

# Transistors

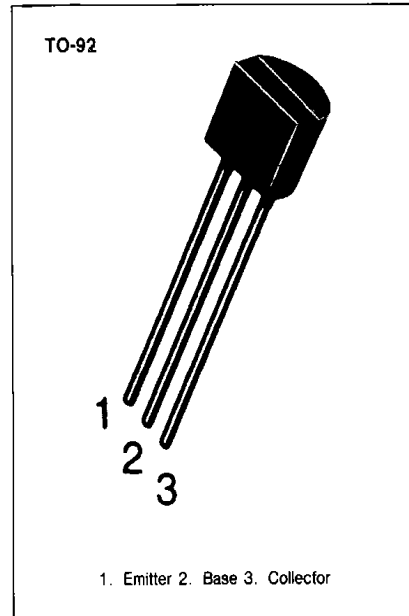
## 2SC1187

### TV 1ST, 2ND PICTURE IF AMPLIFIER (FORWARD AGC)

- High Current Gain Bandwidth Product  $f_T = 700\text{MHz}$
- High Power Gain  $G_{pe} = 24\text{dB}$  (Typ) at  $45\text{MHz}$

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

| Characteristic            | Symbol    | Rating         | Unit             |
|---------------------------|-----------|----------------|------------------|
| Collector-Base Voltage    | $V_{CBO}$ | 30             | V                |
| Collector-Emitter Voltage | $V_{CEO}$ | 20             | V                |
| Emitter-Base Voltage      | $V_{EBO}$ | 4              | V                |
| Collector Current         | $I_C$     | 30             | mA               |
| Collector Dissipation     | $P_C$     | 250            | mW               |
| Junction Temperature      | $T_j$     | 150            | $^\circ\text{C}$ |
| Storage Temperature       | $T_{stg}$ | $-55 \sim 150$ | $^\circ\text{C}$ |



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

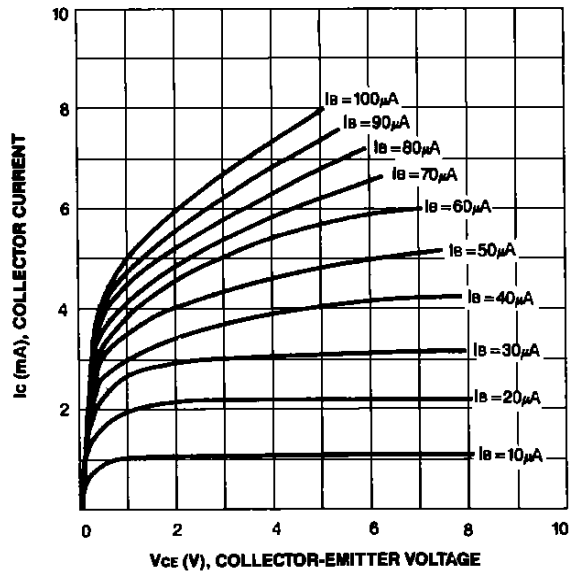
| Characteristic                      | Symbol     | Test Conditions                                                | Min | Typ | Max | Unit          |
|-------------------------------------|------------|----------------------------------------------------------------|-----|-----|-----|---------------|
| Collector-Base Breakdown Voltage    | $BV_{CBO}$ | $I_C = 10\mu\text{A}, I_E = 0$                                 | 30  |     |     | V             |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C = 5\text{mA}, I_B = 0$                                    | 20  |     |     | V             |
| Emitter-Base Breakdown Voltage      | $BV_{EBO}$ | $I_E = 10\mu\text{A}, I_C = 0$                                 | 4   |     |     | V             |
| Collector Cut-off Current           | $I_{CBO}$  | $V_{CB} = 20\text{V}, I_E = 0$                                 |     |     | 0.1 | $\mu\text{A}$ |
| DC Current Gain                     | $h_{FE}$   | $V_{CE} = 10\text{V}, I_C = 2\text{mA}$                        | 40  |     | 240 |               |
| Current Gain-Bandwidth Product      | $f_T$      | $V_{CE} = 10\text{V}, I_C = 3\text{mA}$                        | 400 | 700 |     | MHz           |
| Reverse Transfer Capacitance        | $C_{re}$   | $V_{CB} = 10\text{V}, I_E = 0$<br>$f = 1\text{MHz}$            |     | 0.6 |     | pF            |
| Power Gain                          | $G_{pe}$   | $V_{CE} = 10\text{V}, I_E = -3\text{mA}$<br>$f = 45\text{MHz}$ | 20  | 24  |     | dB            |
| AGC Voltage                         | $V_{AGC}$  | $G_{PE} = -30\text{dB}$<br>$f = 45\text{MHz}$                  | 4.4 | 5.2 | 6.0 | V             |

### $h_{FE}$ CLASSIFICATION

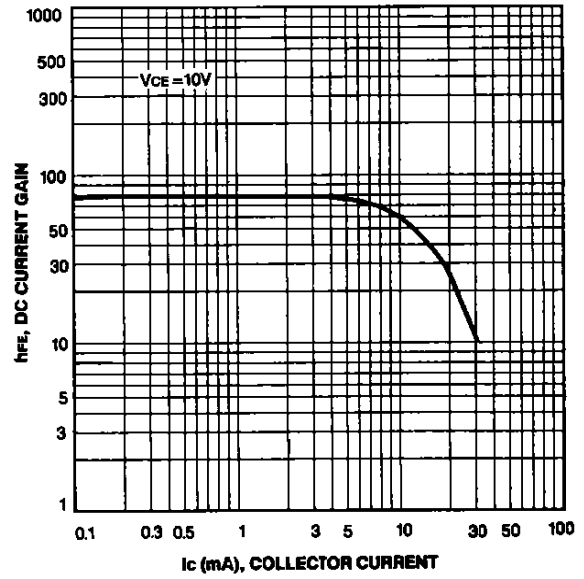
| Classification | R     | O      | Y       |
|----------------|-------|--------|---------|
| $h_{FE}$       | 40-80 | 70-140 | 120-240 |



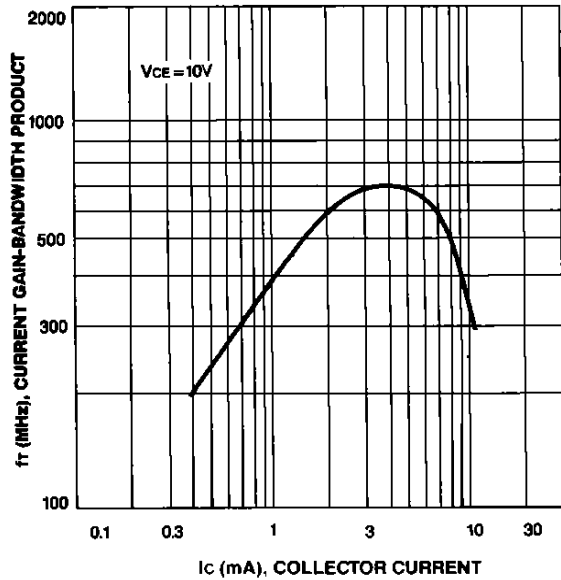
**STATIC CHARACTERISTIC**



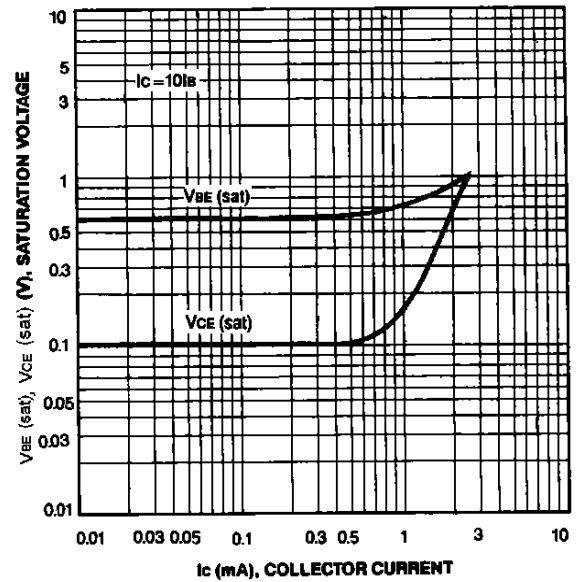
**DC CURRENT GAIN**



**CURRENT GAIN-BANDWIDTH PRODUCT**



**BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE**



**REVERSE CAPACITANCE**

