

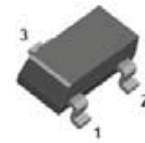
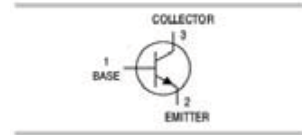
Silicon Epitaxial Planar Transistor: BCX70

Features:

- For AF input stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Low noise between 30Hz and 15kHz
- Complementary types: BCX71

Applications:

- General purpose transistor



SOT-23

Ordering Information

| Type No. | Marking: | Package Code: |
|----------|----------|---------------|
| BCX70G | AG | SOT-23 |
| BCX70H | AH | SOT-23 |
| BCX70J | AJ | SOT-23 |
| BCX70K | AK | SOT-23 |

Maximum Ratings & Characteristics: T_{amb}=25°C unless otherwise specified

| Parameter: | Symbol: | Value: | Unit: |
|----------------------------------|----------------|-------------|-------|
| Collector - Base Voltage | V_{CBO} | 45 | V |
| Collector - Emitter Voltage | V_{CEO} | 45 | V |
| Emitter - Base Voltage | V_{ebo} | 5 | V |
| DC Collector Current | I_C | 100 | A |
| Peak Collector Current | I_{CM} | 200 | mA |
| Peak Base Current | I_{BM} | 200 | mA |
| Collector Dissipation | P_{TOT} | 350 | W |
| Junction and Storage Temperature | T_j, T_{stg} | -65 to +150 | °C |

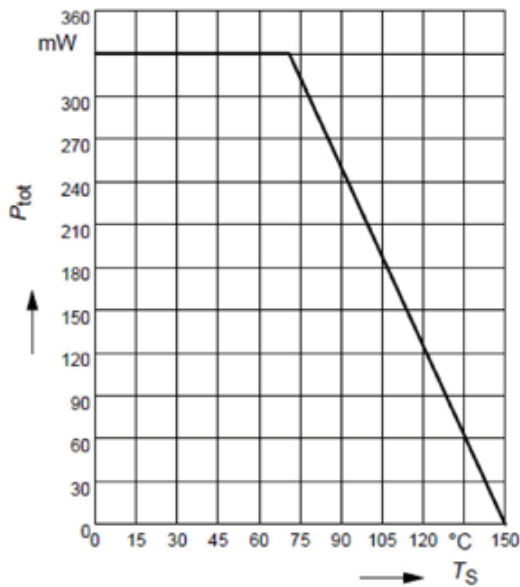
Maximum Ratings & Characteristics: Tamb=25°C unless otherwise specified

| Parameter: | Symbol: | Test Conditions: | Min: | Typ: | Max: | Unit: | |
|--|---------------|---|------|-------------|--------------|-------|--|
| Collector - Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0$ | 45 | | | V | |
| Collector - Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -10mA, I_B = 0$ | 45 | | | V | |
| Emmitter - Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = -1.0\mu A, I_C = 0$ | 5 | | | V | |
| Collector Cut-off Current | I_{CBO} | $V_{CE} = -45V, V_{BE} = 0$ | | | 20 | nA | |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 4V, I_C = 0$ | | | 20 | nA | |
| DC Current Gain | h_{FE} | $V_{CE} = 5V, I_C = 10\mu A$ | G | 20 | 140 | | |
| | | | H | 20 | 200 | | |
| | | | J | 40 | 300 | | |
| | | | K | 100 | 460 | | |
| | | $V_{CE} = 5V, I_C = 2mA$ | G | 120 | 220 | | |
| | | | H | 180 | 310 | | |
| | | | J | 250 | 460 | | |
| | | | K | 380 | 630 | | |
| | | $V_{CE} = 5V, I_C = 50mA$ | G | 50 | | | |
| | | | H | 70 | | | |
| | | | J | 90 | | | |
| | | | K | 100 | | | |
| Collector - Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 10mA, I_B = 0.25mA$ $I_C = 50mA, I_B = 1.25mA$ | | 0.12 0.2 | 0.35 0.55 | V | |
| Base - Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 10mA, I_B = 0.25mA$ $I_C = 50mA, I_B = 1.25mA$ | | 0.7 0.83 | 0.85 1.05 | V | |
| Base Emitter Voltage | V_{BE} | $I_C = 2.0mA, V_{CE} = 5V$ | 0.55 | 0.65 | 0.75 | V | |
| Transition Frequency | f_T | $V_{CE} = 5V, I_C = 20mA,$ $f = 100MHz$ | | 250 | | MHz | |
| Collector-base capacitance | C_{cb} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | | 3 | | pF | |
| Emitter-base capacitance | C_{eb} | $V_{EB} = 0.5V, I_E = 0, f = 1MHz$ | | 8 | | | |
| Noise figure | NF | $V_{CE} = 5V, I_C = 100\mu A$ $f = 1kHz, R_S = 1k\Omega$ | | 2 | | dB | |

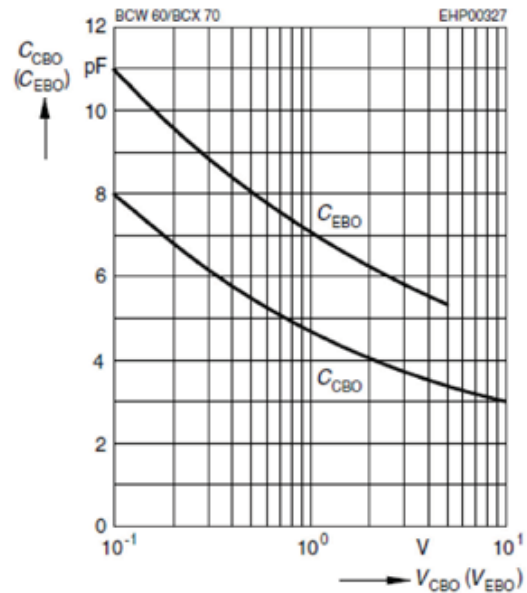
Typical Characteristics: $T_{amb}=25^{\circ}C$ unless otherwise specified

Ratings & Characteristic Curves

Total power dissipation $P_{tot} = f(T_S)$

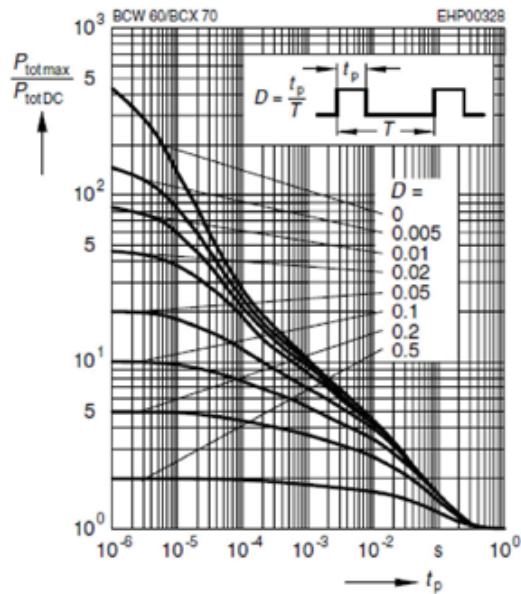


**Collector-base capacitance $C_{CB} = f(V_{CBO})$
Emitter-base capacitance $C_{EB} = f(V_{EBO})$**



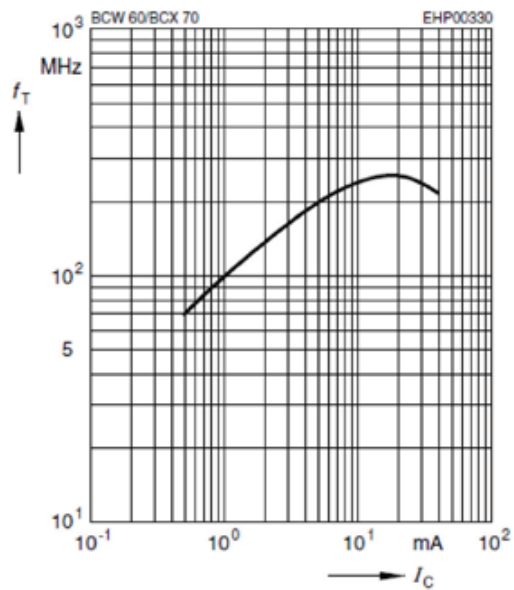
Permissible pulse load

$$P_{totmax} / P_{totDC} = f(t_p)$$



Transition frequency $f_T = f(I_C)$

$$V_{CE} = 5V$$

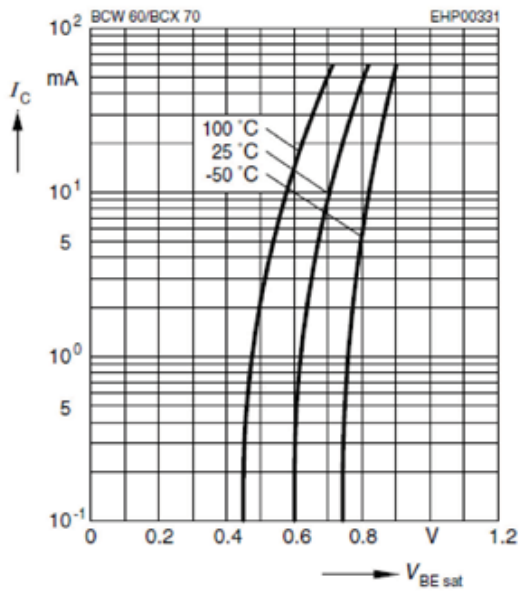


Typical Characteristics: $T_{amb}=25^{\circ}C$ unless otherwise specified

Ratings & Characteristic Curves

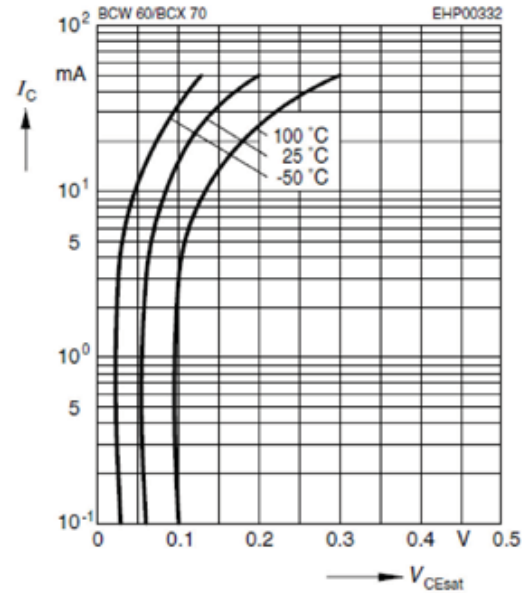
Base-emitter saturation voltage

$$I_C = f(V_{BEsat}), h_{FE} = 40$$



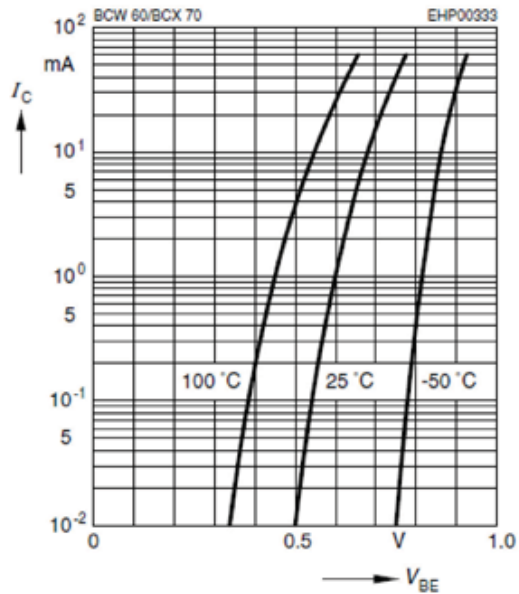
Collector-emitter saturation voltage

$$I_C = f(V_{CEsat}), h_{FE} = 40$$



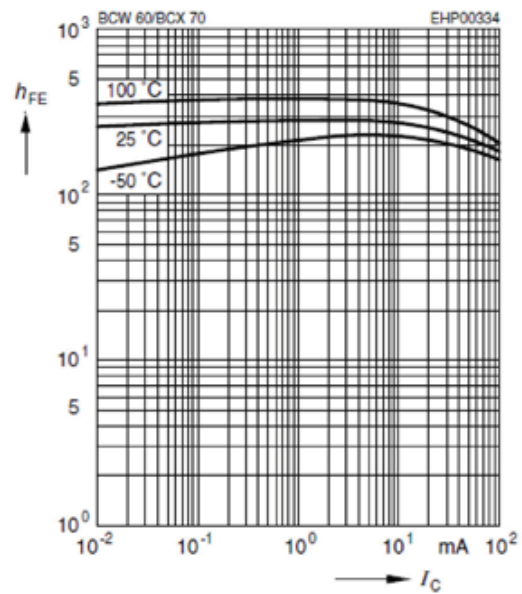
Collector current $I_C = f(V_{BE})$

$$V_{CE} = 5V$$



DC current gain $h_{FE} = f(I_C)$

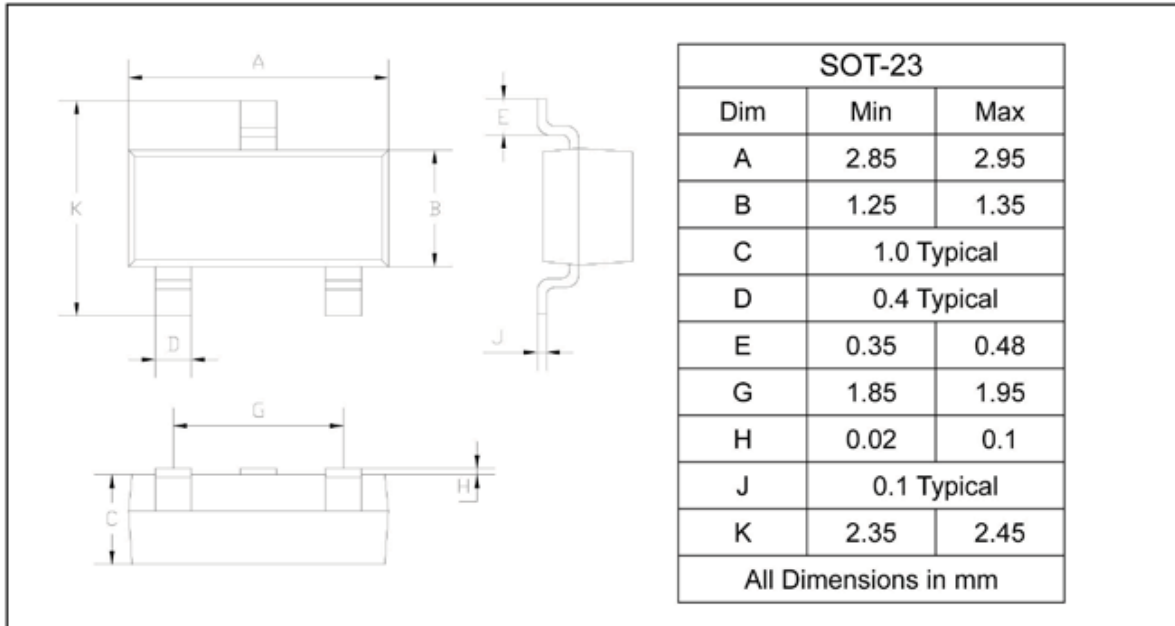
$$V_{CE} = 5V$$



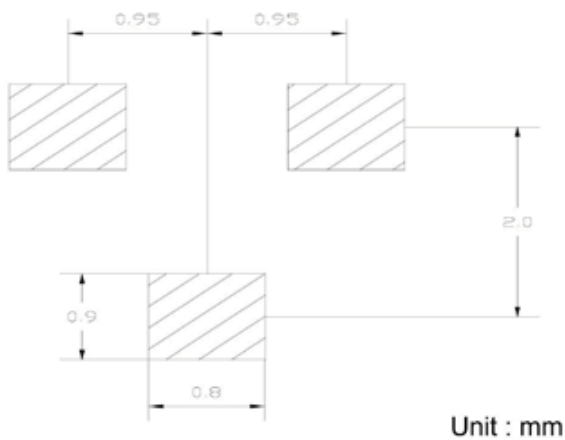
Package Outline

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|--------|---------|----------------|
| BCX70 | SOT-23 | 3000/Tape&Reel |