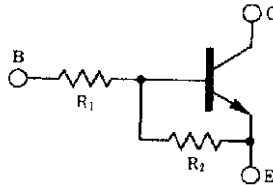


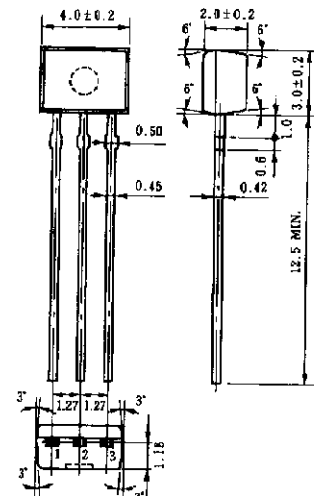
on-chip resistor NPN silicon epitaxial transistor For mid-speed switching

FEATURES

- On-chip bias resistor
($R_1 = 1.0 \text{ k}\Omega$, $R_2 = 10 \text{ k}\Omega$)
- Complementary transistor with BN1A3Q



PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Emitter
2. Collector
3. Base

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 $\leq 50 \%$

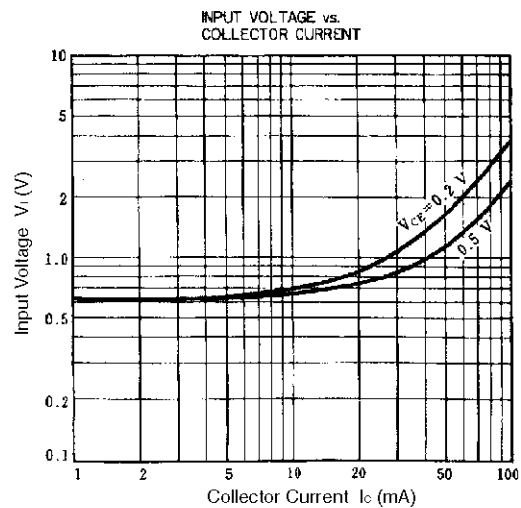
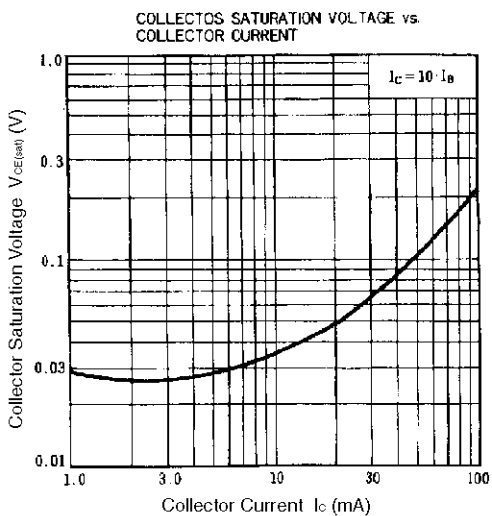
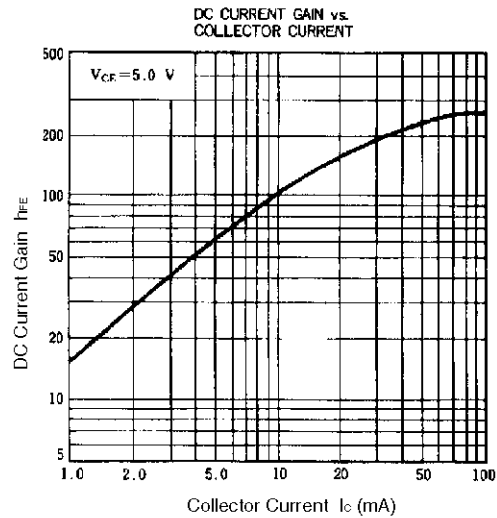
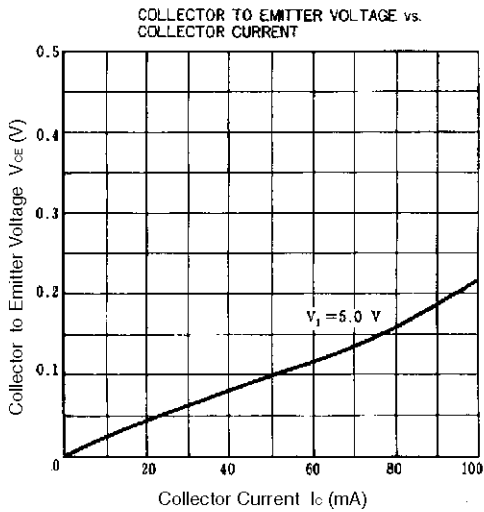
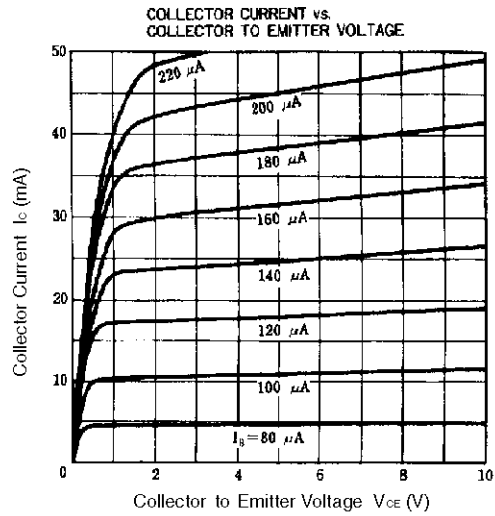
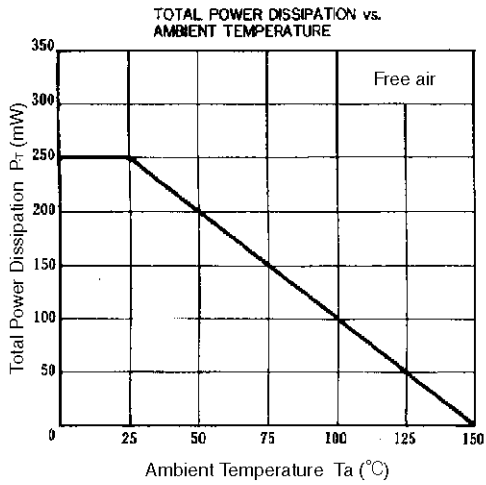
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

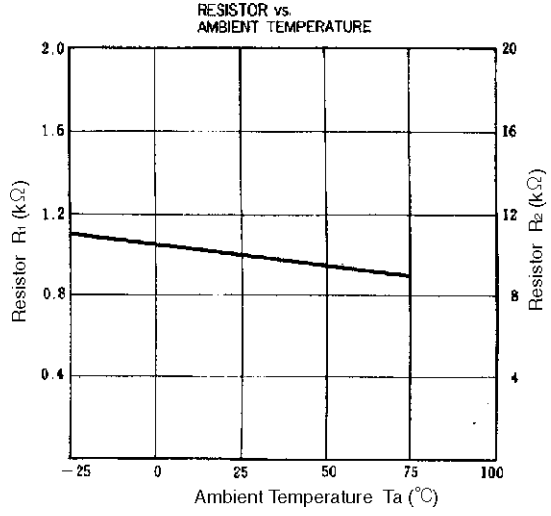
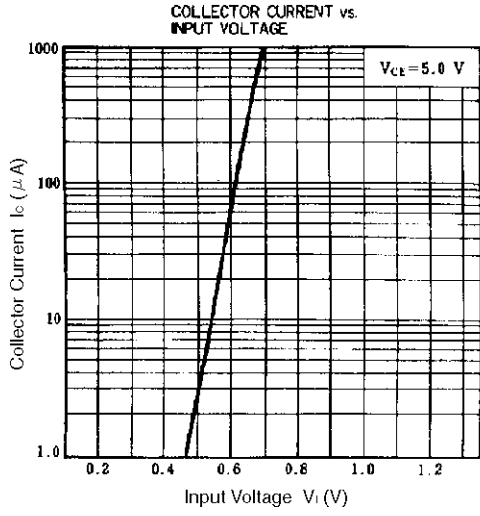
| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|------------------------------|------------------|--|------|------|------|------------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = 50 \text{ V}$, $I_E = 0$ | | | 100 | nA |
| DC current gain | h_{FE1} ** | $V_{CE} = 5.0 \text{ V}$, $I_C = 5.0 \text{ mA}$ | 35 | 60 | 100 | - |
| DC current gain | h_{FE2} ** | $V_{CE} = 5.0 \text{ V}$, $I_C = 50 \text{ mA}$ | 80 | 230 | | - |
| Collector saturation voltage | $V_{CE(sat)}$ ** | $I_C = 5.0 \text{ mA}$, $I_B = 0.25 \text{ mA}$ | | 0.05 | 0.2 | V |
| Low level input voltage | V_{IL} ** | $V_{CE} = 5.0 \text{ V}$, $I_C = 100 \mu\text{A}$ | | 0.7 | 0.5 | V |
| High level input voltage | V_{IH} ** | $V_{CE} = 0.2 \text{ V}$, $I_C = 5.0 \text{ mA}$ | 2.0 | 1.0 | | V |
| Input resistance | R_1 | | 0.7 | 1.0 | 1.3 | $\text{k}\Omega$ |
| E-to-B resistance | R_2 | | 7 | 10 | 13 | $\text{k}\Omega$ |
| Turn-on time | t_{on} | $V_{CC} = 5 \text{ V}$, $R_L = 1 \text{ k}\Omega$ | | | 0.2 | μs |
| Storage time | t_{stg} | $V_i = 5 \text{ V}$, $PW = 2 \mu\text{s}$ | | | 5.0 | μs |
| Turn-off time | t_{off} | duty cycle $\leq 2 \%$ | | | 6.0 | μs |

** $PW \leq 350 \mu\text{s}$, duty cycle $\leq 2 \%$

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





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