

AUDIO FREQUENCY AMPLIFIER, SWITCHING
PNP SILICON EPITAXIAL TRANSISTORS

FEATURES

- Low $V_{CE(sat)}$
 $V_{CE(sat)} = -0.15$ V Max (@ $I_C/I_B = 0.5$ A/25 mA)
- High DC Current Gain
 $h_{FE} = 150$ to 600 (@ $V_{CE} = -2.0$ V, $I_C = -0.5$ A)

ABSOLUTE MAXIMUM RATINGS

Maximum Voltage and Current ($T_A = 25$ °C)

| | | |
|------------------------------|----------------|--------|
| Collector to Base Voltage | V_{CB0} | -30 V |
| Collector to Emitter Voltage | V_{CE0} | -30 V |
| Emitter to Base Voltage | V_{EB0} | -6.0 V |
| Collector Current (DC) | $I_{C(DC)}$ | -5.0 A |
| Collector Current (Pulse)* | $I_{C(Pulse)}$ | -8.0 A |
| Base Current (DC) | $I_{B(DC)}$ | -1.0 A |

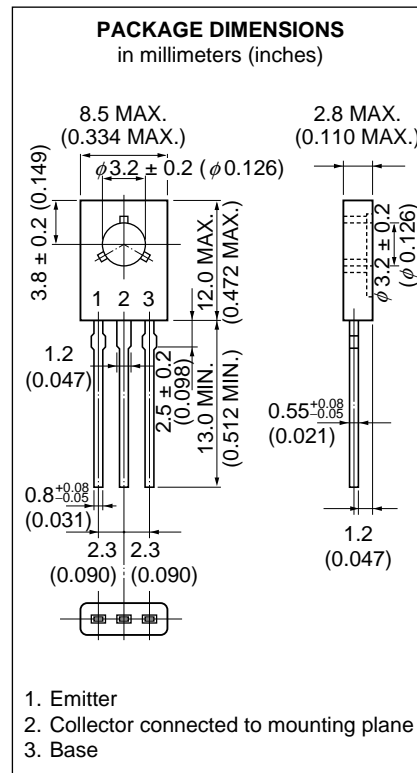
* PW ≤ 10ms, Duty Cycle ≤ 10 %

Maximum Power Dissipation

| | | |
|--|-------|-------|
| Total Power Dissipation ($T_C = 25$ °C) | P_T | 10 W |
| Total Power Dissipation ($T_A = 25$ °C) | P_T | 1.0 W |

Maximum Temperature

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

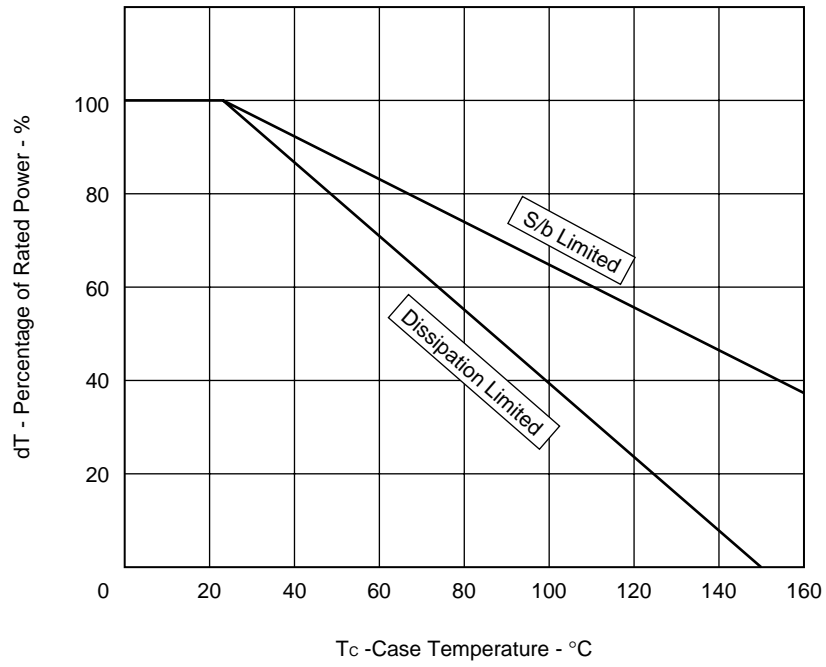


ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C)

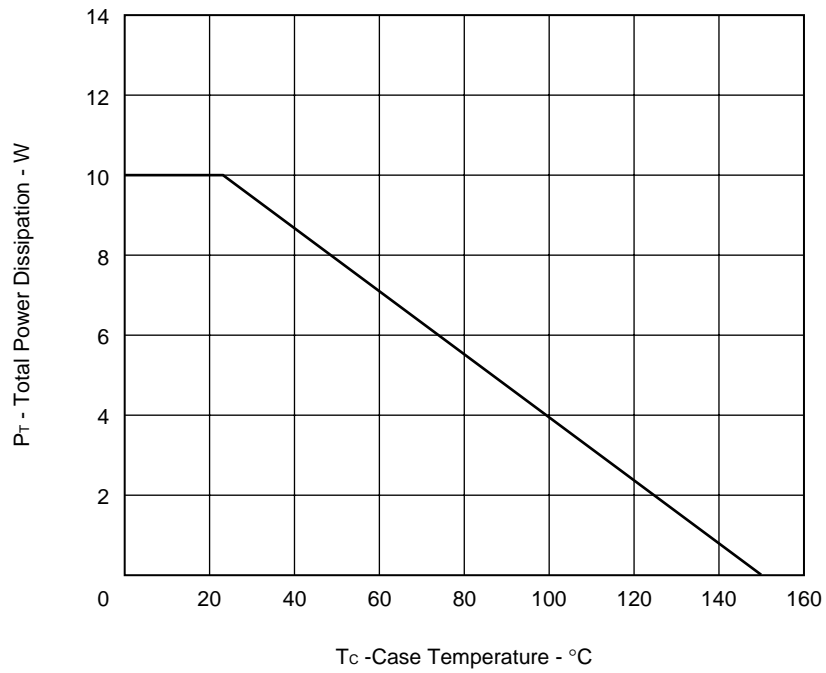
| characteristics | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|------------------------------|----------------|---|------|-------|-------|------|
| Collector Cutoff Current | I_{CB0} | $V_{CB} = -30$ V, $I_E = 0$ | | | -100 | nA |
| Emitter Cutoff Current | I_{EB0} | $V_{EB} = -6.0$ V, $I_C = 0$ | | | -100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE} = -2.0$ V, $I_C = -0.5$ A | 150 | | 600 | — |
| DC Current Gain | h_{FE2} | $V_{CE} = -2.0$ V, $I_C = -3.0$ A | 70 | | | — |
| Collector Saturation Voltage | $V_{CE(sat)1}$ | $I_C = -0.5$ A, $I_B = -25$ mA | | -0.08 | -0.15 | V |
| Collector Saturation Voltage | $V_{CE(sat)2}$ | $I_C = -1.0$ A, $I_B = -50$ mA | | -0.13 | -0.25 | V |
| Collector Saturation Voltage | $V_{CE(sat)3}$ | $I_C = -2.0$ A, $I_B = -100$ mA | | -0.24 | -0.40 | V |
| Collector Saturation Voltage | $V_{CE(sat)4}$ | $I_C = -3.0$ V, $I_B = -75$ mA | | -0.46 | -1.0 | V |
| Base Saturation Voltage | $V_{BE(sat)}$ | $I_C = -1.0$ A, $I_B = -50$ mA | | -0.83 | -1.50 | V |
| Gain Bandwidth Product | f_r | $V_{CE} = -10$ V, $I_E = -50$ mA | | 75 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = -10$ V, $I_E = 0$, $f = 1$ MHz | | 60 | | pF |

The information in this document is subject to change without notice.

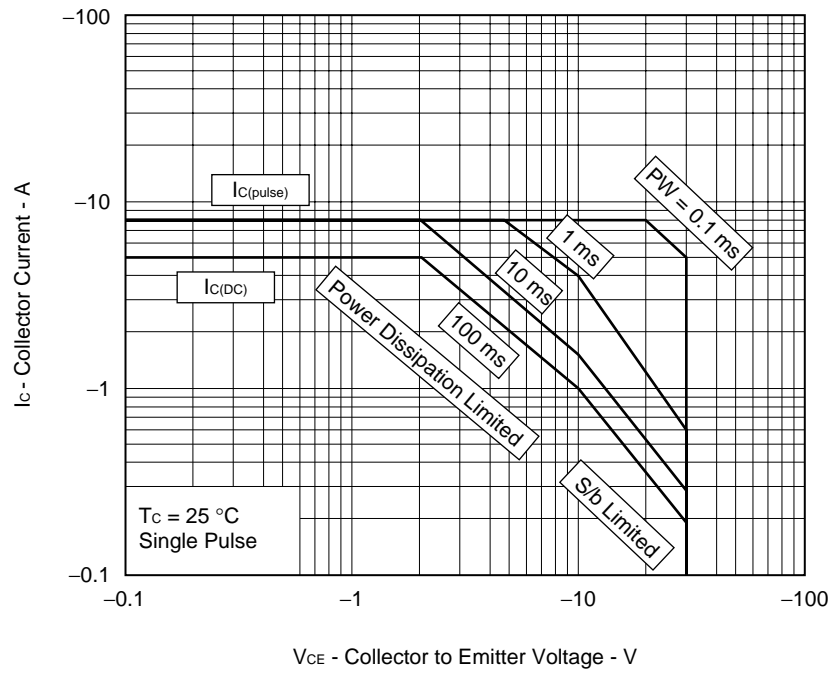
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



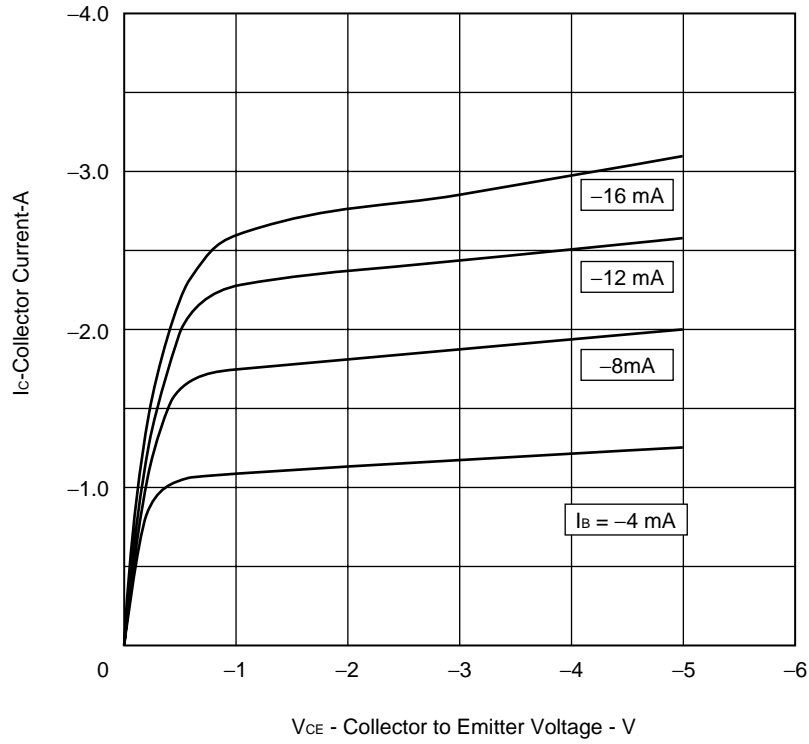
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



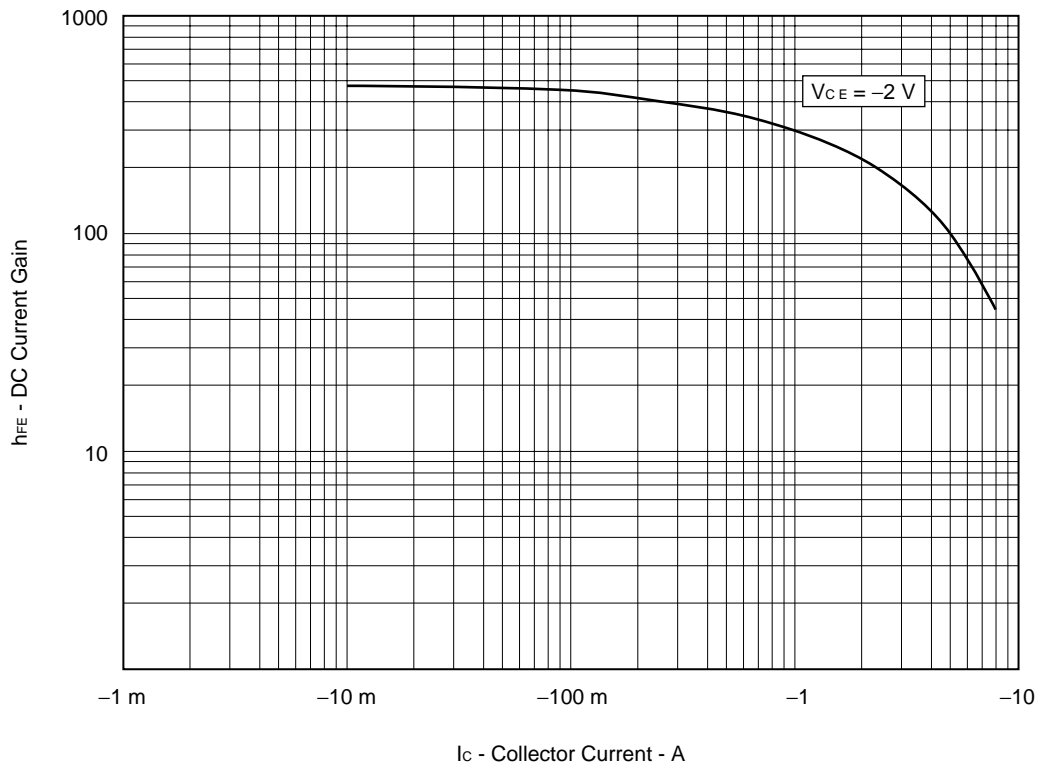
FORWARD BIAS SAFE OPERATING AREA



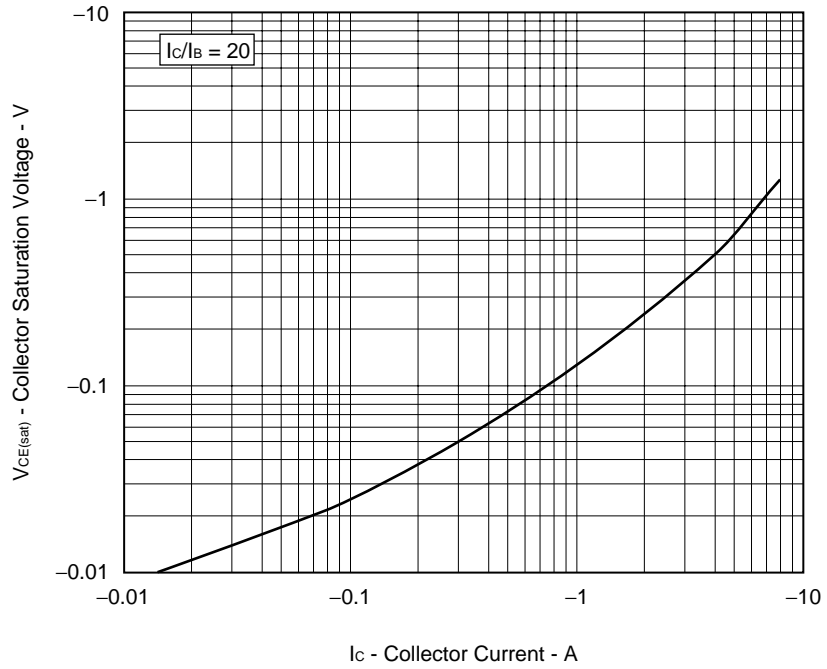
COLLECTOR TO EMITTER VOLTAGE vs COLLECTOR CURRENT



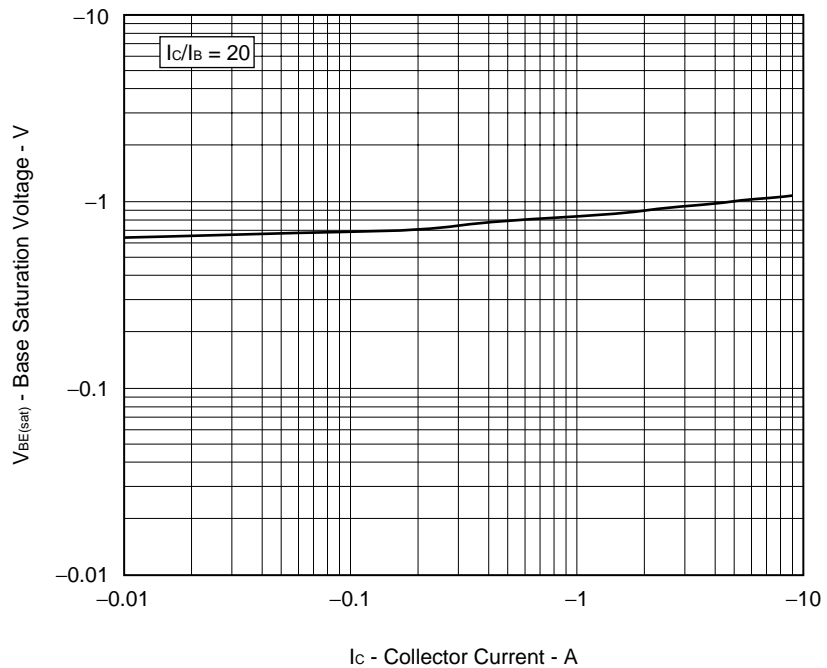
DC CURRENT GAIN vs COLLECTOR CURRENT



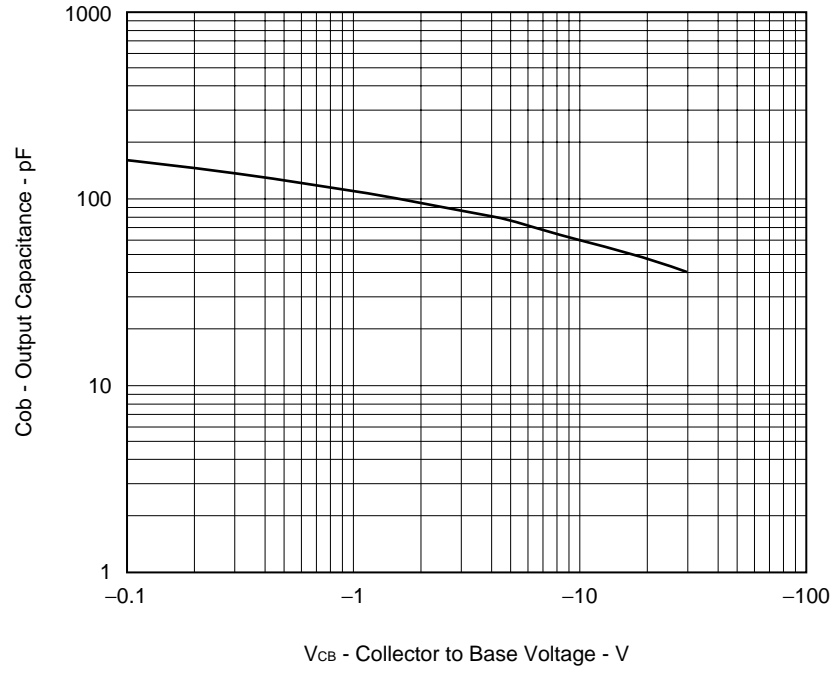
COLLECTOR SATURATION VOLTAGE vs COLLECTOR CURRENT



BASE SATURATION VOLTAGE vs COLLECTOR 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 | C10535E |
| Semiconductor device package manual | C10943X |
| Guide to quality assurance for semiconductor devices | MEI-1202 |
| Semiconductor selection guide | X10679E |

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Anti-radioactive design is not implemented in this product.