

# PNP small signal transistor

## BCX71H

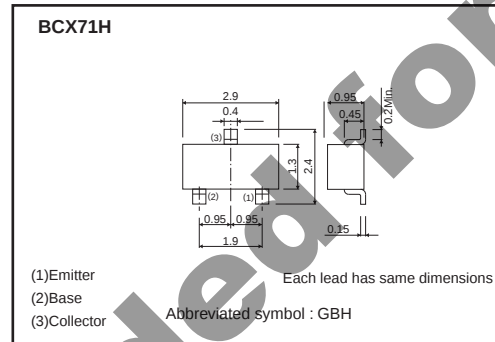
### ●Features

- 1) Ideal for switching and AF amplifier applications.
- 2) Complements the BCX70.

### ●Packaging specifications

| Type   | Package                      | Taping |
|--------|------------------------------|--------|
|        | Code                         | T116   |
|        | Basic ordering unit (pieces) | 3000   |
| BCX70H |                              | ○      |

### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol    | Limits     | Unit |
|-----------------------------|-----------|------------|------|
| Collector-base voltage      | $V_{CBO}$ | -45        | V    |
| Collector-emitter voltage   | $V_{CEO}$ | -45        | V    |
| Emitter-base voltage        | $V_{EBO}$ | -5         | V    |
| Collector current           | $I_C$     | -0.2       | A    |
| Collector power dissipation | $P_C$     | 0.2        | W    |
|                             |           | 0.35       | W *  |
| Junction temperature        | $T_J$     | 150        | °C   |
| Storage temperature         | $T_{stg}$ | -55 to 150 | °C   |

\* Mounted on a 7×5×0.6 mm CERAMIC SUBSTRATE

### ●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol         | Min. | Typ. | Max.  | Unit    | Conditions                                                |
|--------------------------------------|----------------|------|------|-------|---------|-----------------------------------------------------------|
| Collector-emitter breakdown voltage  | $BV_{CEO}$     | -45  | —    | —     | V       | $I_C = -2mA$                                              |
| Emitter-base breakdown voltage       | $BV_{EBO}$     | -5   | —    | —     | V       | $I_C = -10\mu A$                                          |
| Collector-emitter cutoff current     | $I_{CES}$      | —    | —    | -0.1  | $\mu A$ | $V_{CE} = -45V$                                           |
| Emitter-base cutoff current          | $I_{EBO}$      | —    | —    | -0.1  | $\mu A$ | $V_{EB} = -4V$                                            |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | —    | —    | -0.25 | V       | $I_C/I_B = -10mA/-0.25mA$                                 |
|                                      | $V_{CE(sat)2}$ | —    | —    | -0.55 | V       | $I_C/I_B = -50mA/-1.25mA$                                 |
| Base-emitter saturation voltage      | $V_{BE(sat)1}$ | —    | —    | -0.85 | V       | $I_C/I_B = -10mA/-0.25mA$                                 |
|                                      | $V_{BE(sat)2}$ | —    | —    | -1.05 | V       | $I_C/I_B = -50mA/-1.25mA$                                 |
| Base-emitter voltage                 | $V_{BE(on)}$   | -0.6 | —    | -0.75 | V       | $V_{CE} = -5V, I_C = -2mA$                                |
| DC current transfer ratio            | $h_{FE}$       | 140  | —    | 310   | —       | $V_{CE} = -5V, I_C = -2mA$                                |
|                                      |                | 80   | —    | —     | —       | $V_{CE} = -5V, I_C = -50mA$                               |
| Transition frequency                 | $f_T$          | —    | 180  | —     | MHz     | $V_{CE} = -5V, I_E = -10mA, f = 100MHz$                   |
| Collector output capacitance         | $C_{ob}$       | —    | —    | 6     | pF      | $V_{CB} = -10V, f = 1MHz$                                 |
| Noise figure                         | NF             | —    | —    | 6     | dB      | $V_{CE} = -5V, I_C = -200\mu A, f = 1kHz, R_g = 2k\Omega$ |
| Collector-base cutoff current        | $I_{CBO}$      | —    | —    | -20   | $\mu A$ | $V_{CB} = -45V, T_a = 150^\circ C$                        |

## ●Electrical characteristics

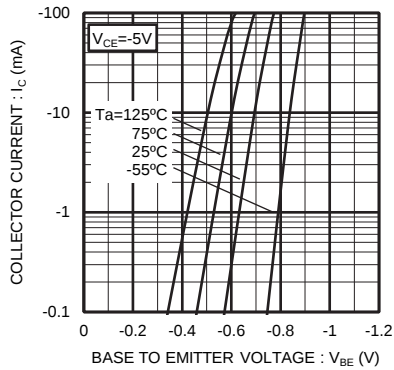


Fig1. Grounded Emitter Propagation Characteristics

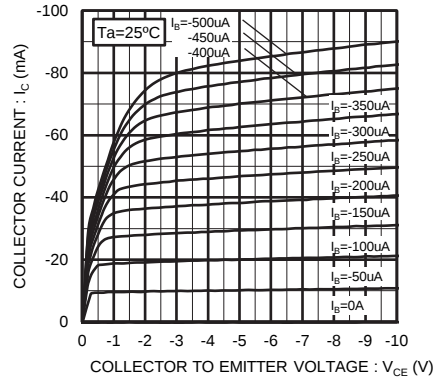


Fig2. Grounded Emitter Output Characteristics

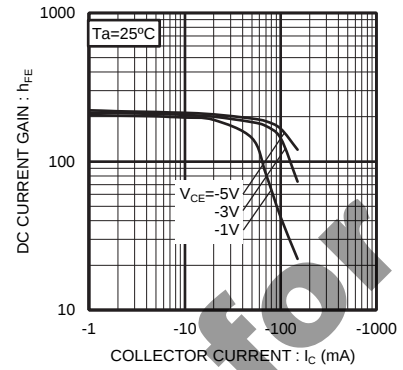


Fig3. DC Current Gain vs. Collector Current (I)

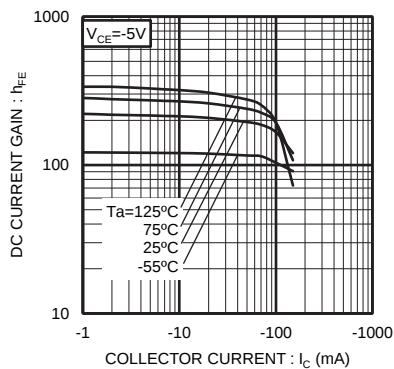


Fig4. DC Current Gain vs. Collector Current (II)

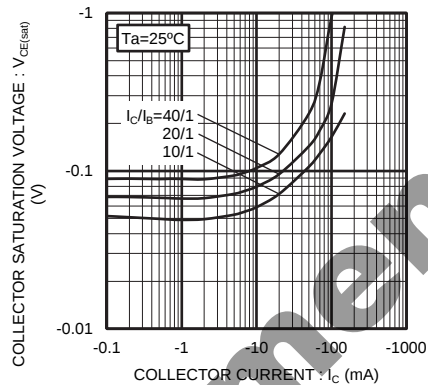


Fig5. Collector Saturation Voltage vs. Collector Current (I)

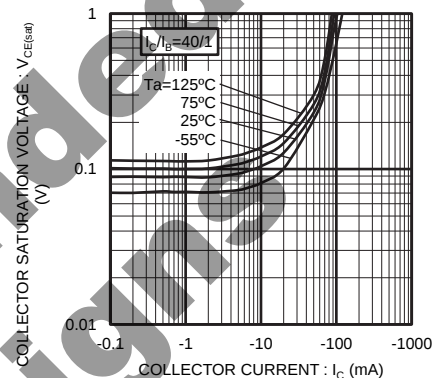


Fig6. Collector Saturation Voltage vs. Collector Current (II)

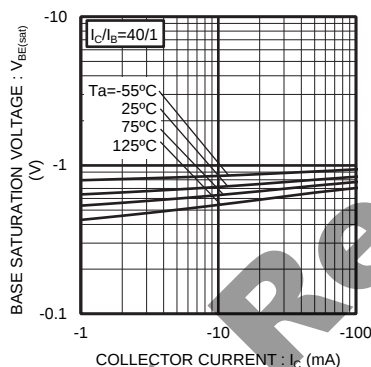


Fig7. Base Saturation Voltage vs. Collector Current

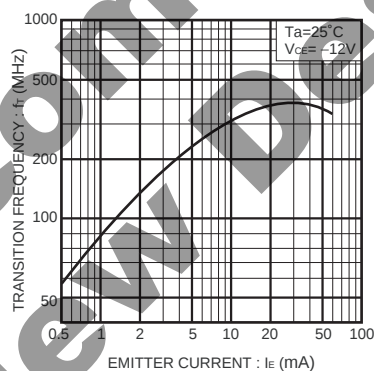
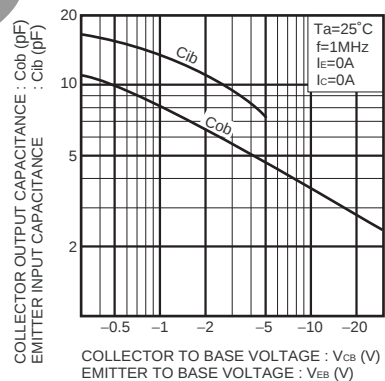


Fig8. Gain bandwidth product vs. emitter current

Fig9. Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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