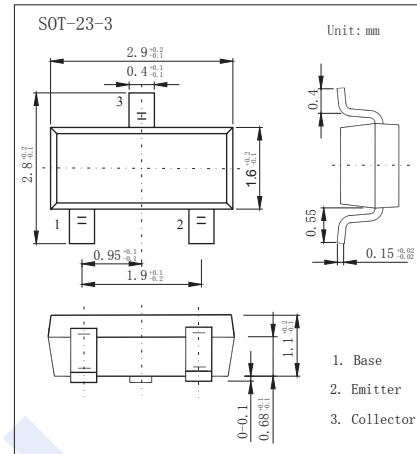


## PNP Transistors

## BCX71 (KCX71)

## ■ Features

- Low current (max. 100 mA)
- Low voltage (max. 45 V)
- Low noise.
- NPN complements: BCX70 series.

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                                       | Symbol          | Rating     | Unit                      |
|---|-----------------|------------|---------------------------|
| Collector - Base Voltage                        | $V_{CB0}$       | -45        | V                         |
| Collector - Emitter Voltage                     | $V_{CE0}$       | -45        |                           |
| Emitter - Base Voltage                          | $V_{EB0}$       | -5         |                           |
| Collector Current - Continuous                  | $I_C$           | -100       | mA                        |
| Peak Collector Current                          | $I_{CM}$        | -200       |                           |
| Peak Base Current                               | $I_{BM}$        | -200       |                           |
| Collector Power Dissipation                     | $P_C$           | 250        | mW                        |
| Thermal Resistance Junction to Ambient (Note.1) | $R_{\theta JA}$ | 500        | $^\circ\text{C}/\text{W}$ |
| Junction Temperature                            | $T_J$           | 150        | $^\circ\text{C}$          |
| Storage Temperature range                       | $T_{stg}$       | -55 to 150 |                           |

Note.1: Transistor mounted on an FR4 printed-circuit board.

## PNP Transistors

## BCX71 (KCX71)

## ■ Electrical Characteristics Ta = 25°C

| Parameter                            | Symbol                     | Test Conditions   | Min  | Typ  | Max   | Unit |
|--------------------------------------|----------------------------|---|------|------|-------|------|
| Collector- base breakdown voltage    | V <sub>CBO</sub>           | I <sub>C</sub> = -100 μA, I <sub>E</sub> =0   | -45  |      |       | V    |
| Collector- emitter breakdown voltage | V <sub>CEO</sub>           | I <sub>C</sub> = -1 mA, I <sub>B</sub> =0   | -45  |      |       |      |
| Emitter - base breakdown voltage     | V <sub>EBO</sub>           | I <sub>E</sub> = -100 μA, I <sub>C</sub> =0   | -5   |      |       |      |
| Collector-base cut-off current       | I <sub>CBO</sub>           | V <sub>CB</sub> = -45 V, I <sub>E</sub> =0  |      |      | -20   | nA   |
|                                      |                            | V <sub>CB</sub> = -45 V, I <sub>E</sub> =0, T <sub>amb</sub> = 150°C                              |      |      | -20   | uA   |
| Emitter cut-off current              | I <sub>EBO</sub>           | V <sub>EB</sub> = -4V, I <sub>C</sub> =0  |      |      | -20   | nA   |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub>       | I <sub>C</sub> =-10 mA, I <sub>B</sub> =- 0.25mA  | -60  |      | -250  | mV   |
|                                      |                            | I <sub>C</sub> =-50 mA, I <sub>B</sub> = -1.25mA (Note.1)   | -120 |      | -550  |      |
| Base - emitter saturation voltage    | V <sub>BE(sat)</sub>       | I <sub>C</sub> =-10 mA, I <sub>B</sub> =- 0.25mA  | -600 |      | -850  |      |
|                                      |                            | I <sub>C</sub> =-50 mA, I <sub>B</sub> = -1.25mA (Note.1)   | -680 |      | -1050 |      |
| Base - emitter voltage               | V <sub>BE</sub>            | V <sub>CE</sub> = -5V, I <sub>C</sub> = -2mA  | -600 | -650 | -750  |      |
|                                      |                            | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10uA   |      | -550 |       |      |
|                                      |                            | V <sub>CE</sub> = -1V, I <sub>C</sub> = -50mA (Note.1)  |      | -720 |       |      |
| DC current gain                      | BCX71H<br>BCX71J<br>BCX71K | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10uA   | 30   |      |       |      |
|                                      |                            |   | 40   |      |       |      |
|                                      |                            |   | 100  |      |       |      |
| DC current gain                      | BCX71H<br>BCX71J<br>BCX71K | V <sub>CE</sub> = -5V, I <sub>C</sub> = -2mA  | 180  |      | 310   |      |
|                                      |                            |   | 250  |      | 460   |      |
|                                      |                            |   | 380  |      | 630   |      |
| DC current gain                      | BCX71H<br>BCX71J<br>BCX71K | V <sub>CE</sub> = -1V, I <sub>C</sub> = -50mA (Note.1)  | 80   |      |       |      |
|                                      |                            |   | 100  |      |       |      |
|                                      |                            |   | 110  |      |       |      |
| Collector capacitance                | C <sub>c</sub>             | V <sub>CB</sub> =-10V, I <sub>E</sub> =I <sub>C</sub> =0, f=1MHz                                  |      | 4.5  |       | pF   |
| Emitter capacitance                  | C <sub>e</sub>             | V <sub>EB</sub> =-0.5 V, I <sub>C</sub> =I <sub>C</sub> =0, f=1MHz                                |      | 11   |       |      |
| Noise figure                         | NF                         | I <sub>C</sub> = -200 μA; V <sub>CE</sub> = -5 V;<br>R <sub>S</sub> = 2 kΩ; f = 1 kHz; B = 200 Hz |      | 2    | 6     | dB   |
| Transition frequency                 | f <sub>t</sub>             | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA, f=100MHz   | 100  |      |       | MHz  |

Note.1: Pulse test:  $t_p \leq 300 \mu s$ ;  $\delta \leq 0.02$ .

■ Classification of h<sub>fe</sub>(2)

| Type    | BCX71H  | BCX71J  | BCX71K  |
|---------|---------|---------|---------|
| Range   | 180-310 | 250-460 | 380-630 |
| Marking | BH*     | BJ*     | BK*     |