# BCX71G,H,J,K

**CASE 318-02/03, STYLE 6**
**SOT-23 (TO-236AA/AB)**

**GENERAL PURPOSE TRANSISTOR**

**PNP SILICON**

**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 45 | Vdc |
| Collector-Base Voltage | $V_{CBO}$ | 45 | Vdc |
| Emitter-Base Voltage | $V_{EBO}$ | 5.0 | Vdc |
| Collector Current — Continuous | $I_C$ | 100 | mAdc |

**THERMAL CHARACTERISTICS**

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| *Total Device Dissipation, $T_A$ = 25°C<br>Derate above 25°C | $P_D$ | 350<br>2.8 | mW<br>mW/°C |
| Storage Temperature | $T_{stg}$ | 150 | °C |
| *Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 357 | °C/W |

*Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C unless otherwise noted.)

| Characteristic | | Symbol | Min | Max | Unit |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| Collector-Emitter Breakdown Voltage ($I_C$ = 2.0 mAdc, $I_B$ = 0) | | $V_{(BR)CEO}$ | 45 | — | Vdc |
| Emitter-Base Breakdown Voltage ($I_E$ = 1.0 μAdc, $I_C$ = 0) | | $V_{(BR)EBO}$ | 5.0 | — | Vdc |
| Collector Cutoff Current | | $I_{CES}$ | | | |
| ($V_{CE}$ = 32 Vdc) | | | — | 20 | nAdc |
| ($V_{CE}$ = 32 Vdc, $T_A$ = 150°C) | | | — | 20 | μAdc |
| **ON CHARACTERISTICS** | | | | | |
| DC Current Gain | | $h_{FE}$ | | | — |
| ($I_C$ = 10 μAdc, $V_{CE}$ = 5.0 Vdc) | BCX71G | | — | — | |
| | BCX71H | | 30 | — | |
| | BCX71J | | 40 | — | |
| | BCX71K | | 100 | — | |
| ($I_C$ = 2.0 mAdc, $V_{CE}$ = 5.0 Vdc) | BCX71G | | 120 | 220 | |
| | BCX71H | | 140 | 310 | |
| | BCX71J | | 250 | 460 | |
| | BCX71K | | 380 | 630 | |
| ($I_C$ = 50 mAdc, $V_{CE}$ = 1.0 Vdc) | BCX71G | | 60 | — | |
| | BCX71H | | 80 | — | |
| | BCX71J | | 100 | — | |
| | BCX71K | | 110 | — | |
| ($I_C$ = 2.0 mAdc, $V_{CE}$ = 5.0 Vdc, f = 1.0 kHz) | BCX71G | | 125 | 250 | |
| | BCX71H | | 175 | 350 | |
| | BCX71J | | 250 | 500 | |
| | BCX71K | | 350 | 700 | |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)}$ | | | Vdc |
| ($I_C$ = 10 mAdc, $I_B$ = 0.25 mAdc) | | | — | 0.25 | |
| ($I_C$ = 50 mAdc, $I_B$ = 1.25 mAdc) | | | — | 0.55 | |
| Base-Emitter Saturation Voltage | | $V_{BE(sat)}$ | | | Vdc |
| ($I_C$ = 10 mAdc, $I_B$ = 0.25 mAdc) | | | 0.6 | 0.85 | |
| ($I_C$ = 50 mAdc, $I_B$ = 1.25 mAdc) | | | 0.68 | 1.05 | |
| Base-Emitter On Voltage ($I_C$ = 2.0 mAdc, $V_{CE}$ = 5.0 Vdc) | | $V_{BE(on)}$ | 0.6 | 0.75 | Vdc |
| Output Capacitance ($V_{CE}$ = 10 Vdc, $I_C$ = 0, f = 1.0 MHz) | | $C_{obo}$ | — | 6.0 | pF |

**ELECTRICAL CHARACTERISTICS** (continued) ($T_A$ = 25°C unless otherwise noted.)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Noise Figure<br>($I_C$ = 0.2 mAdc, $V_{CE}$ = 5.0 Vdc, $R_S$ = 2.0 kΩ,<br>f = 1.0 kHz, BW = 200 Hz) | NF | — | 6.0 | dB |
| **SWITCHING CHARACTERISTICS** | | | | |
| Turn-On Time<br>($I_C$ = 10 mAdc, $I_{B1}$ = 1.0 mAdc) | $t_{on}$ | — | 150 | ns |
| Turn-Off Time<br>($I_{B2}$ = 1.0 mAdc, $V_{BB}$ = 3.6 Vdc, R1 = R2 = 5.0 kΩ,<br>$R_L$ = 990 Ω) | $t_{off}$ | — | 800 | ns |