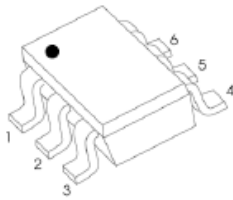
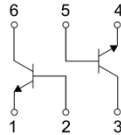


## APPLICATION

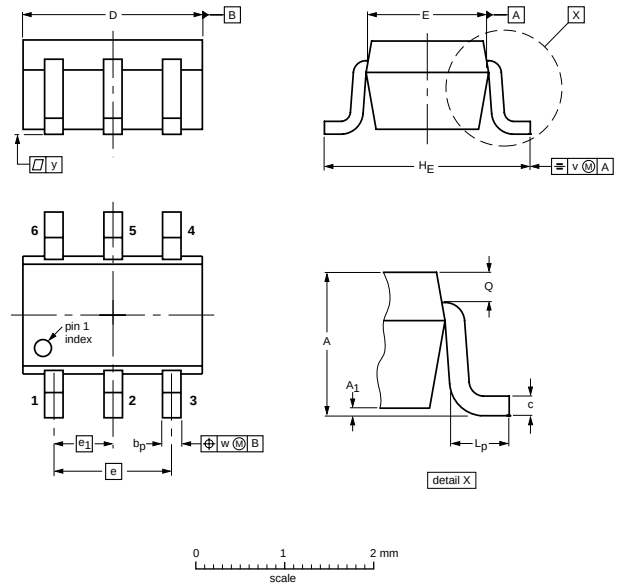
This device is designed for general purpose amplifier applications



SOT-363



## SOT-363



0 1 2 mm  
scale

DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A1<br>max | bp           | c            | D          | E            | e   | e1   | HE         | Lp           | Q            | v   | w   | y   |
|------|------------|-----------|--------------|--------------|------------|--------------|-----|------|------------|--------------|--------------|-----|-----|-----|
| mm   | 1.1<br>0.8 | 0.1       | 0.30<br>0.20 | 0.25<br>0.10 | 2.2<br>1.8 | 1.35<br>1.15 | 1.3 | 0.65 | 2.2<br>2.0 | 0.45<br>0.15 | 0.25<br>0.15 | 0.2 | 0.2 | 0.1 |

## MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol          | Parameter                                        | Value    | Unit                      |
|-----------------|--------------------------------------------------|----------|---------------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | 50       | V                         |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 45       |                           |
| $V_{EBO}$       | Emitter-Base Voltage                             | 6        |                           |
| $I_C$           | Collector Current-Continuous                     | 100      | mA                        |
| $P_D$           | Power Dissipation                                | 200      | mW                        |
| $R_{\theta JA}$ | Thermal Resistance. Junction to Ambient          | 625      | $^\circ\text{C}/\text{W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^\circ\text{C}$          |

# BC847BS/BC847BDW1T1G

## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol                  | Test conditions                                     | Min  | Typ | Max  | Unit |
|--------------------------------------|-------------------------|-----------------------------------------------------|------|-----|------|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub>    | I <sub>C</sub> =10μA, I <sub>E</sub> =0             | 50   |     |      | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub>    | I <sub>C</sub> =1mA, I <sub>B</sub> =0              | 45   |     |      | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub>    | I <sub>E</sub> =10μA, I <sub>C</sub> =0             | 6    |     |      | V    |
| Collector cut-off current            | I <sub>CBO</sub>        | V <sub>CB</sub> =30V, I <sub>E</sub> =0             |      |     | 15   | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>        | V <sub>EB</sub> =4V, I <sub>C</sub> =0              |      |     | 15   |      |
| DC current gain*                     | h <sub>FE</sub>         | V <sub>CE</sub> =5V, I <sub>C</sub> =2mA            | 200  |     | 450  |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)(1)</sub> | I <sub>C</sub> =10mA, I <sub>B</sub> =0.5mA         |      |     | 0.25 | V    |
|                                      | V <sub>CE(sat)(2)</sub> | I <sub>C</sub> =100mA, I <sub>B</sub> =5mA          |      |     | 0.65 | V    |
| Base-emitter voltage                 | V <sub>BE(1)</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =2mA            | 0.58 |     | 0.7  | V    |
|                                      | V <sub>BE(2)</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =10mA           |      |     | 0.77 | V    |
| Transition frequency                 | f <sub>T</sub>          | V <sub>CE</sub> =5V, I <sub>C</sub> =20mA, f=100MHz |      | 200 |      | MHz  |
| Collector output capacitance         | C <sub>ob</sub>         | V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz     |      | 2   |      | pF   |

\*pulse test: Pulse Width ≤300μs, Duty Cycle≤2.0%.

# RATING AND CHARACTERISTIC CURVES (BC847BS/BC847BDW1T1G)

