

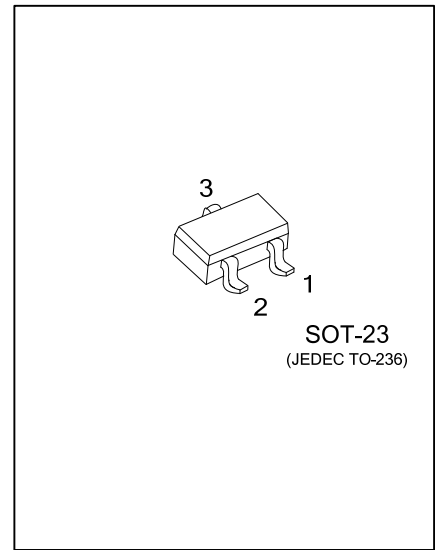


BCX70

Preliminary

NPN EPITAXIAL SILICON TRANSISTOR

GENERAL PURPOSE TRANSISTOR



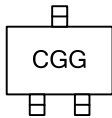
ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | Packing |
|-----------------|---------|----------------|---|---|-----------|
| | | 1 | 2 | 3 | |
| BCX70G-AE3-R | SOT-23 | E | B | C | Tape Reel |

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

| | |
|--|---|
| <p>BCX70G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p> | <p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free</p> |
|--|---|

MARKING



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

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-----------|------------|------------------|
| Collector-Base Voltage | V_{CBO} | 45 | V |
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 200 | mA |
| Collector Power Dissipation | P_C | 350 | mW |
| 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} | 325 | $^\circ\text{C/W}$ |

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

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|------|-----|------|------|
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=2.0\text{mA}$, $I_B=0$ | 45 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=1.0\mu\text{F}$, $I_C=0$ | 5 | | | V |
| Collector Cut-off Current | I_{CES} | $V_{CE}=32\text{V}$, $V_{BE}=0$ | | | 20 | nA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB}=4\text{V}$, $I_C=0$ | | | 20 | nA |
| DC Current Gain | h_{FE} | $V_{CE}=5\text{V}$, $I_C=10\mu\text{A}$ | 100 | | | |
| | | $V_{CE}=5\text{V}$, $I_C=2.0\text{mA}$ | 380 | | 630 | |
| | | $V_{CE}=1\text{V}$, $I_C=50\text{mA}$ | 100 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=10\text{mA}$, $I_B=0.25\text{mA}$ | | | 0.35 | V |
| | | $I_C=50\text{mA}$, $I_B=1.25\text{mA}$ | | | 0.55 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=10\text{mA}$, $I_B=0.25\text{mA}$ | 0.6 | | 0.85 | V |
| | | $I_C=50\text{mA}$, $I_B=1.25\text{mA}$ | 0.7 | | 1.05 | V |
| Base-Emitter On Voltage | $V_{BE(on)}$ | $I_C=2.0\text{mA}$, $V_{CE}=5\text{V}$ | 0.55 | | 0.75 | V |
| Current Gain Bandwidth Product | f_T | $I_C=10\text{mA}$, $V_{CE}=5\text{V}$, $f=100\text{MHz}$ | 125 | | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$ | | | 4.5 | pF |
| Noise Figure | NF | $V_{CE}=5\text{V}$, $I_C=0.2\text{mA}$, $R_S=2\text{K}\Omega$ $f=1\text{KHz}$ | | | 6 | dB |
| Turn On Time | t_{ON} | $I_C=10\text{mA}$, $I_{B1}=1.0\text{mA}$ | | | 150 | ns |
| Turn Off Time | t_{OFF} | $V_{BB}=3.6\text{V}$, $I_{B2}=1.0\text{mA}$, $R_1=R_2=5\text{K}\Omega$, $R_L=990\Omega$ | | | 800 | ns |

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