



BC846AS

Preliminary

DUAL TRANSISTOR

DUAL NPN SURFACE MOUNT SMALL SIGNAL TRANSISTOR

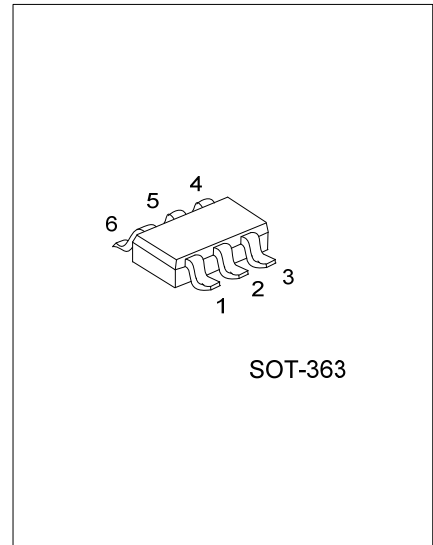
DESCRIPTION

The UTC **BC846AS** is a dual NPN surface mount small signal transistor, it uses UTC's advanced technology to provide customers with high DC current gain, etc.

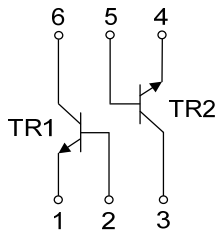
The UTC **BC846AS** is suitable for switching and AF amplifier applications.

FEATURES

- * Suitable for automatic insertion in thick and thin-film circuits
- * Switching and AF Amplifier Applications



EQUIVALENT CIRCUIT



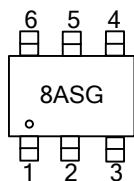
ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | | | | Packing |
|-----------------|---------|----------------|----|----|----|----|----|-----------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| BC846ASG-AL6-R | SOT-363 | E1 | B1 | C2 | E2 | B2 | C1 | Tape Reel |

Note: Pin Assignment: E: Emitter B: Base C: Collector

| | |
|---|---|
| <p>BC846ASG-AL6-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package | <ul style="list-style-type: none"> (1) R: Tape Reel (2) AL6: SOT-363 (3) G: Halogen Free and Lead Free |
|---|---|

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-----------|------------|------------------|
| Collector-Base Voltage | V_{CBO} | 80 | V |
| Collector-Emitter Voltage | V_{CEO} | 65 | V |
| Emitter-Base Voltage | V_{EBO} | 6 | V |
| Collector Current | I_C | 100 | mA |
| Peak Collector Current | I_{CM} | 200 | mA |
| Peak Emitter Current | I_{EM} | 200 | mA |
| Power Dissipation | P_D | 325 | mW |
| Operating Temperature Range | T_J | -40 ~ +150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -40 ~ +150 | $^\circ\text{C}$ |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|--------------------|
| Junction to Ambient | θ_{JA} | 384.6 | $^\circ\text{C/W}$ |

Note: Device mounted on FR-4 PCB minimum land pad.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|--|-----|-----|-----|---------------|
| OFF CHARACTERISTICS | | | | | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu\text{A}, I_B=0$ | 80 | | | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=10\text{mA}, I_B=0$ | 65 | | | V |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=1\mu\text{A}, I_C=0$ | 6 | | | V |
| ON CHARACTERISTICS | | | | | | |
| DC Current Gain | h_{FE} | $V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$ | 110 | | 220 | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$ | | 90 | 250 | mV |
| | | $I_C=100\text{mA}, I_B=5.0\text{mA}$ | | 200 | 600 | mV |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C=10\text{mA}, I_B=0.5\text{mA}$ | | 700 | | mV |
| | | $I_C=100\text{mA}, I_B=5.0\text{mA}$ | | 900 | | mV |
| Base-Emitter Voltage | $V_{BE(ON)}$ | $V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$ | 580 | 660 | 700 | mV |
| | | $V_{CE}=5.0\text{V}, I_C=10\text{mA}$ | | | 770 | mV |
| SMALL SIGNAL CHARACTERISTICS | | | | | | |
| Collector-Cutoff Current | I_{CES} | $V_{CE}=80\text{V}$ | | | 15 | nA |
| | | $V_{CB}=40\text{V}$ | | | 15 | nA |
| | I_{CBO} | $V_{CB}=30\text{V}, T_A=150^\circ\text{C}$ | | | 5 | μA |
| Gain Bandwidth Product | f_T | $V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ | 100 | | | MHz |
| Collector-Base Capacitance | C_{CB} | $V_{CB}=10\text{V}, f=1.0\text{MHz}$ | | 2 | | pF |

Note: Short duration pulse test used to minimize self-heating effect.

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