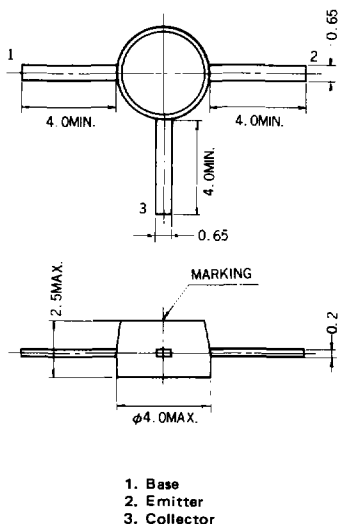


VHF OSCILLATOR
NPN SILICON EPITAXIAL TRANSISTOR
“DISK MOLD”

PACKAGE DIMENSIONS (Unit : mm)



DESCRIPTION

The 2SC287A(B) is an NPN silicon epitaxial transistor intended for use as VHF oscillator in a tuner of a TV receiver.

The device features stable oscillation and small frequency drift against any change of the supply voltage and the ambient temperature.

FEATURES

- High gain bandwidth product; $f_T = 1100\text{MHz}$ TYP.
- Low collector to base time constant; $C_c \cdot r_{b'b} = 10$ ps TYP.
- Low output capacitance; $C_{ob} = 1.0\text{pF}$ MAX.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Maximum Voltages and Current

| | | | |
|------------------------------|-----------|-----|----|
| Collector to Base Voltage | V_{CBO} | 35 | V |
| Collector to Emitter Voltage | V_{CEO} | 15 | V |
| Emitter to Base Voltage | V_{EBO} | 4.0 | V |
| Collector Current | I_C | 20 | mA |

Maximum Power Dissipation

| | | | |
|-------------------------|-------|-----|----|
| Total Power Dissipation | P_T | 200 | mW |
|-------------------------|-------|-----|----|

Maximum Temperatures

| | | | |
|----------------------|-----------|-------------|------------------|
| Junction Temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

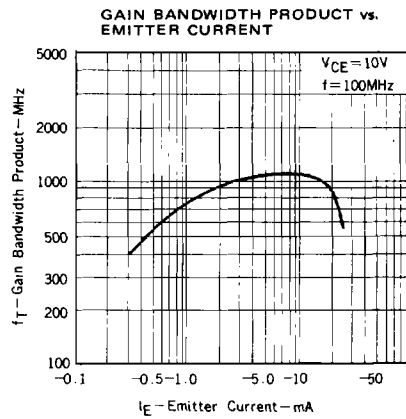
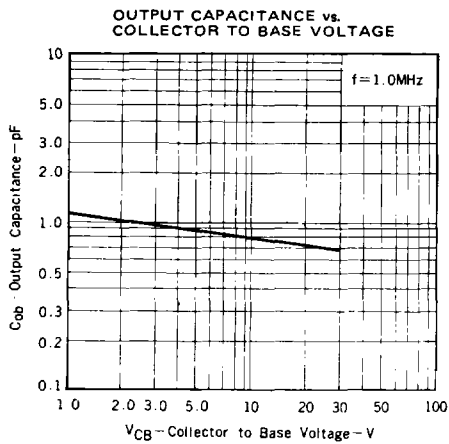
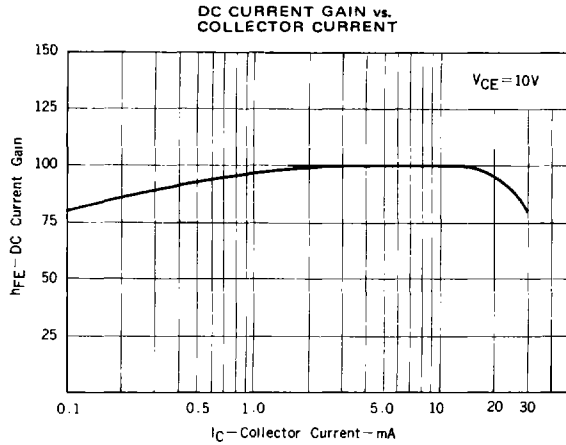
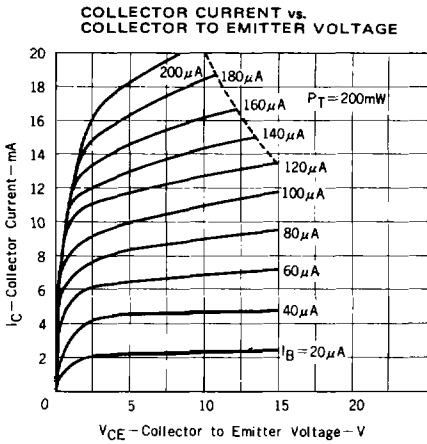
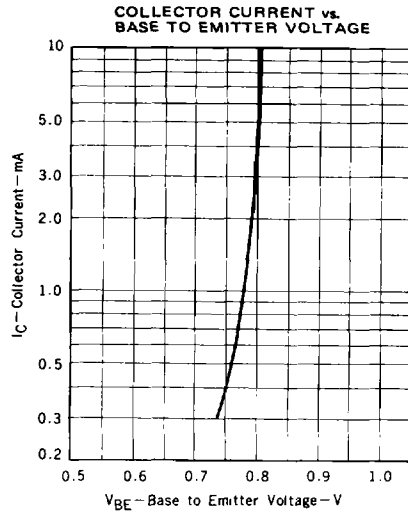
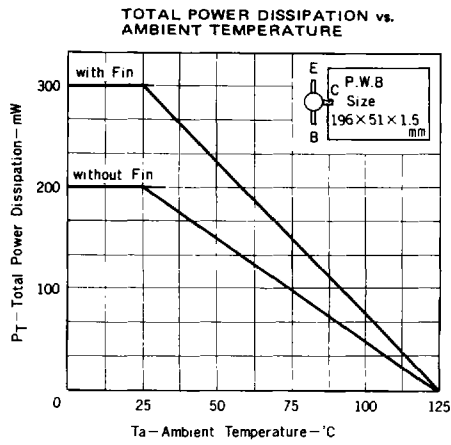
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

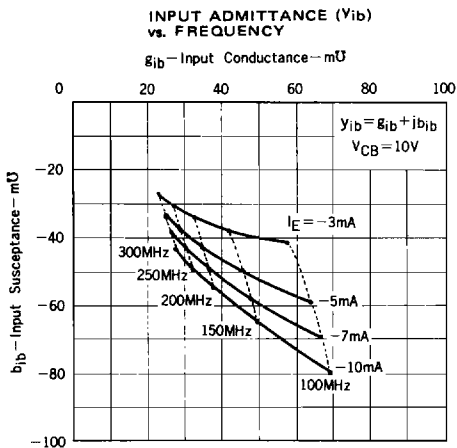
| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|---------------------------------|---------------------|------|------|------|---------------|--|
| Collector Cutoff Current | I_{CBO} | | | 0.1 | μA | $V_{CB} = 15\text{V}, I_E = 0$ |
| DC Current Gain | h_{FE} | 60 | 100 | 200 | | $V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$ *1 |
| Collector Saturation Voltage | $V_{CE(sat)}$ | | 0.1 | 0.6 | V | $I_C = 10\text{mA}, I_B = 1.0\text{mA}$ |
| Gain Bandwidth Product | f_T | 600 | 1100 | | MHz | $V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$ |
| Output Capacitance | C_{ob} | | 0.8 | 1.0 | pF | $V_{CB} = 10\text{V}, I_E = 0, f = 1.0\text{MHz}$ |
| Reverse Transfer Capacitance *2 | C_{rb} | | 0.35 | 0.4 | pF | $V_{CE} = 10\text{V}, f = 1.0\text{MHz}$ |
| Collector to Base Time Constant | $C_c \cdot r_{b'b}$ | | 10 | 20 | ps | $V_{CE} = 10\text{V}, I_E = -5.0\text{mA}$ $f = 31.9\text{MHz}$ |

*1 h_{FE} Classification F : 60 – 120 E : 100 – 200

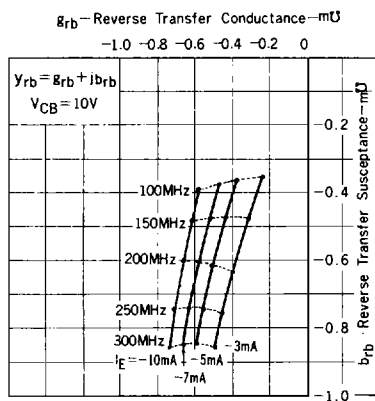
*2 The base terminal should be connected to the guard terminal of the capacitance bridge.

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

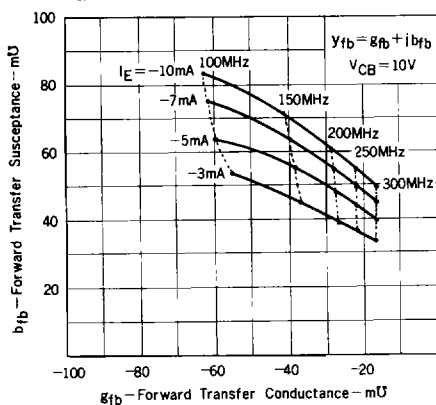




REVERSE TRANSFER ADMITTANCE (Y_{rb}) vs. FREQUENCY
 g_{rb} - Reverse Transfer Conductance - m Ω



FORWARD TRANSFER ADMITTANCE (Y_{fb}) vs. FREQUENCY
 g_{fb} - Forward Transfer Conductance - m Ω



OUTPUT ADMITTANCE (Y_{ob}) vs. FREQUENCY
 g_{ob} - Output Conductance - m Ω

