

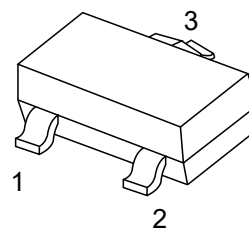
## 1.Features

- Ideally suited for automatic insertion
- For Switching and AF Amplifier Applications
- BC846A, B TRANSISTOR (NPN)
- BC847A, B, C
- BC848A, B, C

## 2.Pinning Information

| Pin | Symbol | Description |
|-----|--------|-------------|
| 1   | B      | BASE        |
| 2   | E      | EMITTER     |
| 3   | C      | COLLECTOR   |

**SOT-23**



## 3.Absolute Maximum Ratings $T_A = 25^\circ\text{C}$

| Parameter                     |       | Symbol    | Value      | Units            |
|-------------------------------|-------|-----------|------------|------------------|
| Collector-Base Voltage        | BC846 | $V_{CBO}$ | 80         | V                |
|                               | BC847 |           | 50         | V                |
|                               | BC848 |           | 30         | V                |
| Collector-Emitter Voltage     | BC846 | $V_{CEO}$ | 65         | V                |
|                               | BC847 |           | 45         | V                |
|                               | BC848 |           | 30         | V                |
| Emitter-Base Voltage          |       | $V_{EBO}$ | 6          | V                |
| Collector Current -Continuous |       | $I_C$     | 0.1        | A                |
| Collector Power Dissipation   |       | $P_C$     | 200        | mW               |
| Junction Temperature          |       | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature           |       | $T_{STG}$ | -65 to 150 | $^\circ\text{C}$ |



#### 4. Electrical Characteristics $T_A = 25^\circ\text{C}$

| Parameter                              |                    | Symbol        | Conditions                                                 | Min | Typ | Max | Units         |
|----------------------------------------|--------------------|---------------|------------------------------------------------------------|-----|-----|-----|---------------|
| Collector-base<br>breakdown voltage    | BC846              | $V_{CBO}$     | $I_C = 10\mu\text{A}, I_E = 0$                             | 80  |     |     | V             |
|                                        | BC847              |               |                                                            | 50  |     |     | V             |
|                                        | BC848              |               |                                                            | 30  |     |     | V             |
| Collector-emitter<br>breakdown voltage | BC846              | $V_{CEO}$     | $I_C = 10\text{mA}, I_B = 0$                               | 65  |     |     | V             |
|                                        | BC847              |               |                                                            | 45  |     |     | V             |
|                                        | BC848              |               |                                                            | 30  |     |     | V             |
| Emitter-base breakdown voltage         |                    | $V_{EBO}$     | $I_E = 10\mu\text{A}, I_C = 0$                             | 6   |     |     | V             |
| Collector cut-off current              | BC846              | $I_{CBO}$     | $V_{CB} = 70\text{V}, I_E = 0$                             |     |     | 0.1 | $\mu\text{A}$ |
|                                        | BC847              |               | $V_{CB} = 50\text{V}, I_E = 0$                             |     |     |     |               |
|                                        | BC848              |               | $V_{CB} = 30\text{V}, I_E = 0$                             |     |     |     |               |
| Collector cut-off current              | BC846              | $I_{CEO}$     | $V_{CE} = 60\text{V}, I_B = 0$                             |     |     | 0.1 | $\mu\text{A}$ |
|                                        | BC847              |               | $V_{CE} = 45\text{V}, I_B = 0$                             |     |     |     |               |
|                                        | BC848              |               | $V_{CE} = 30\text{V}, I_B = 0$                             |     |     |     |               |
| Emitter cut-off current                |                    | $I_{EBO}$     | $V_{EB} = 5\text{V}, I_C = 0$                              |     |     | 0.1 | $\mu\text{A}$ |
| DC current gain                        | BC846A, 847A, 848A | $h_{FE}$      | $V_{CE} = 5\text{V}, I_C = 2\text{mA}$                     | 110 |     | 220 |               |
|                                        | BC846B, 847B, 848B |               |                                                            | 200 |     | 450 |               |
|                                        | BC847C, BC848C     |               |                                                            | 420 |     | 800 |               |
| Collector-emitter saturation voltage   |                    | $V_{CE(sat)}$ | $I_C = 100\text{mA}, I_B = 5\text{mA}$                     |     |     | 0.5 | V             |
| Base-emitter saturation voltage        |                    | $V_{BE(sat)}$ | $I_C = 100\text{mA}, I_B = 5\text{mA}$                     |     |     | 1.1 | V             |
| Transition frequency                   |                    | $f_T$         | $V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$ | 100 |     |     | MHz           |
| Collector capacitance                  |                    | $C_{ob}$      | $V_{CB} = 10\text{V}, f = 1\text{MHz}$                     |     |     | 4.5 | pF            |

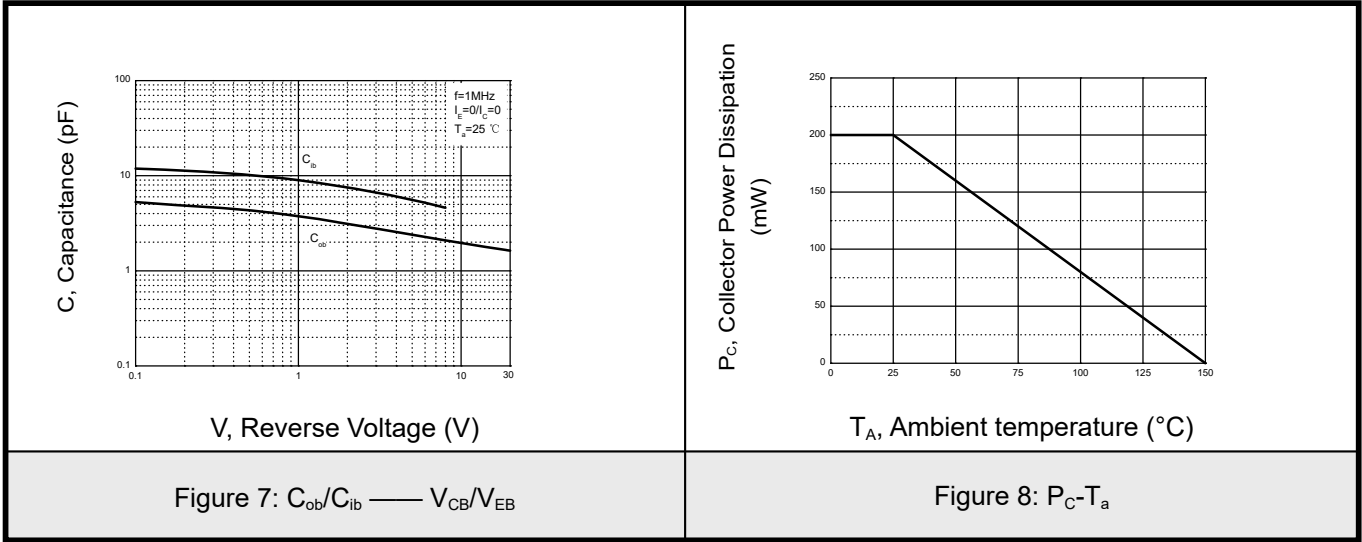


5.1 Typical Characteristic

|                                 |                               |
|---------------------------------|-------------------------------|
|                                 |                               |
| Figure 1: Static Characteristic | Figure 2: $h_{FE}$ — $I_C$    |
|                                 |                               |
| Figure 3: $V_{BEsat}$ — $I_C$   | Figure 4: $V_{CEsat}$ — $I_C$ |
|                                 |                               |
| Figure 5: $I_C$ — $V_{BE}$      | Figure 6: $f_T$ — $I_C$       |

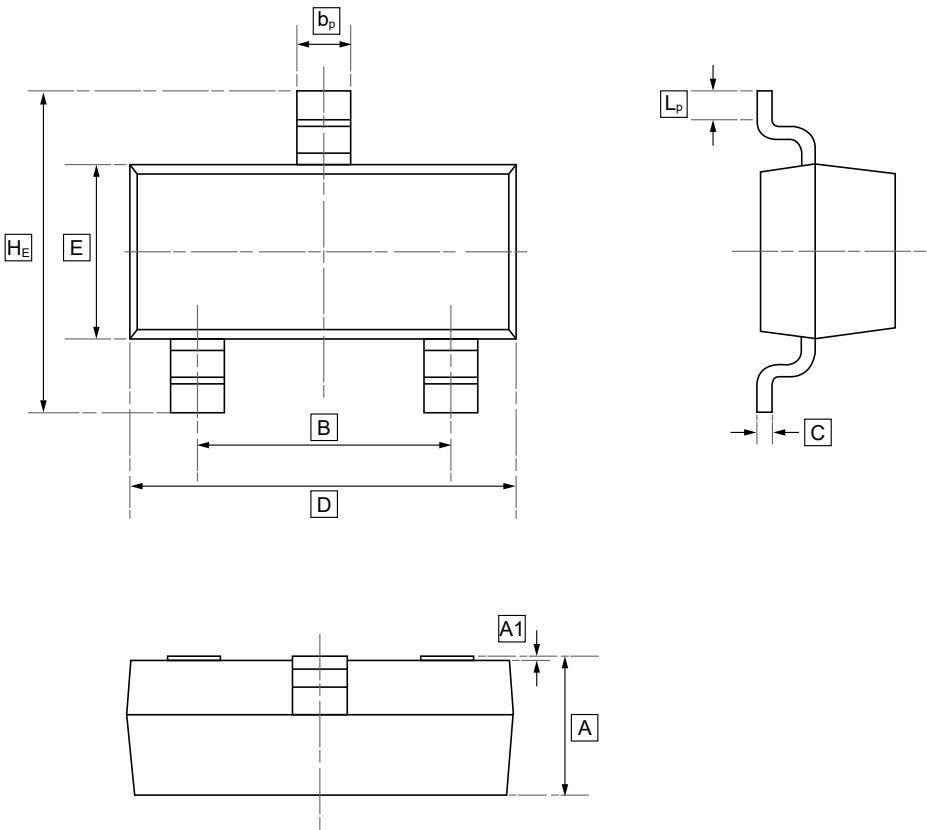


5.2 Typical Characteristic





5.SOT-23 Package Outline Dimensions

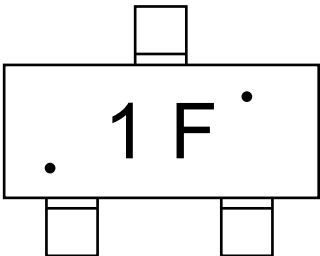


DIMENSIONS (mm are the original dimensions)

| Symbol | A    | B    | b <sub>p</sub> | C    | D    | E    | H <sub>E</sub> | A1    | L <sub>p</sub> |
|--------|------|------|----------------|------|------|------|----------------|-------|----------------|
| Min    | 0.95 | 1.78 | 0.35           | 0.08 | 2.70 | 1.20 | 2.20           | 0.013 | 0.20           |
| Max    | 1.40 | 2.04 | 0.50           | 0.19 | 3.10 | 1.65 | 3.00           | 0.100 | 0.50           |



6.Ordering information



| Order Code | Marking | Package | Base QTY | Delivery Mode |
|------------|---------|---------|----------|---------------|
| UMW BC846B | 1B      | SOT-23  | 3000     | Tape and reel |
| UMW BC847B | 1F      | SOT-23  | 3000     | Tape and reel |
| UMW BC847C | 1G      | SOT-23  | 3000     | Tape and reel |



## 7.Disclaimer

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