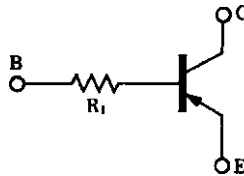


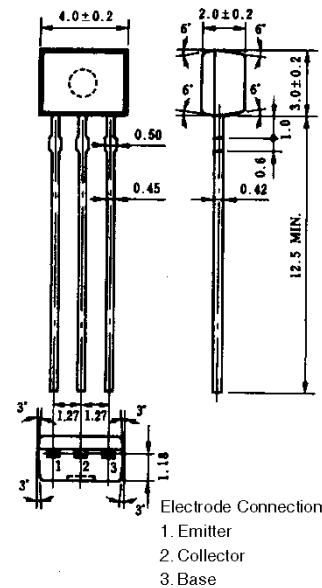
on-chip resistor PNP silicon epitaxial transistor  
For mid-speed switching

## FEATURES

- On-chip bias resistor  
( $R_1 = 22 \text{ k}\Omega$ )
- Complementary transistor with BA1F4Z



## PACKAGE DRAWING (UNIT: mm)

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

| Parameter                    | Symbol           | Ratings     | Unit             |
|------------------------------|------------------|-------------|------------------|
| Collector to base voltage    | $V_{CBO}$        | -60         | V                |
| Collector to emitter voltage | $V_{CEO}$        | -50         | V                |
| Emitter to base voltage      | $V_{EBO}$        | -5          | V                |
| Collector current (DC)       | $I_{C(DC)}$      | -100        | mA               |
| Collector current (Pulse)    | $I_{C(pulse)}$ * | -200        | mA               |
| Total power dissipation      | $P_T$            | 250         | mW               |
| Junction temperature         | $T_j$            | 150         | $^\circ\text{C}$ |
| Storage temperature          | $T_{stg}$        | -55 to +150 | $^\circ\text{C}$ |

\*  $PW \leq 10 \text{ ms}$ , duty cycle  $\leq 50 \%$ ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

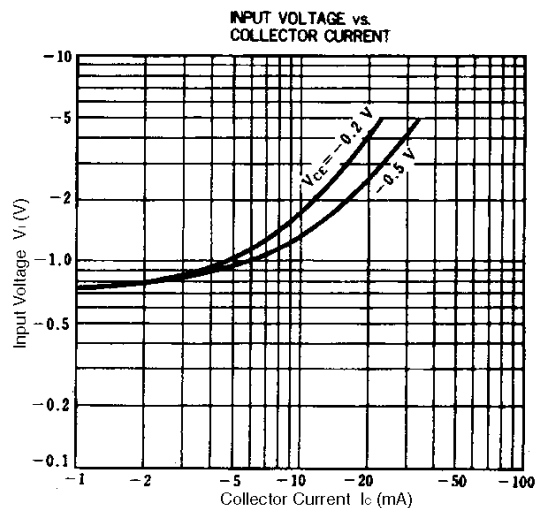
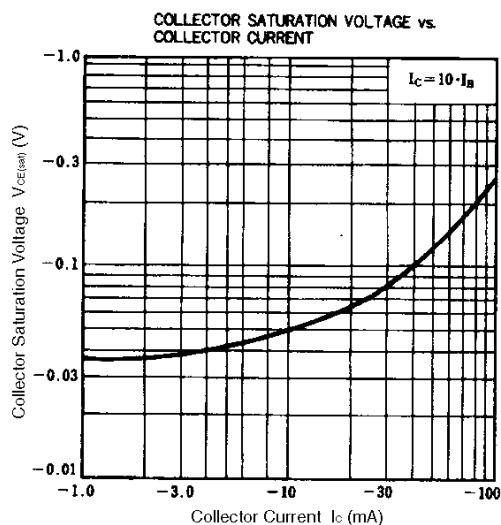
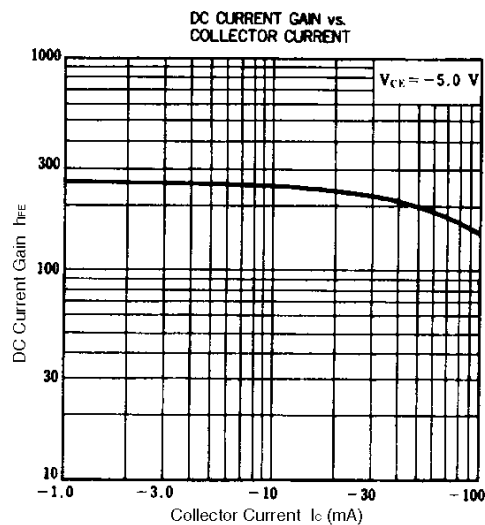
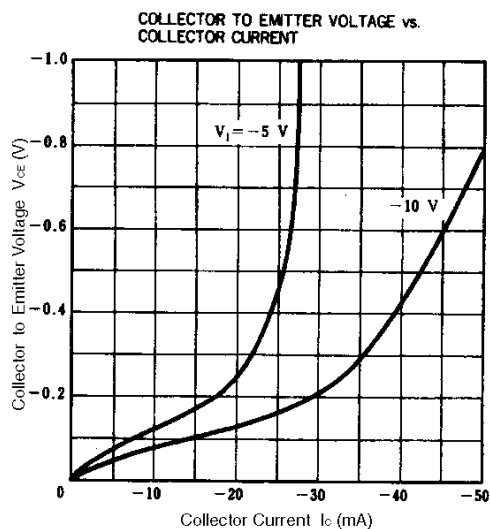
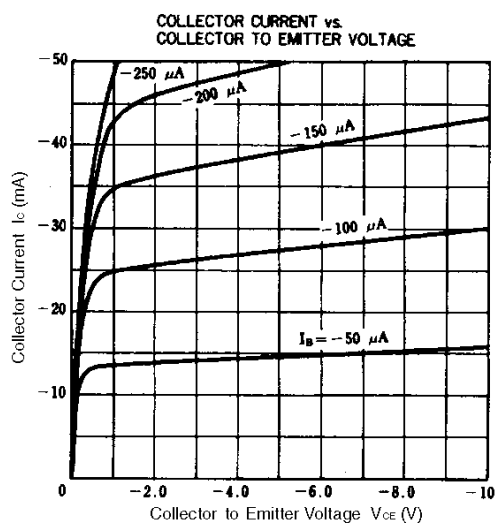
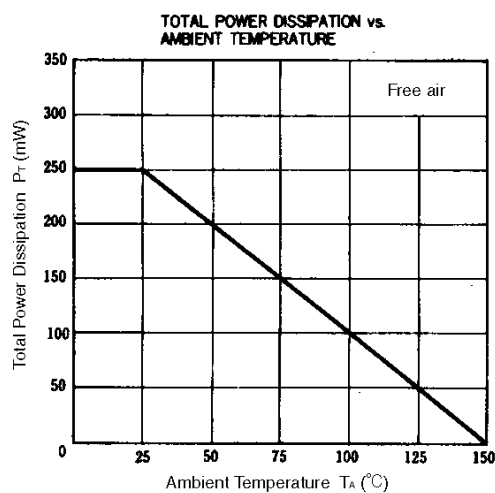
| Parameter                    | Symbol           | Conditions                                              | MIN. | TYP.  | MAX. | Unit             |
|------------------------------|------------------|---------------------------------------------------------|------|-------|------|------------------|
| Collector cutoff current     | $I_{CBO}$        | $V_{CB} = -50 \text{ V}$ , $I_E = 0$                    |      |       | 100  | nA               |
| DC current gain              | $h_{FE1}$ **     | $V_{CE} = -5.0 \text{ V}$ , $I_C = -5.0 \text{ mA}$     | 135  | 280   | 600  | -                |
| DC current gain              | $h_{FE2}$ **     | $V_{CE} = -5.0 \text{ V}$ , $I_C = -50 \text{ mA}$      | 100  | 200   |      | -                |
| Collector saturation voltage | $V_{CE(sat)}$ ** | $I_C = -5.0 \text{ mA}$ , $I_B = -0.25 \text{ mA}$      |      | -0.06 | -0.2 | V                |
| Low level input voltage      | $V_{IL}$ **      | $V_{CE} = -5.0 \text{ V}$ , $I_C = -100 \mu\text{A}$    |      | -0.57 | -0.5 | V                |
| High level input voltage     | $V_{IH}$ **      | $V_{CE} = -0.2 \text{ V}$ , $I_C = -5.0 \text{ mA}$     | -3.0 | -1.1  |      | V                |
| Input resistance             | $R_1$            |                                                         | 15.4 | 22    | 28.6 | $\text{k}\Omega$ |
| Turn-on time                 | $t_{on}$         | $V_{CC} = -5.0 \text{ V}$ , $R_L = 1.0 \text{ k}\Omega$ |      |       | 0.2  | $\mu\text{s}$    |
| Storage time                 | $t_{stg}$        | $V_i = -5.0 \text{ V}$ , $PW = 2.0 \mu\text{s}$         |      |       | 5.0  | $\mu\text{s}$    |
| Turn-off time                | $t_{off}$        | duty cycle $\leq 2 \%$                                  |      |       | 6.0  | $\mu\text{s}$    |

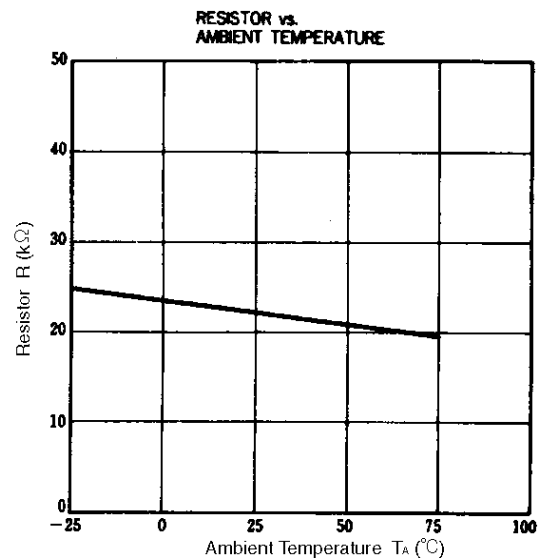
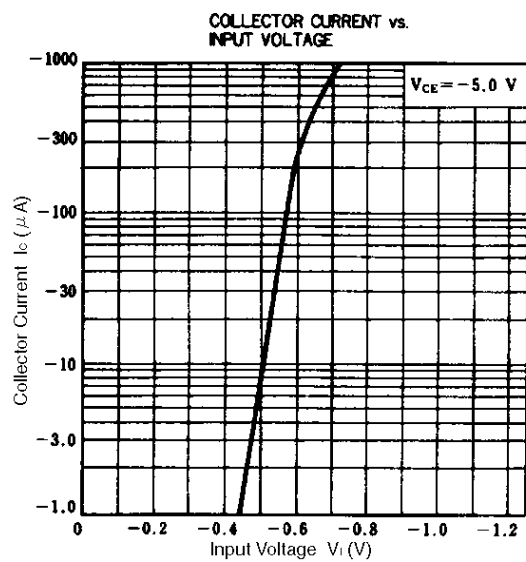
\*\* Pulse test  $PW \leq 350 \mu\text{s}$ , duty cycle  $\leq 2 \%$  $h_{FE}$  CLASSIFICATION

| Marking   | Q          | P          | K          |
|-----------|------------|------------|------------|
| $h_{FE1}$ | 135 to 270 | 200 to 400 | 300 to 600 |

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





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