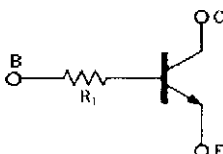


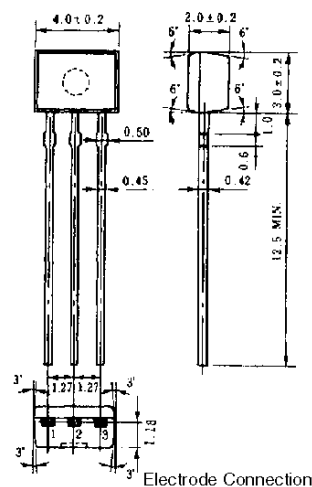
on-chip resistor NPN silicon epitaxial transistor  
For mid-speed switching

FEATURES

- On-chip bias resistor (R<sub>1</sub> = 22 kΩ)
- Complementary transistor with BN1F4Z



PACKAGE DRAWING (UNIT: mm)



Electrode Connection  
1. Emitter  
2. Collector  
3. Base

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

| Parameter                    | Symbol                  | Ratings     | Unit |
|------------------------------|-------------------------|-------------|------|
| Collector to base voltage    | V <sub>CB0</sub>        | 60          | V    |
| Collector to emitter voltage | V <sub>CEO</sub>        | 50          | V    |
| Emitter to base voltage      | V <sub>EBO</sub>        | 5           | V    |
| Collector current (DC)       | I <sub>C(DC)</sub>      | 100         | mA   |
| Collector current (Pulse)    | I <sub>C(pulse)</sub> * | 200         | mA   |
| Total power dissipation      | P <sub>T</sub>          | 250         | mW   |
| Junction temperature         | T <sub>j</sub>          | 150         | °C   |
| Storage temperature          | T <sub>stg</sub>        | -55 to +150 | °C   |

\* PW ≤ 10 ms, duty cycle ≤ 50 %

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| Parameter                    | Symbol                  | Conditions  | MIN. | TYP. | MAX. | Unit |
|------------------------------|-------------------------|---|------|------|------|------|
| Collector cutoff current     | I <sub>CB0</sub>        | V <sub>CB</sub> = 50 V, I <sub>E</sub> = 0        |      |      | 100  | nA   |
| DC current gain              | h <sub>FE1</sub> **     | V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 5.0 mA  | 135  | 330  | 600  | -    |
| DC current gain              | h <sub>FE2</sub> **     | V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 50 mA   | 100  | 290  |      | -    |
| Collector saturation voltage | V <sub>CE(sat)</sub> ** | I <sub>C</sub> = 5.0 mA, I <sub>B</sub> = 0.25 mA |      | 0.04 | 0.2  | V    |
| Low level input voltage      | V <sub>IL</sub> **      | V <sub>CE</sub> = 5.0 V, I <sub>C</sub> = 100 μA  |      | 0.55 | 0.5  | V    |
| High level input voltage     | V <sub>IH</sub> **      | V <sub>CE</sub> = 0.2 V, I <sub>C</sub> = 5.0 mA  | 3.0  | 1.05 |      | V    |
| Input resistance             | R <sub>1</sub>          |   | 15.4 | 22   | 28.6 | kΩ   |
| Turn-on time                 | t <sub>on</sub>         | V <sub>CC</sub> = 5.0 V, R <sub>L</sub> = 1.0 kΩ  |      |      | 0.2  | μs   |
| Storage time                 | t <sub>stg</sub>        | V <sub>i</sub> = 5.0 V, PW = 2.0 μs               |      |      | 5.0  | μs   |
| Turn-off time                | t <sub>off</sub>        | duty cycle ≤ 2 %                                  |      |      | 6.0  | μs   |

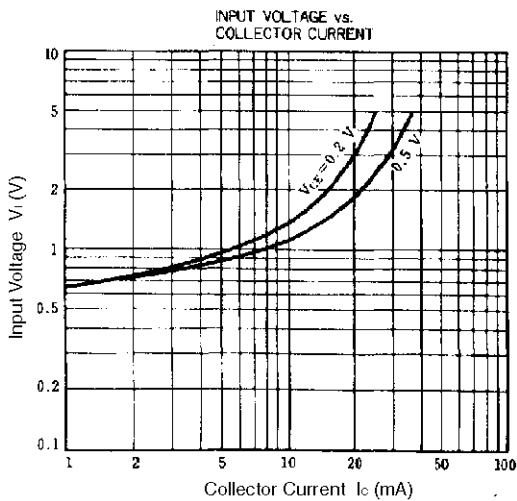
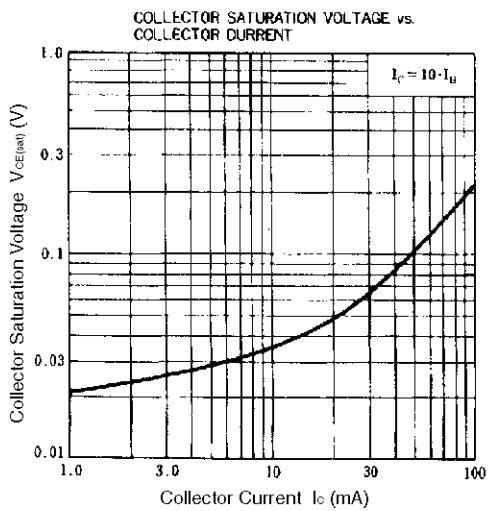
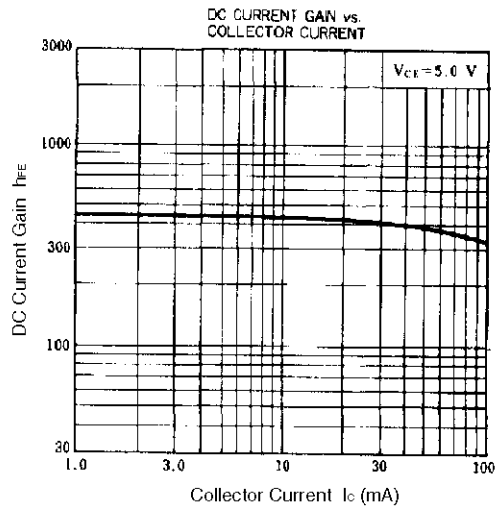
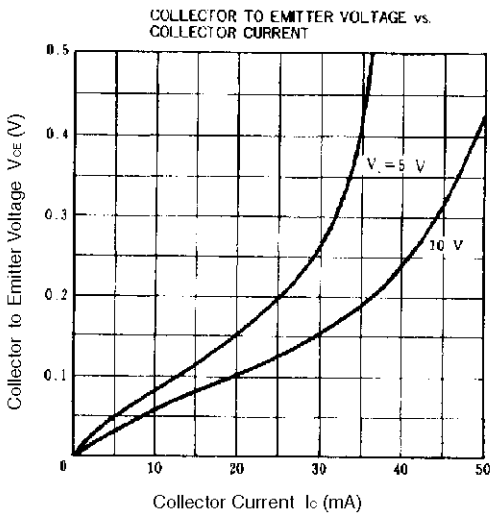
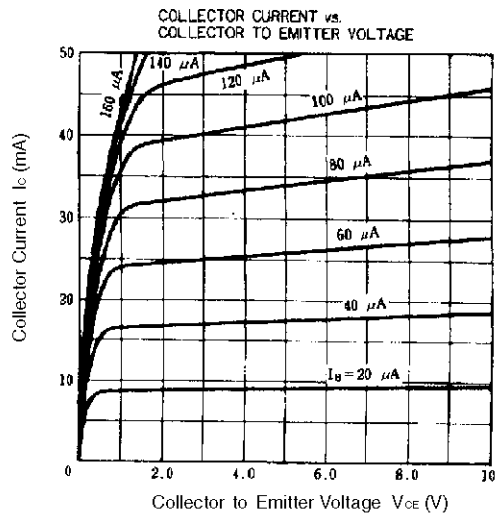
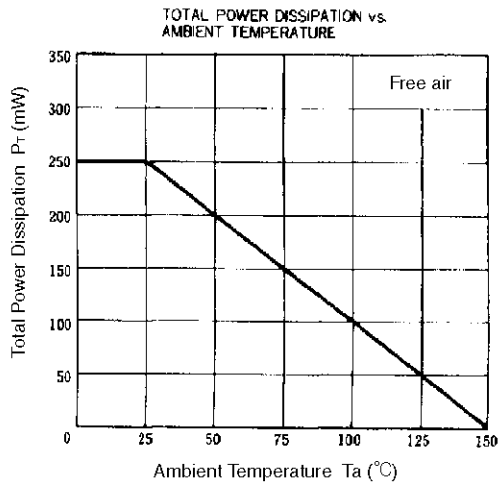
\*\* Pulse test PW ≤ 350 μs, duty cycle ≤ 2 %

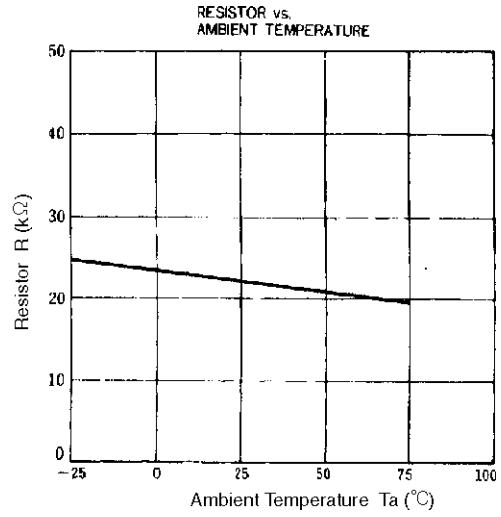
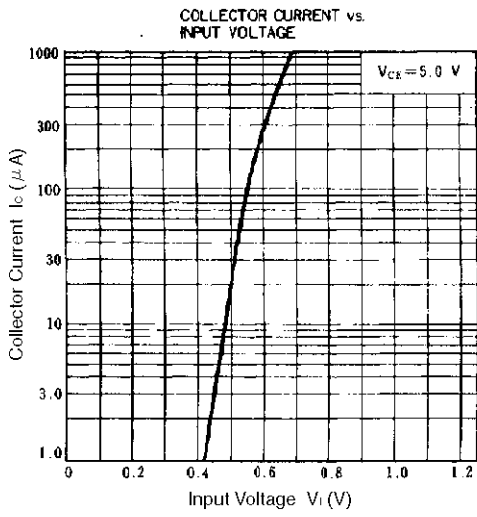
h<sub>FE</sub> CLASSIFICATION

| Marking          | Q          | P          | K          |
|------------------|------------|------------|------------|
| h <sub>FE1</sub> | 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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