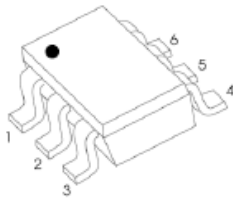
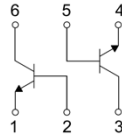


## APPLICATION

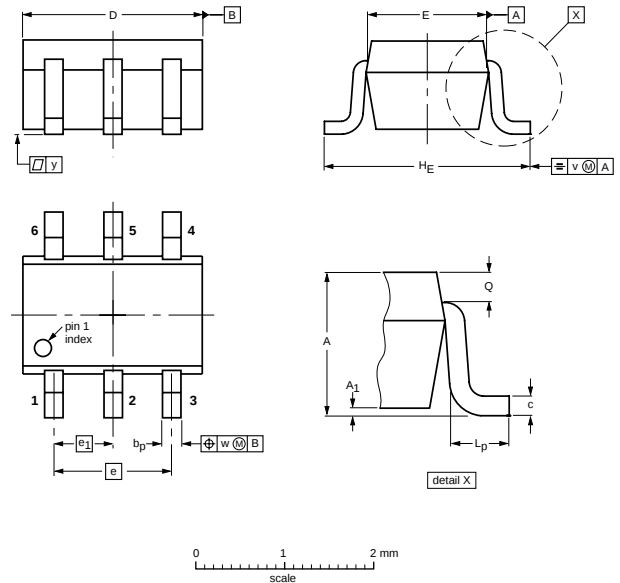
This device is designed for general purpose amplifier applications



SOT-363



## SOT-363



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 ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter                            | Symbol           | Test conditions                                      | Min  | Typ | Max  | Unit |
|--------------------------------------|------------------|------------------------------------------------------|------|-----|------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$    | $I_C=10\mu\text{A}, I_E=0$                           | 50   |     |      | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$    | $I_C=1\text{mA}, I_B=0$                              | 45   |     |      | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$    | $I_E=10\mu\text{A}, I_C=0$                           | 6    |     |      | V    |
| Collector cut-off current            | $I_{CBO}$        | $V_{CB}=30\text{V}, I_E=0$                           |      |     | 15   | nA   |
| Emitter cut-off current              | $I_{EBO}$        | $V_{EB}=4\text{V}, I_C=0$                            |      |     | 15   |      |
| DC current gain*                     | $h_{FE}$         | $V_{CE}=5\text{V}, I_C=2\text{mA}$                   | 200  |     | 450  |      |
| Collector-emitter saturation voltage | $V_{CE(sat)(1)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$                  |      |     | 0.25 | V    |
|                                      | $V_{CE(sat)(2)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$                   |      |     | 0.65 | V    |
| Base-emitter voltage                 | $V_{BE(1)}$      | $V_{CE}=5\text{V}, I_C=2\text{mA}$                   | 0.58 |     | 0.7  | V    |
|                                      | $V_{BE(2)}$      | $V_{CE}=5\text{V}, I_C=10\text{mA}$                  |      |     | 0.77 | V    |
| Transition frequency                 | $f_T$            | $V_{CE}=5\text{V}, I_C=20\text{mA}, f=100\text{MHz}$ |      | 200 |      | MHz  |
| Collector output capacitance         | $C_{ob}$         | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$            |      | 2   |      | pF   |

\*pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

# RATING AND CHARACTERISTIC CURVES (BC847BS/BC847BDW1T1G)

