

# PNP General Purpose Transistor

## BC858BW / BC858B

### ●Features

- 1)  $BV_{CE0} < -30V$  ( $I_C = -1mA$ )
- 2) Complements the BC848B / BC848BW.

### ●Package, marking and packaging specifications

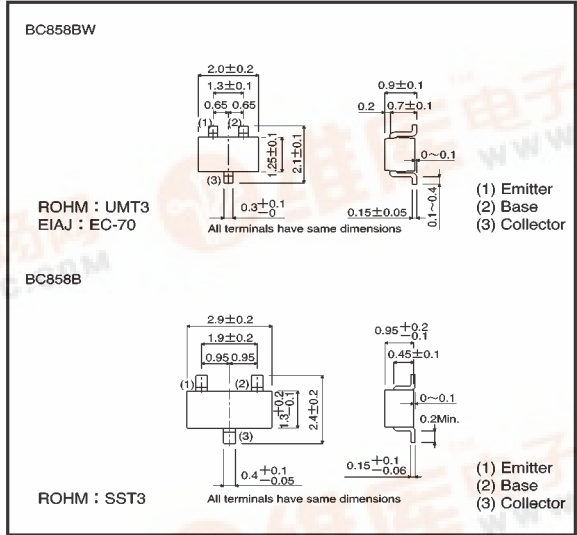
| Part No.                     | BC858BW | BC858B |
|------------------------------|---------|--------|
| Packaging type               | UMT3    | SST3   |
| Marking                      | G3K     | G3K    |
| Code                         | T106    | T116   |
| Basic ordering unit (pieces) | 3000    | 3000   |

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

| Parameter                   | Symbol    | Limits      | Unit |
|-----------------------------|-----------|-------------|------|
| Collector-base voltage      | $V_{CB0}$ | -30         | V    |
| Collector-emitter voltage   | $V_{CE0}$ | -30         | V    |
| Emitter-base voltage        | $V_{EB0}$ | -5          | V    |
| Collector current           | $I_C$     | -0.1        | A    |
| Collector power dissipation | $P_C$     | 0.2<br>0.35 | W*   |
| Junction temperature        | $T_{jg}$  | 150         | °C   |
| Storage temperature         | $T_{stg}$ | -55 ~ +150  | °C   |

\* When mounted on a  $5 \times 5 \times 0.6$  mm ceramic board.

### ●External dimensions (Units : mm)



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

| Parameter                            | Symbol        | Min. | Typ. | Max.          | Unit | Conditions  |
|--------------------------------------|---------------|------|------|---------------|------|---|
| Collector-base breakdown voltage     | $BV_{CB0}$    | -30  | —    | —             | V    | $I_C = -50 \mu A$                                   |
| Collector-emitter breakdown voltage  | $BV_{CE0}$    | -30  | —    | —             | V    | $I_C = -1mA$  |
| Emitter-base breakdown voltage       | $BV_{EB0}$    | -5   | —    | —             | V    | $I_E = -50 \mu A$                                   |
| Collector cutoff current             | $I_{CBO}$     | —    | —    | -15           | nA   | $V_{CB} = -30V$                                     |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | —    | -0.3<br>-0.65 | V    | $I_C/I_E = -10mA/-0.5mA$<br>$I_C/I_E = -100mA/-5mA$ |
| Base-emitter saturation voltage      | $V_{BE(on)}$  | -0.6 | —    | -0.75         | V    | $V_{CE}/I_C = -5V/-10mA$                            |
| DC current transfer ratio            | $h_{FE}$      | 210  | —    | 480           | —    | $V_{CE}/I_C = -5V/-2mA$                             |
| Transition frequency                 | $f_T$         | —    | 250  | —             | MHz  | $V_{CE} = -5V, I_E = 20mA, f = 100MHz$              |
| Output capacitance                   | $C_{ob}$      | —    | 4.5  | —             | pF   | $V_{CB} = -10V, I_E = 0, f = 1MHz$                  |

### ●Electrical characteristic curves

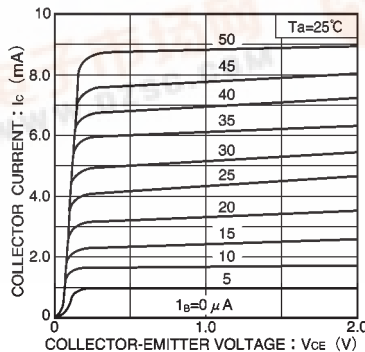
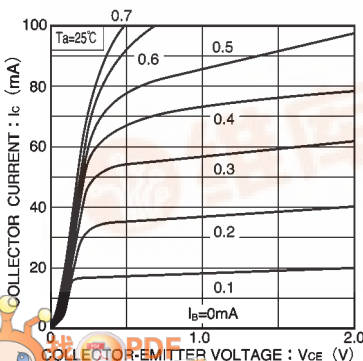


Fig.1 Grounded emitter output characteristics (I)

Fig.2 Grounded emitter output characteristics (II)

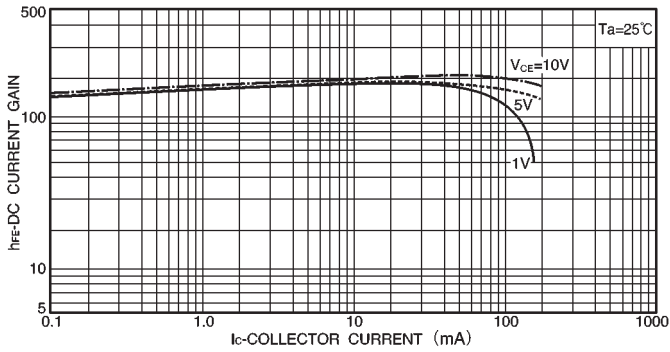


Fig.3 DC current gain vs. collector current ( I )

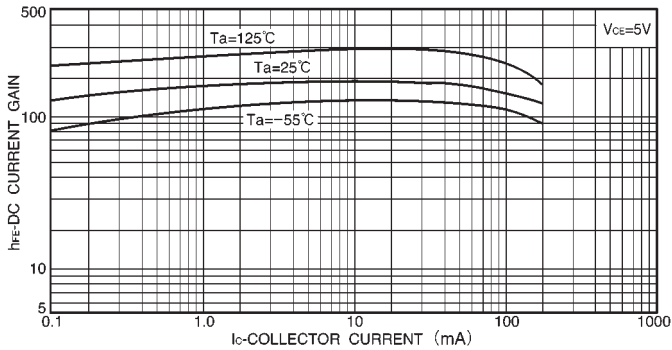


Fig.4 DC current gain vs. collector current ( II )

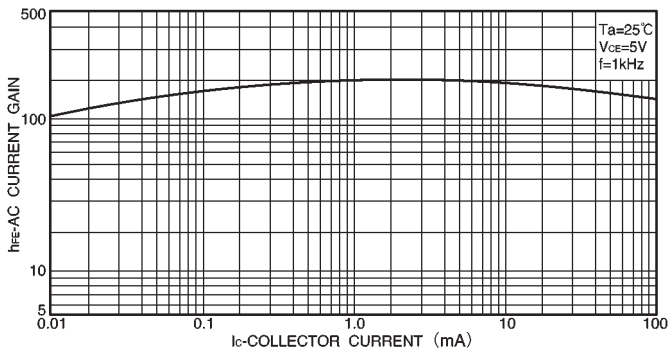


Fig.5 AC current gain vs. collector current

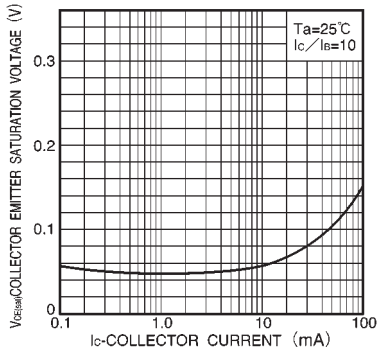


Fig.6 Collector-emitter saturation voltage vs. collector current

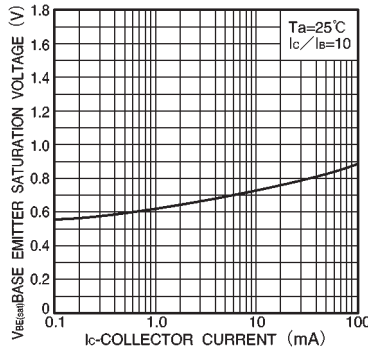


Fig.7 Base-emitter saturation voltage vs. collector current

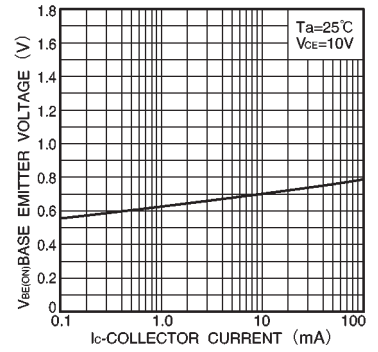


Fig.8 Grounded emitter propagation characteristics

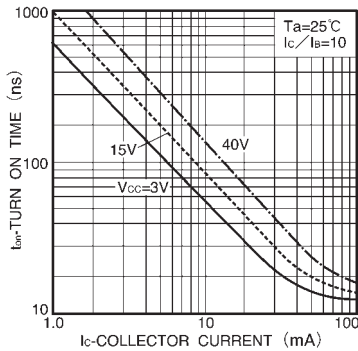


Fig.9 Turn-on time vs. collector current

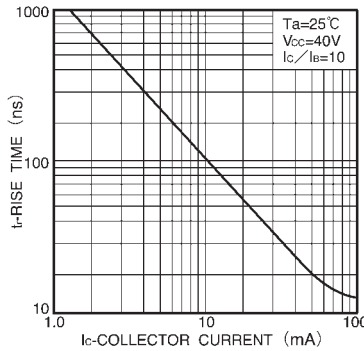


Fig.10 Rise time vs. collector current

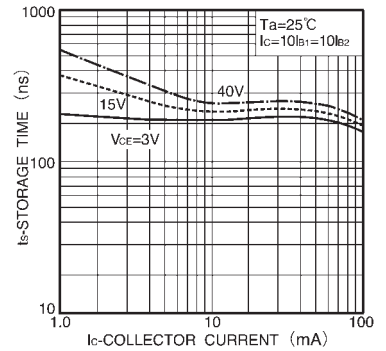


Fig.11 Storage time vs. collector current

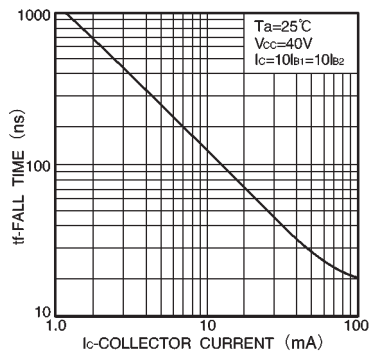


Fig.12 Fall time vs. collector current

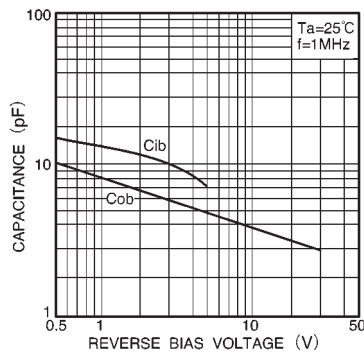


Fig.13 Input/output capacitance vs. voltage

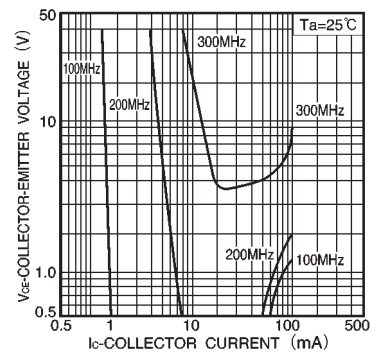


Fig.14 Gain bandwidth product

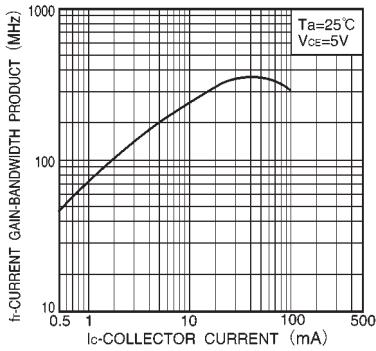


Fig.15 Gain bandwidth product vs. collector current

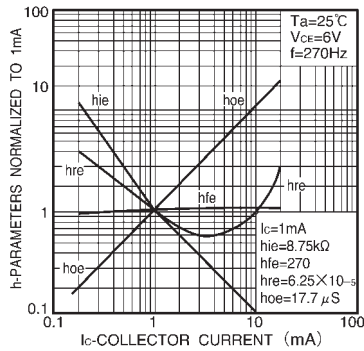


Fig.16 h parameter vs. collector current

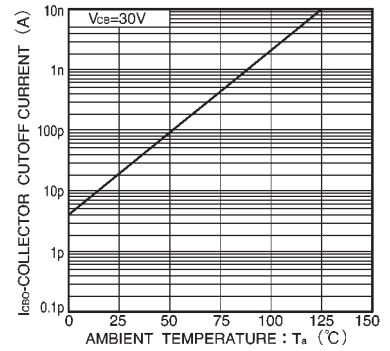


Fig.17 Noise characteristics (I)

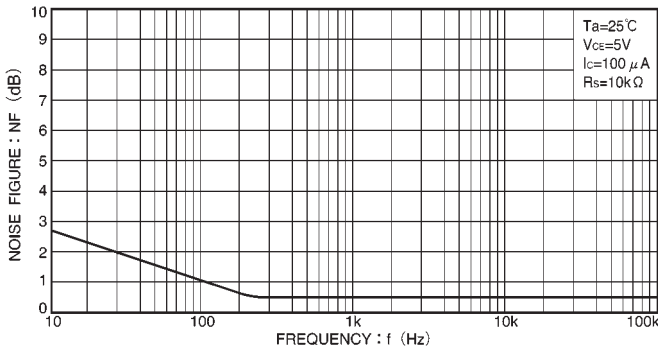


Fig.18 Noise vs. collector current

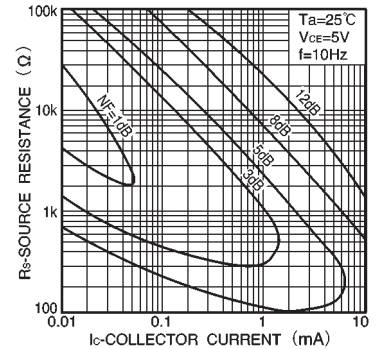


Fig.19 Noise characteristics (II)

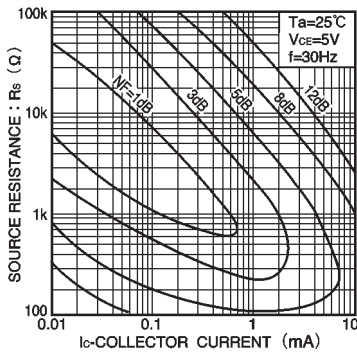


Fig.20 Noise characteristics (III)

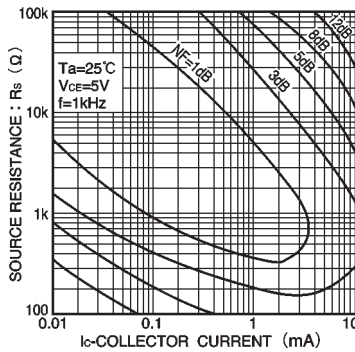


Fig.21 Noise characteristics (IV)

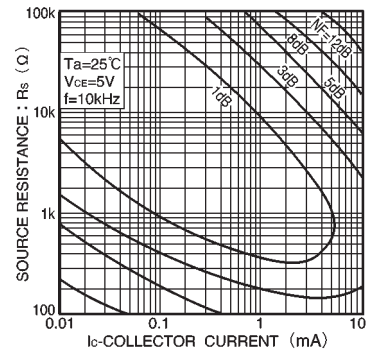


Fig.22 Noise characteristics (V)