



## 2SB1198

## PNP EPITAXIAL SILICON TRANSISTOR

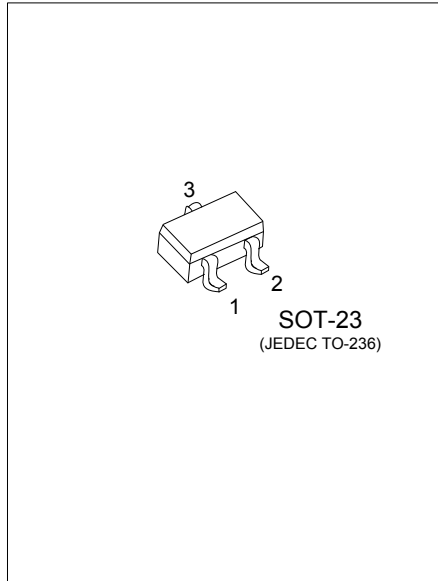
### LOW FREQUENCY PNP TRANSISTOR

#### DESCRIPTION

The UTC **2SB1198** is an epitaxial planar type PNP silicon transistor.

#### FEATURES

- \* High breakdown voltage :  $BV_{CEO} = -80V$
- \* Low  $V_{CE(sat)}$  :  $V_{CE(sat)} = -0.2V$  (Typ)  
( $I_C/I_B = -0.5A/-50mA$ )



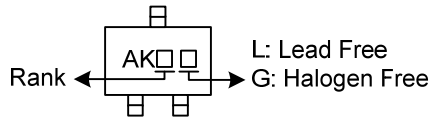
#### ORDERING INFORMATION

| Ordering Number  |                  | Package | Pin Assignment |   |   | Packing   |
|------------------|------------------|---------|----------------|---|---|-----------|
| Lead Free        | Halogen Free     |         | 1              | 2 | 3 |           |
| 2SB1198G-x-AE3-R | 2SB1198G-x-AE3-R | SOT-23  | B              | E | C | Tape Reel |

Note: Pin Assignment: B: Base E: Emitter C: Collector

|   |   |
|---|---|
| <p>2SB1198G-x-AE3-R</p> <p>(1) Packing Type<br/>(2) Package Type<br/>(3) Rank<br/>(4) Green Package</p> | <p>(1) R: Tape Reel<br/>(2) AE3: SOT-23<br/>(3) x: refer to Classification of <math>h_{FE}</math><br/>(4) G: Halogen Free and Lead Free, L: Lead Free</p> |
|---|---|

#### MARKING



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                   | SYMBOL    | RATINGS    | UNIT             |
|-----------------------------|-----------|------------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | -80        | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | -80        | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | -5         | V                |
| Collector Current           | $I_C$     | -0.5       | A                |
| Collector Power Dissipation | $P_C$     | 0.2        | W                |
| Junction Temperature        | $T_J$     | +150       | $^\circ\text{C}$ |
| Storage Temperature         | $T_{STG}$ | -40 ~ +150 | $^\circ\text{C}$ |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. The device is guaranteed to meet performance specification within  $0^\circ\text{C} \sim 70^\circ\text{C}$  operating temperature range and assured by design from  $-20^\circ\text{C} \sim 85^\circ\text{C}$ .

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS  | MIN | TYP  | MAX  | UNIT          |
|--------------------------------------|---------------|--|-----|------|------|---------------|
| Collector Base Breakdown Voltage     | $BV_{CBO}$    | $I_C = -50\mu\text{A}$                                       | -80 |      |      | V             |
| Collector Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C = -2\text{mA}$  | -80 |      |      | V             |
| Emitter Base Breakdown Voltage       | $BV_{EBO}$    | $I_E = -50\mu\text{A}$                                       | -5  |      |      | V             |
| Collector Cut-Off Current            | $I_{CBO}$     | $V_{CB} = -50\text{V}$                                       |     |      | -0.5 | $\mu\text{A}$ |
| Emitter Cut-Off Current              | $I_{EBO}$     | $V_{EB} = -4\text{V}$  |     |      | -0.5 | $\mu\text{A}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C/I_B = -0.5\text{A}/-50\text{mA}$                        |     | -0.2 | -0.5 | V             |
| DC Current Transfer Ratio            | $h_{FE}$      | $V_{CE} = -3\text{V}, I_C = -0.1\text{A}$                    | 120 |      | 390  |               |
| Transition Frequency                 | $f_T$         | $V_{CE} = -10\text{V}, I_E = 50\text{mA}, f = 100\text{MHz}$ |     | 180  |      | MHz           |
| Output Capacitance                   | $C_{ob}$      | $V_{CB} = -10\text{V}, I_E = 0\text{A}, f = 1\text{MHz}$     |     | 11   |      | pF            |

■ CLASSIFICATION OF  $h_{FE}$

| RANK  | Q       | R       |
|-------|---------|---------|
| RANGE | 120-270 | 180-390 |

■ TYPICAL CHARACTERISTICS

Figure 1. Grounded Emitter Propagation Characteristics

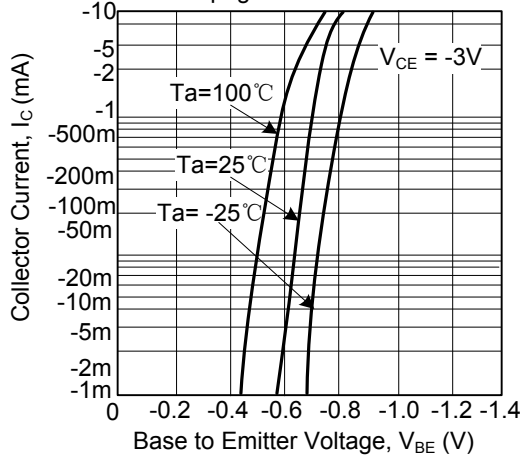


Figure 2. Grounded Emitter Output Characteristics

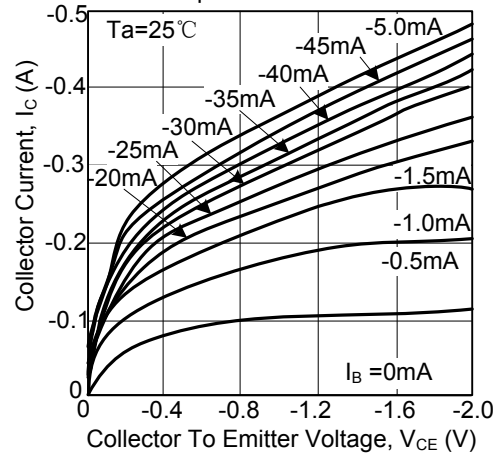


Figure 3. DC Current Gain vs. Collector Current

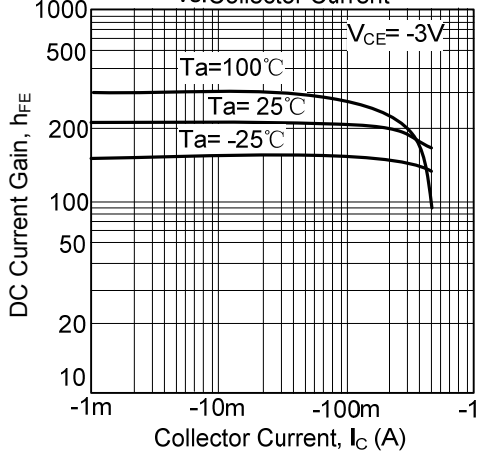


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current (I)

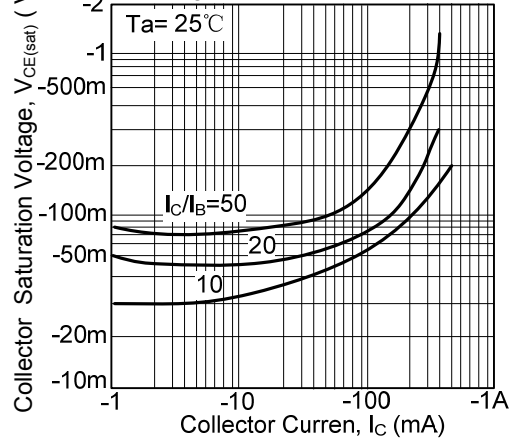


Figure 5. Collector-emitter Saturation Voltage vs. Collector Current (II)

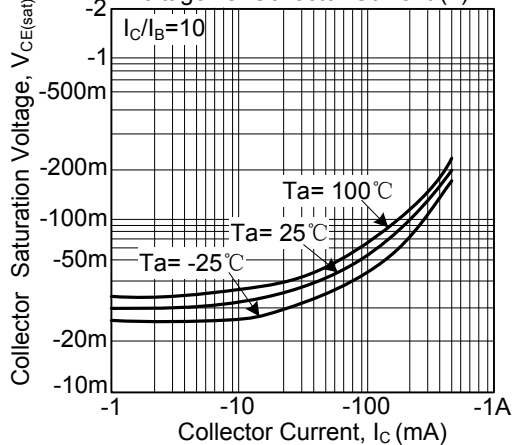
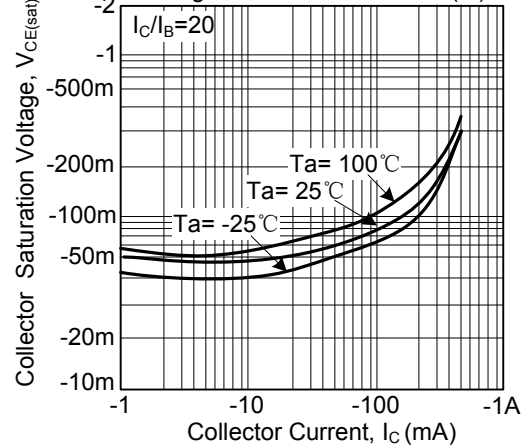
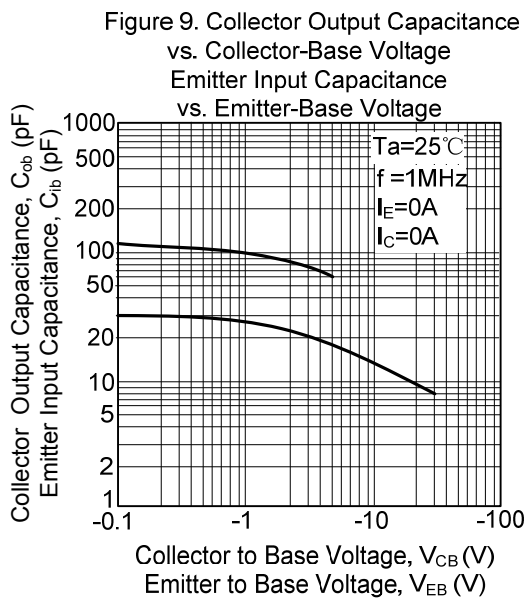
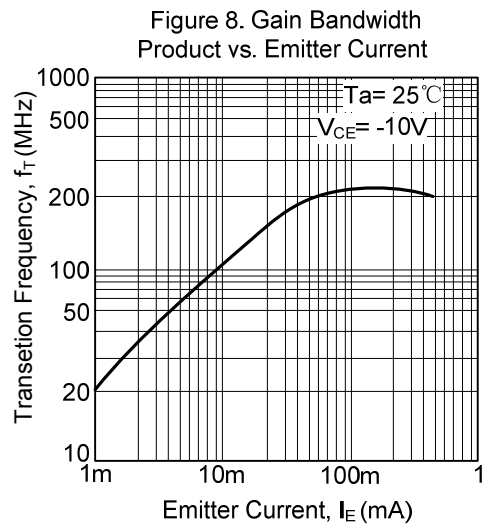
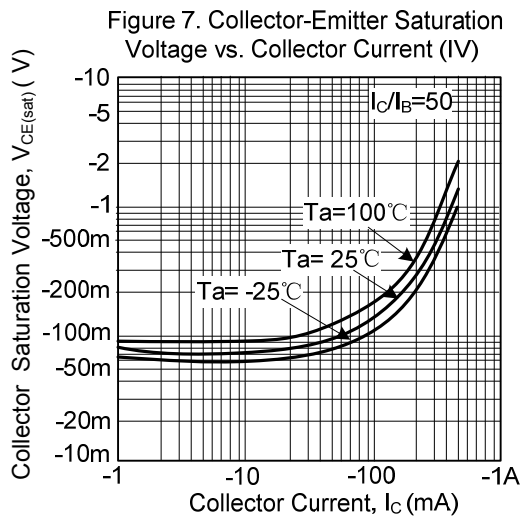


Figure 6. Collector-Emitter Saturation Voltage vs. Collector Current (III)



■ TYPICAL CHARACTERISTICS (Cont.)



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