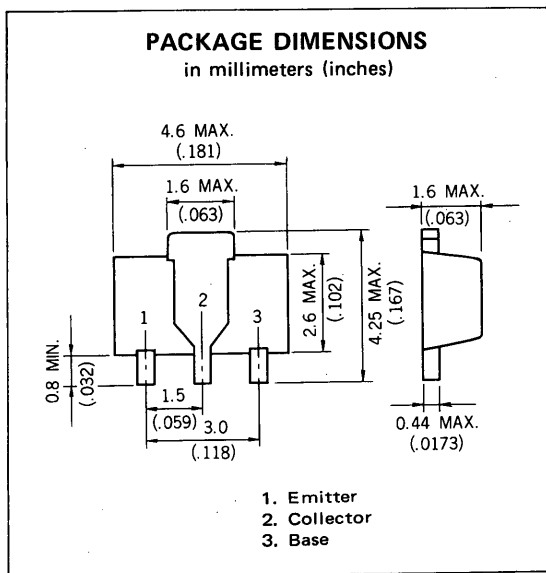


PNP SILICON EPITAXIAL TRANSISTOR
POWER MINI MOLD

DESCRIPTION

The 2SB798 is designed for audio frequency power amplifier application, especially in Hybrid Integrated Circuits.



FEATURES

- World Standard Miniature Package : SOT-89
- Low Collector Saturation Voltage : $V_{CE(sat)} < -0.4$ V ($I_C = -1.0$ A, $I_B = -100$ mA)
- Excellent DC Current Gain Linearity : $h_{FE} = 100$ TYP. ($V_{CE} = -1.0$ V, $I_C = -1.0$ A)
- Complements to NPN type 2SD999

ABSOLUTE MAXIMUM RATINGS ($T_a = 25$ °C)

Maximum Voltages and Currents

| | | | |
|------------------------------|-----------|------|---|
| Collector to Base Voltage | V_{CB0} | -30 | V |
| Collector to Emitter Voltage | V_{CEO} | -25 | V |
| Emitter to Base Voltage | V_{EBO} | -5.0 | V |
| Collector Current (DC) | I_C | -1.0 | A |
| Collector Current (Pulse)* | I_C | -1.5 | A |

Maximum Power Dissipation

| | | | |
|--|-------|-----|---|
| Total Power Dissipation at 25 °C Ambient Temperature** | P_T | 2.0 | W |
|--|-------|-----|---|

Maximum Temperatures

| | | | |
|---------------------------|-----------|-------------|----|
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55 to +150 | °C |

*PW ≤ 10 ms, Duty Cycle ≤ 50 %

**When mounted on ceramic substrate of 16 cm² x 0.7 mm

ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

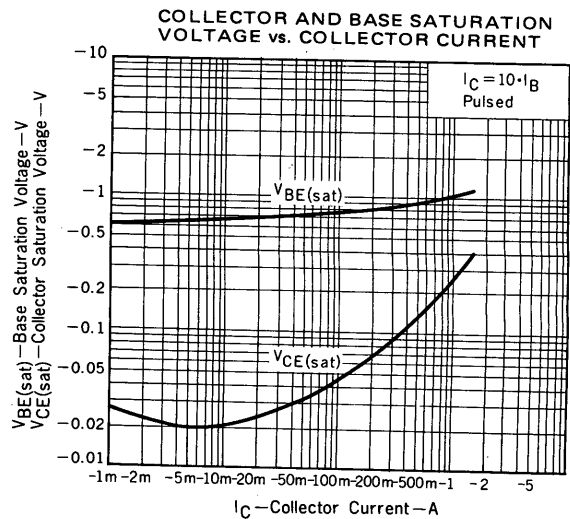
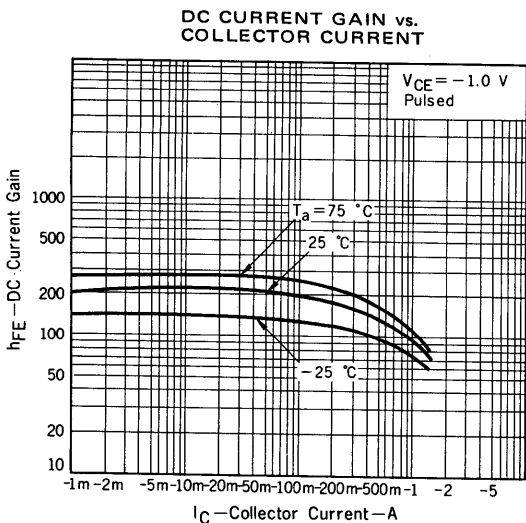
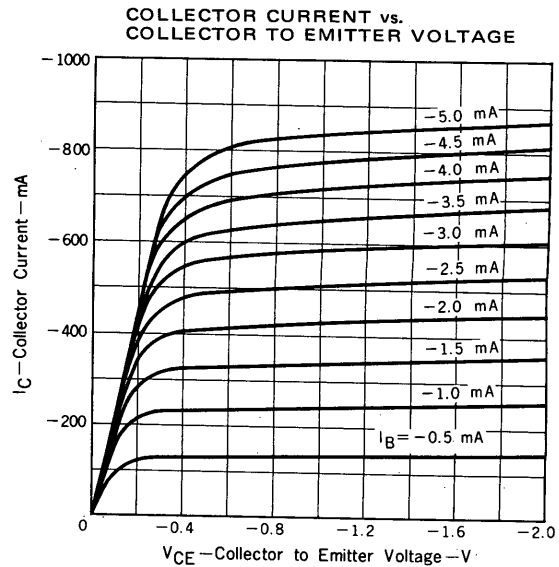
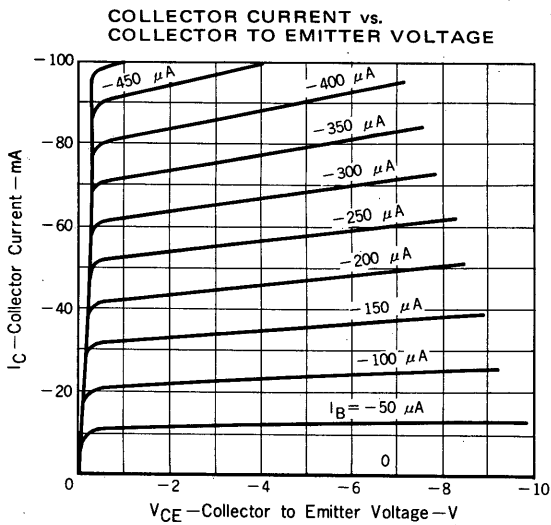
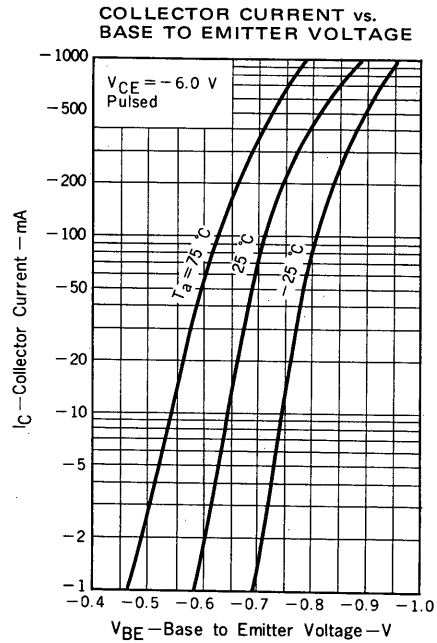
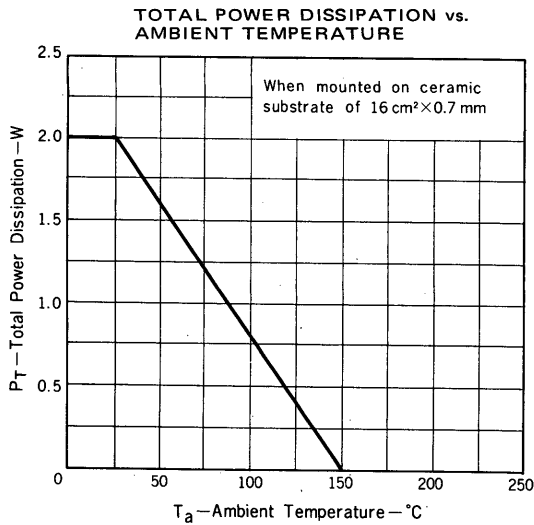
| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|------------------------------|---------------|------|-------|-------|------|--|
| Collector Cutoff Current | I_{CB0} | | | -100 | nA | $V_{CB} = -30$ V, $I_E = 0$ |
| Emitter Cutoff Current | I_{EBO} | | | -100 | nA | $V_{EB} = -5.0$ V, $I_C = 0$ |
| DC Current Gain | h_{FE1} | 90 | 200 | 400 | | $V_{CE} = -1.0$ V, $I_C = -100$ mA *** |
| DC Current Gain | h_{FE2} | 50 | 100 | | | $V_{CE} = -1.0$ V, $I_C = -1.0$ A *** |
| Collector Saturation Voltage | $V_{CE(sat)}$ | | -0.25 | -0.40 | V | $I_C = -1.0$ A, $I_B = -0.10$ A *** |
| Base Saturation Voltage | $V_{BE(sat)}$ | | -1.0 | -1.2 | V | $I_C = -1.0$ A, $I_B = -0.10$ A *** |
| Base to Emitter Voltage | V_{BE} | -600 | -640 | -700 | mV | $V_{CE} = -6.0$ V, $I_C = -10$ mA *** |
| Gain Bandwidth Product | f_T | | 110 | | MHz | $V_{CE} = -6.0$ V, $I_E = 10$ mA |
| Output Capacitance | C_{ob} | | 36 | | pF | $V_{CB} = -6.0$ V, $I_E = 0$, $f = 1.0$ MHz |

***Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

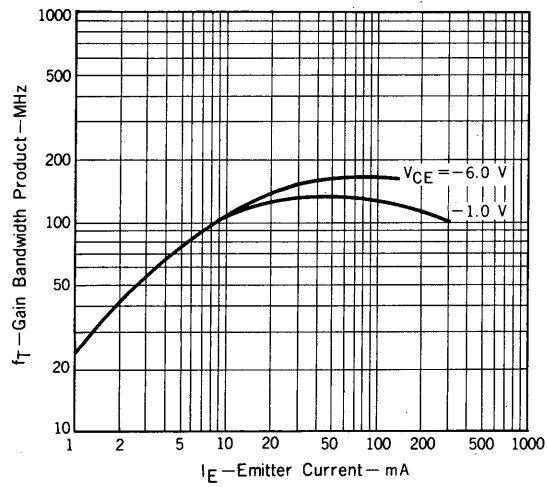
h_{FE} Classification

| MARKING | DM | DL | DK |
|-----------|----------|-----------|-----------|
| h_{FE1} | 90 - 180 | 135 - 270 | 200 - 400 |

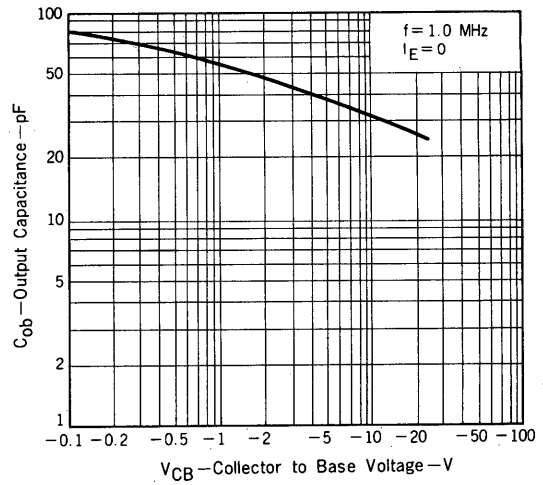
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



REFERENCE

| Document Name | Document No. |
|--|--------------|
| NEC semiconductor device reliability/quality control system. | TEI-1202 |
| Quality grade on NEC semiconductor devices. | IEI-1209 |
| Semiconductor device mounting technology manual. | IEI-1207 |
| Semiconductor device package manual. | IEI-1213 |
| Guide to quality assurance for semiconductor devices. | MEI-1202 |
| Semiconductor selection guide. | MF-1134 |

[MEMO]

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