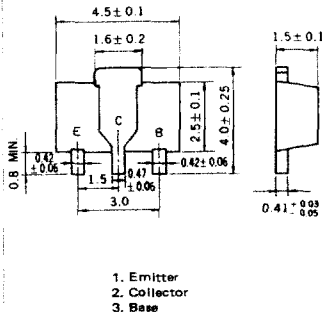


**NEC****SILICON TRANSISTOR**  
**2SA1463****HIGH SPEED SWITCHING**  
**PNP SILICON EPITAXIAL TRANSISTOR**  
**POWER MINI MOLD****PACKAGE DIMENSIONS**  
in millimeters

**DESCRIPTION** The 2SA1463 is designed for power amplifier and high speed switching applications.

**FEATURES**

- High speed, high voltage switching.
- Low Collector Saturation Voltage.
- Complementary to the NEC 2SC3736 NPN transistor.

**ABSOLUTE MAXIMUM RATINGS**Maximum Voltages and Currents ( $T_A = 25^\circ\text{C}$ )

|                              |           |      |   |
|------------------------------|-----------|------|---|
| Collector to Base Voltage    | $V_{CBO}$ | -60  | V |
| Collector to Emitter Voltage | $V_{CEO}$ | -45  | V |
| Emitter to Base Voltage      | $V_{EBO}$ | -5.0 | V |
| Collector Current (DC)       | $I_C$     | -1.0 | A |
| Collector Current (Pulse)*   | $I_C$     | -2.0 | A |

**Maximum Power Dissipation**

Total Power Dissipation

at  $25^\circ\text{C}$  Ambient Temperature\*\*

|       |     |   |
|-------|-----|---|
| $P_T$ | 2.0 | W |
|-------|-----|---|

**Maximum Temperatures**

Junction Temperature

|       |     |                  |
|-------|-----|------------------|
| $T_J$ | 150 | $^\circ\text{C}$ |
|-------|-----|------------------|

Storage Temperature Range

|           |             |                  |
|-----------|-------------|------------------|
| $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |
|-----------|-------------|------------------|

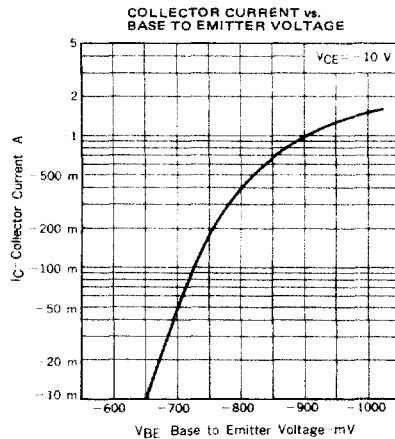
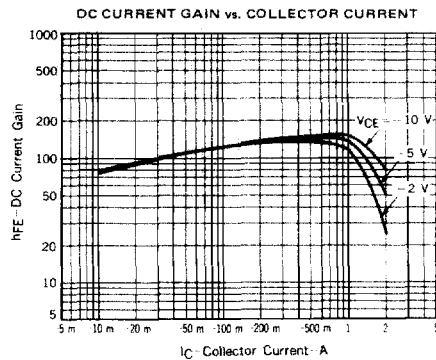
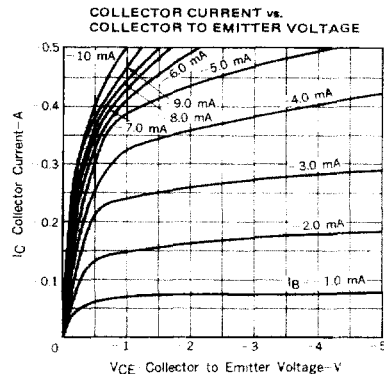
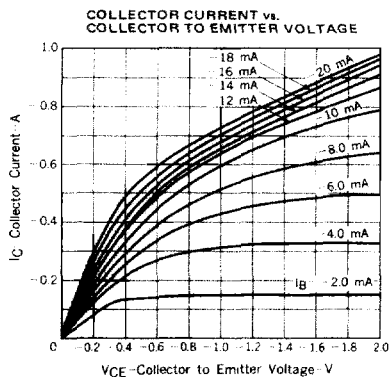
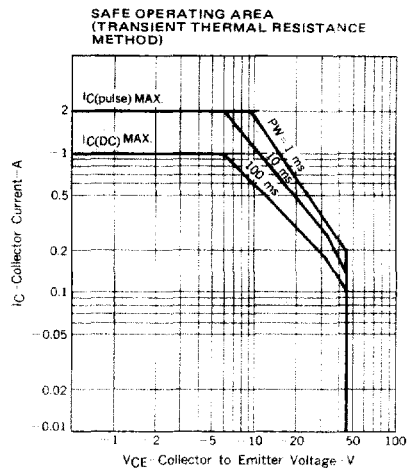
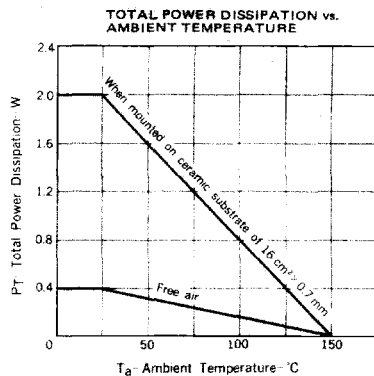
\*  $PW \leq 10$  ms, Duty Cycle  $\leq 50\%$ \*\* When mounted on ceramic substrate of  $16\text{ cm}^2 \times 0.7\text{ mm}$ **ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )**

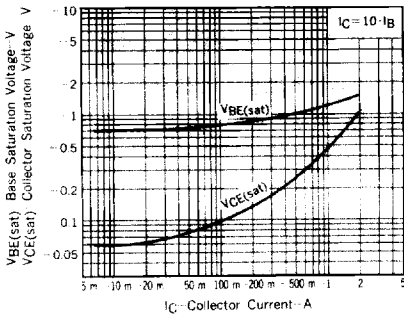
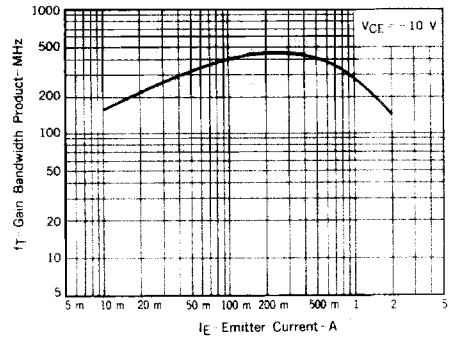
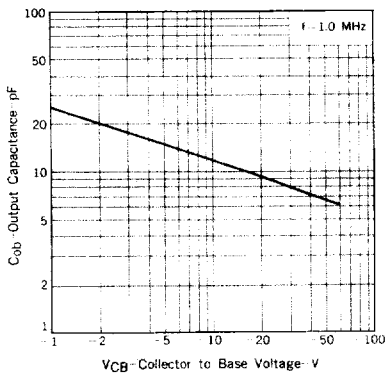
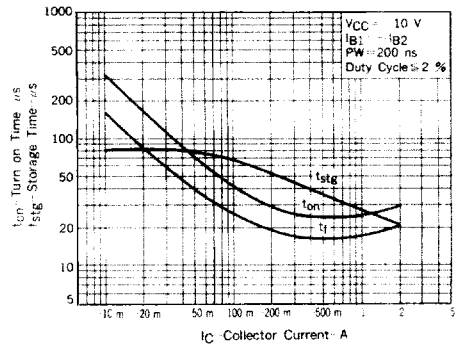
| CHARACTERISTIC               | SYMBOL              | MIN. | TYP.  | MAX. | UNIT          | TEST CONDITIONS                                      |
|------------------------------|---------------------|------|-------|------|---------------|------------------------------------------------------|
| Collector Cutoff Current     | $I_{CES}$           |      |       | -0.5 | $\mu\text{A}$ | $V_{CE} = -45\text{ V}, R_{BE} = 0$                  |
| Emitter Cutoff Current       | $I_{EBO}$           |      |       | -0.5 | $\mu\text{A}$ | $V_{EB} = -4.0\text{ V}, I_C = 0$                    |
| DC Current Gain              | $h_{FE1}^{***}$     | 60   |       | 200  |               | $V_{CE} = -10\text{ V}, I_C = -50\text{ mA}$         |
| DC Current Gain              | $h_{FE2}^{***}$     | 60   |       |      |               | $V_{CE} = -10\text{ V}, I_C = -500\text{ mA}$        |
| Collector Saturation Voltage | $V_{CE(sat)}^{***}$ |      | -0.26 | -0.6 | V             | $I_C = -500\text{ mA}, I_B = -50\text{ mA}$          |
| Base Saturation Voltage      | $V_{BE(sat)}^{***}$ |      | -0.98 | -1.2 | V             |                                                      |
| Gain Bandwidth Product       | $f_T$               | 300  | 400   |      | MHz           | $V_{CE} = -10\text{ V}, I_E = 100\text{ mA}$         |
| Output Capacitance           | $C_{ob}$            |      | 11    | 25   | pF            | $V_{CB} = -10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$ |
| Turn-on Time                 | $t_{on}$            |      | 25    | 40   | ns            | $I_C = -500\text{ mA}$                               |
| Storage Time                 | $t_{stg}$           |      | 45    | 70   | ns            | $I_{B1} = -I_{B2} \approx -50\text{ mA}$             |
| Turn-off Time                | $t_{off}$           |      | 62    | 100  | ns            |                                                      |

\*\*\*Pulsed:  $PW \leq 350\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2\%$  **$h_{FE}$  Classification**

| MARKING  | IL        | IK         |
|----------|-----------|------------|
| $h_{FE}$ | 60 to 120 | 100 to 200 |

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



**BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT**

**GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT**

**OUTPUT CAPACITANCE vs. REVERSE VOLTAGE**

**SWITCHING TIME vs. COLLECTOR CURRENT**

**SWITCHING TIME TEST CIRCUIT**
