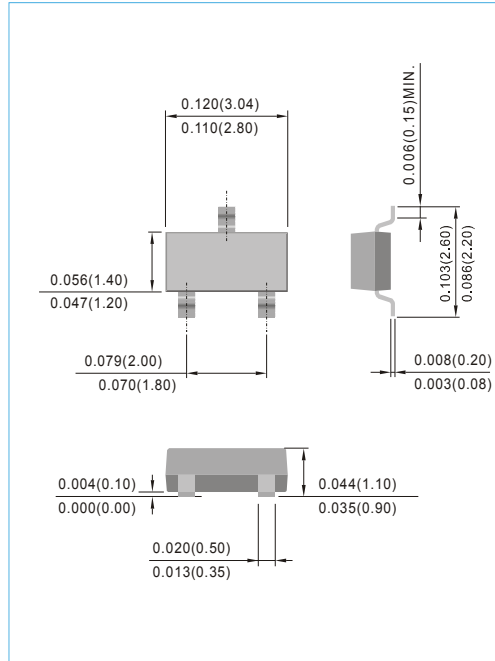
Unit : inch(mm)

FEATURES

- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current IC = 100mA
- AEC-Q101 qualified
- 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 ounces, 0.0084 grams



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

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 _{θJA} | 375 | °C/W |
| Operating Junction Temperature and Storage Temperature Range | T _J ,T _{STG} | -55 to 150 | °C |

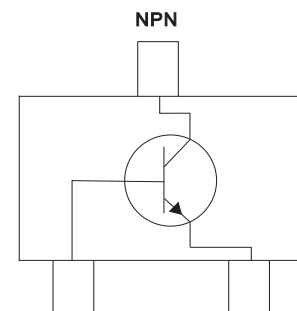
Note 1: Mounted on a FR4 PCB, single-sided copper, standard footprint



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ELECTRICAL CHARACTERISTICS

| Parameter | Symbol | Test Condition | MIN. | TYP. | MAX. | Units |
|--|---------------|--|-------------------|-------------------|-------------------|----------|
| Collector - Emitter Breakdown Voltage | $V_{(BR)CEO}$ | IC=10mA, IB=0 | 65 45 30 | - | - | V |
| Collector - Base Breakdown Voltage | $V_{(BR)CBO}$ | IC=10uA, IE=0 | 80 50 30 | - | - | V |
| Emitter - Base Breakdown Voltage | $V_{(BR)EBO}$ | IE=1uA, IC=0 | 6 6 5 | - | - | V |
| Emitter-Base Cutoff Current | I_{EBO} | VEB=5 | - | - | 100 | nA |
| Collector-Base Cutoff Current | I_{CBO} | VCB=30V, IE=0 VCB=30V, IE=0, TJ=150°C | - | - | 15 5 | nA μA |
| DC Current Gain | h_{FE} | IC=10uA, VCE=5V | - | 90 150 270 | - | - |
| DC Current Gain | h_{FE} | IC=2mA, VCE=5V | 110 200 420 | 180 290 520 | 220 450 800 | - |
| Collector - Emitter Saturation Voltage | $V_{CE(SAT)}$ | IC=10mA, IB=0.5mA IC=100mA, IB=5mA | - | - | 0.25 0.6 | V |
| Base - Emitter Saturation Voltage | $V_{BE(SAT)}$ | IC=10mA, IB=0.5mA IC=100mA, IB=5mA | - | 0.7 0.9 | - | V |
| Base - Emitter Voltage | $V_{BE(ON)}$ | IC=2mA, VCE=5V IC=10mA, VCE=5V | 0.58 - | 0.66 - | 0.70 0.77 | V |
| Collector - Base Capacitance | C_{CBO} | VCB=10V, IE=0, f=1MHz | - | - | 4.5 | pF |





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ELECTRICAL CHARACTERISTICS CURVE (BC846A-AU, BC847A-AU, BC848A-AU)

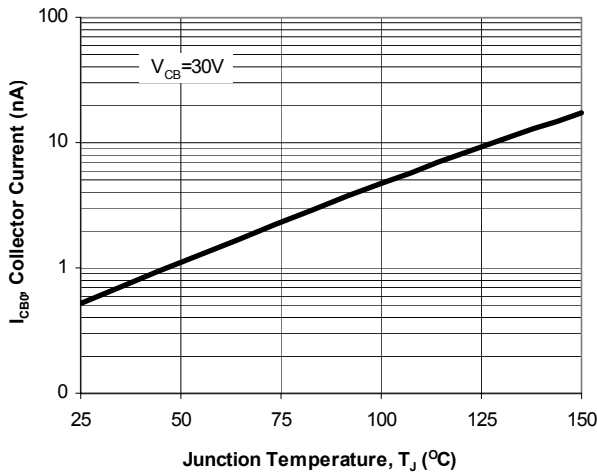


Fig. 1. Typical I_{CB0} vs. Junction Temperature

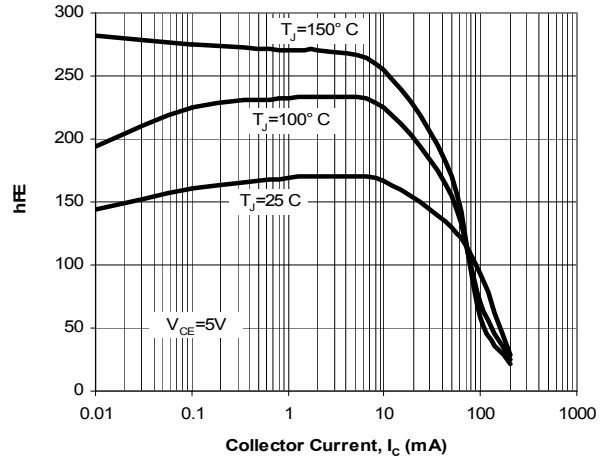


Fig. 2. Typical h_{FE} vs. Collector Current

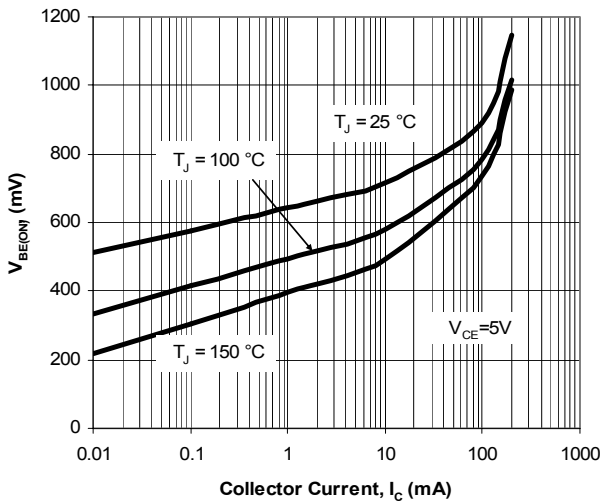


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

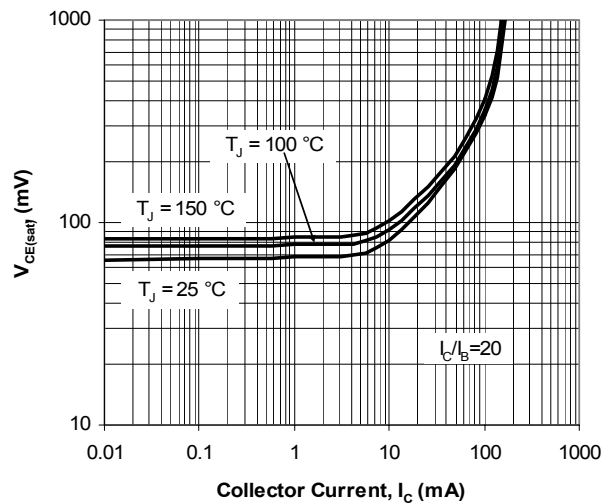


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

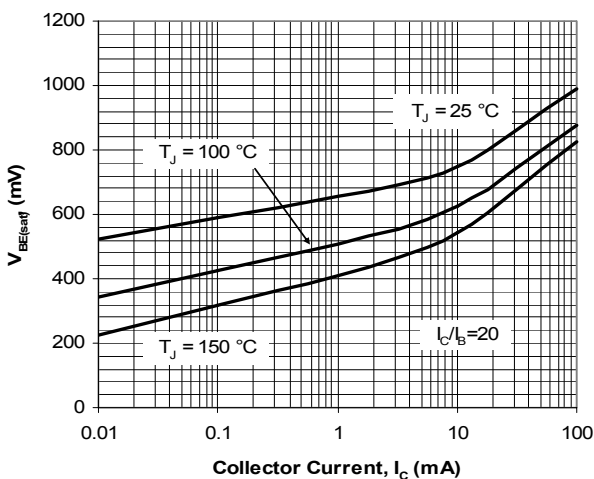


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

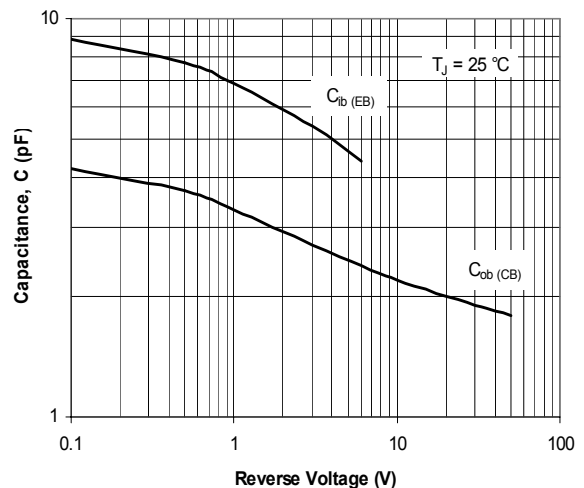


Fig. 6. Typical Capacitances vs. Reverse Voltage



BC846-AU, BC847-AU, BC848-AU, BC849-AU, BC850-AU SERIES

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

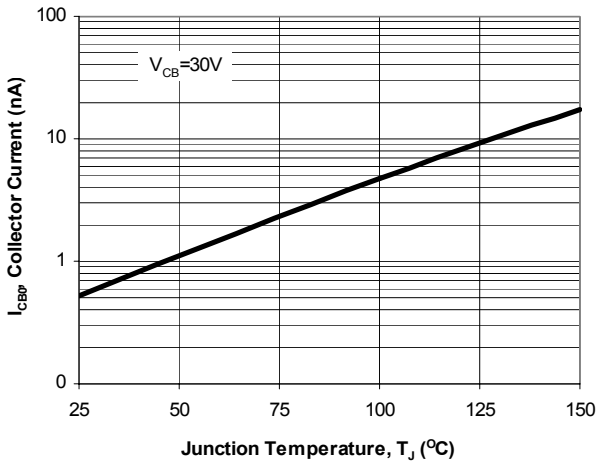


Fig. 1. Typical I_{CBO} vs. Junction Temperature

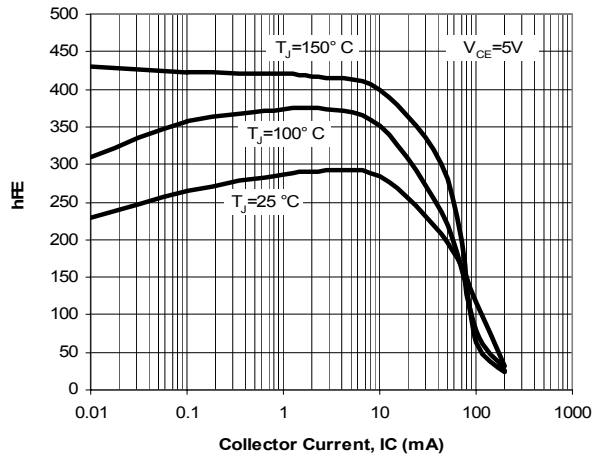


Fig. 2. Typical h_{FE} vs. Collector Current

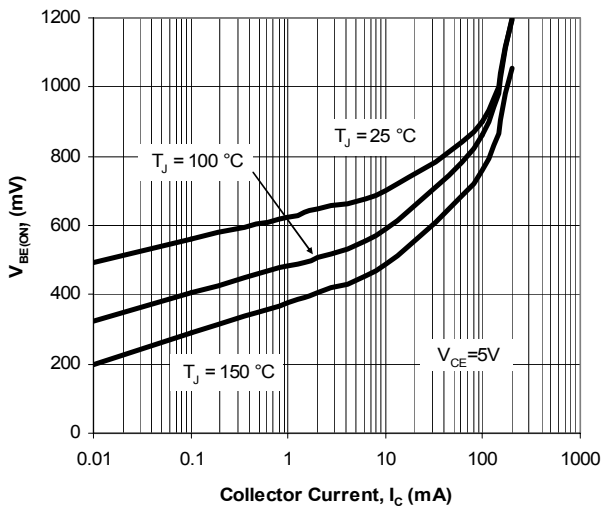


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

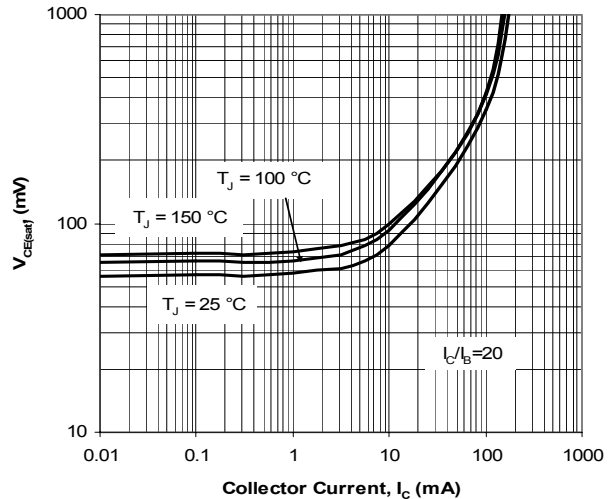


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

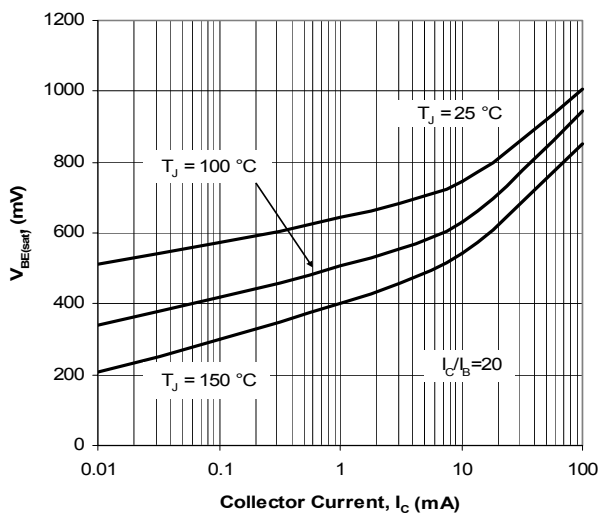


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

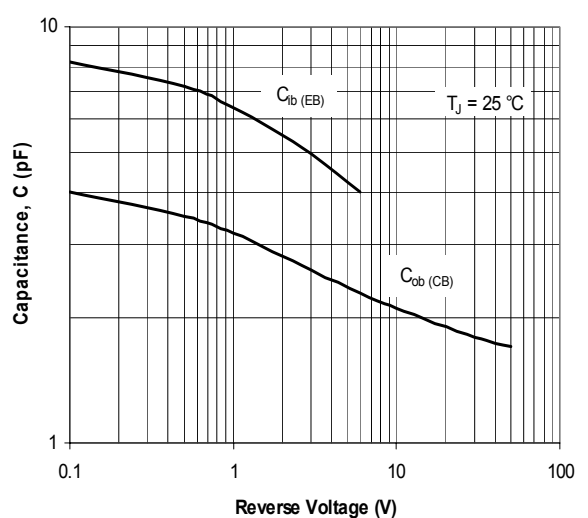


Fig. 6. Typical Capacitances vs. Reverse Voltage



BC846-AU, BC847-AU, BC848-AU, BC849-AU, BC850-AU SERIES

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

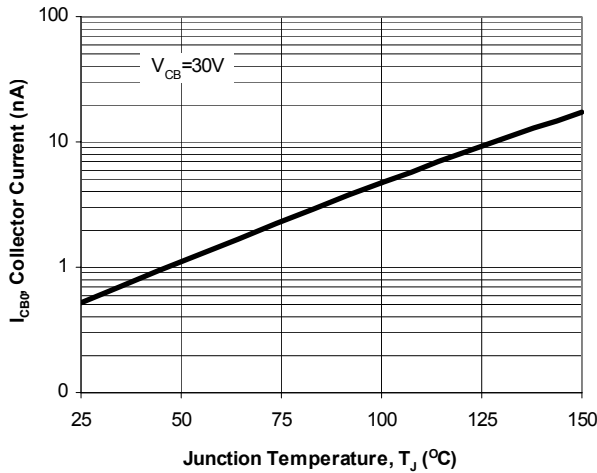


Fig. 1. Typical I_{CB0} vs. Junction Temperature

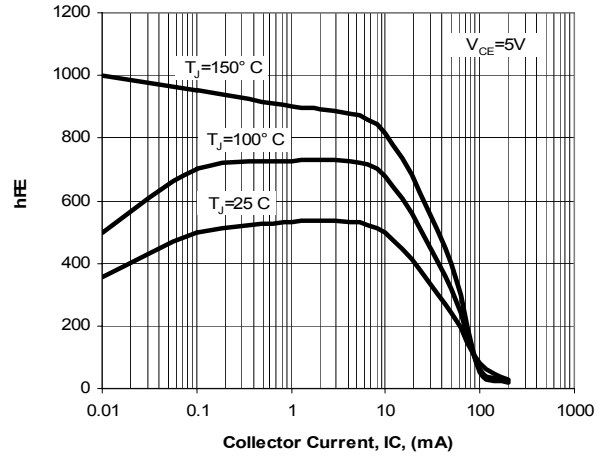


Fig. 2. Typical h_{FE} vs. Collector Current

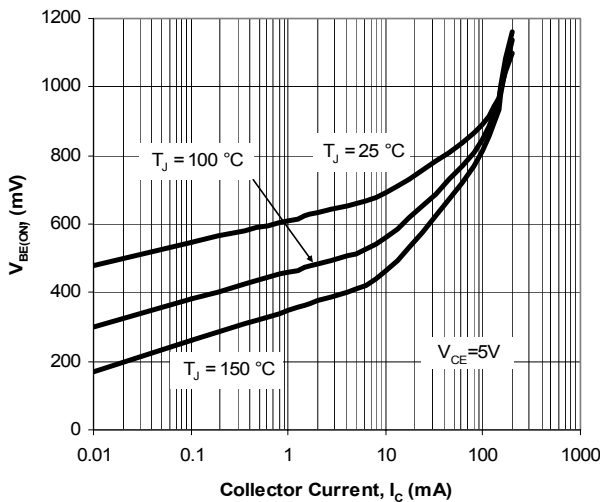


Fig. 3. Typical $V_{BE(ON)}$ vs. Collector Current

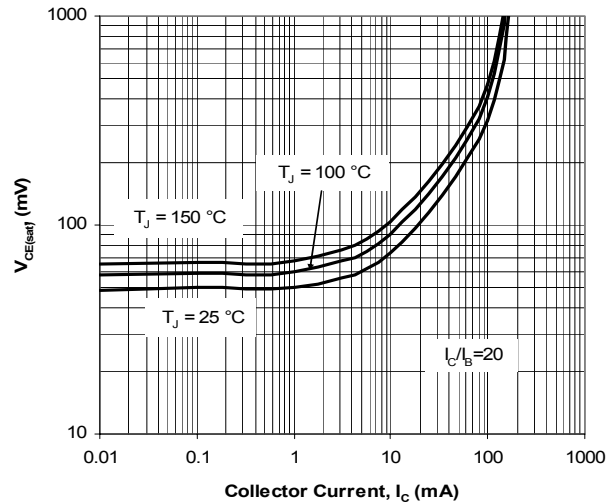


Fig. 4. Typical $V_{CE(SAT)}$ vs. Collector Current

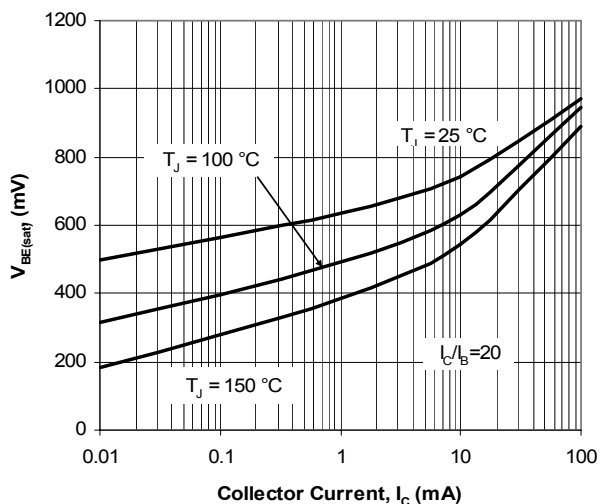


Fig. 5. Typical $V_{BE(SAT)}$ vs. Collector Current

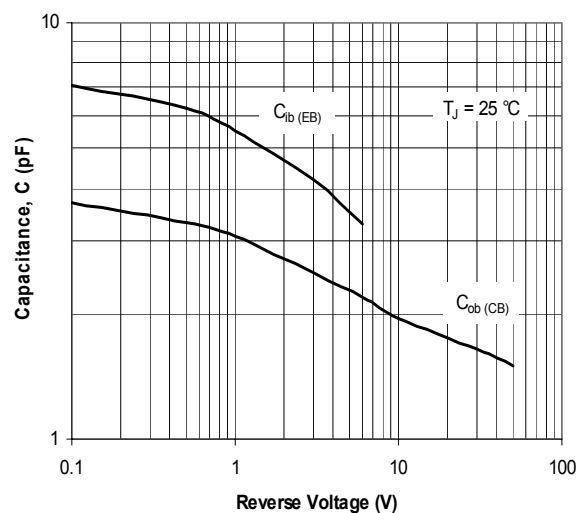
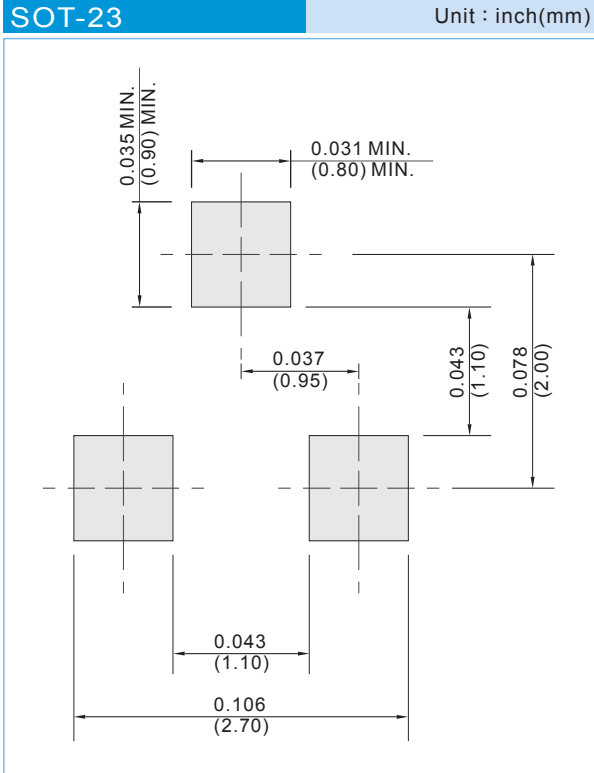


Fig. 6. Typical Capacitances vs. Reverse Voltage



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MOUNTING PAD LAYOUT



ORDER INFORMATION

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



BC846!5 I ,BC847!5 I ,BC848!5 I ,BC849!5 I ,BC850!5 I SERIES

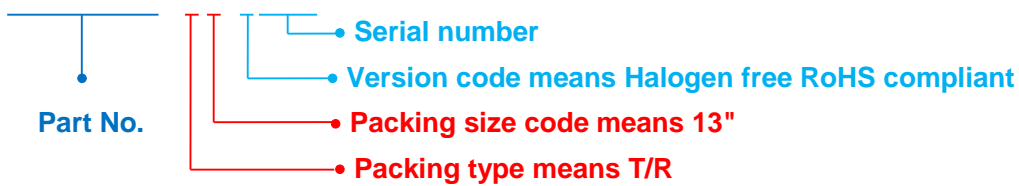
Part No._packing code_Version

BC846-AU_R1_000A1

BC846-AU_R2_000A1

For example :

RB500V-40_R2_00001



| 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 | | | |



BC846!5 I ,BC847!5 I ,BC848!5 I ,BC849!5 I ,BC850!5 I SERIES

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