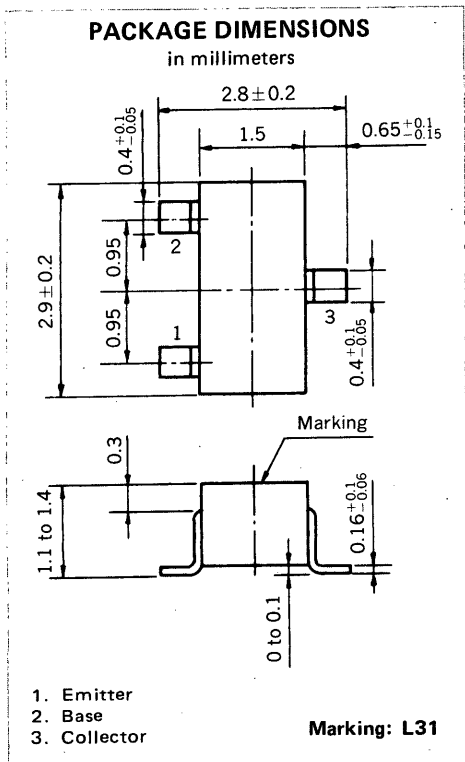
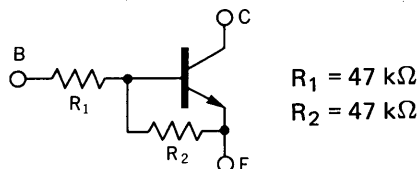


**MEDIUM SPEED SWITCHING  
RESISTOR BUILT-IN TYPE NPN TRANSISTOR  
MINI MOLD**



**FEATURES**

- Resistors Built-in TYPE



- Complementary to FN1L4M

**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 | $V_{CEO}$ | 50  | V  |
| Emitter to Base Voltage      | $V_{EBO}$ | 10  | V  |
| Collector Current (DC)       | $I_C$     | 100 | mA |
| Collector Current (Pulse)    | $I_C$     | 200 | mA |

Maximum Power Dissipation

|  |       |     |    |
|--|-------|-----|----|
| Total Power Dissipation<br>at $25^\circ\text{C}$ Ambient Temperature | $P_T$ | 200 | mW |
|--|-------|-----|----|

Maximum Temperatures

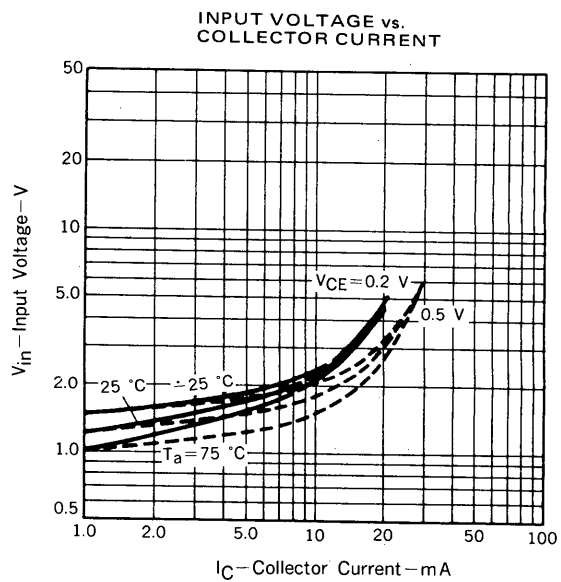
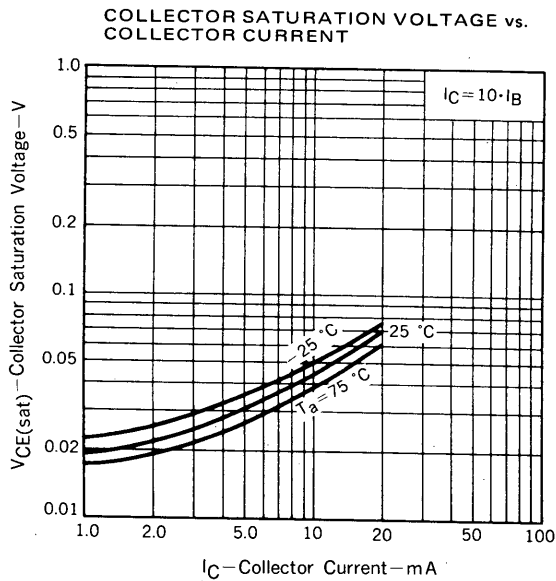
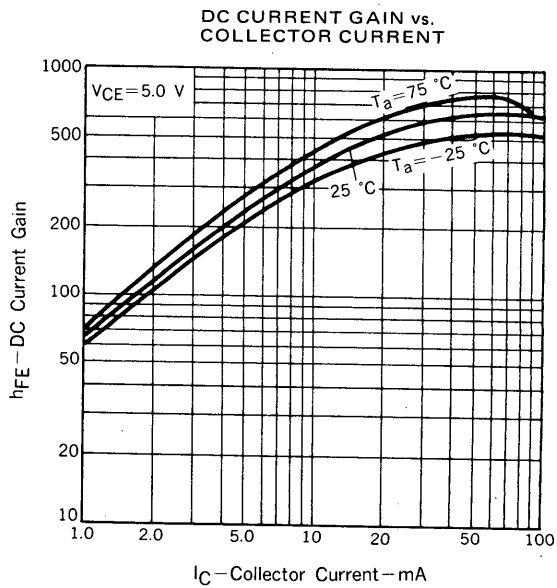
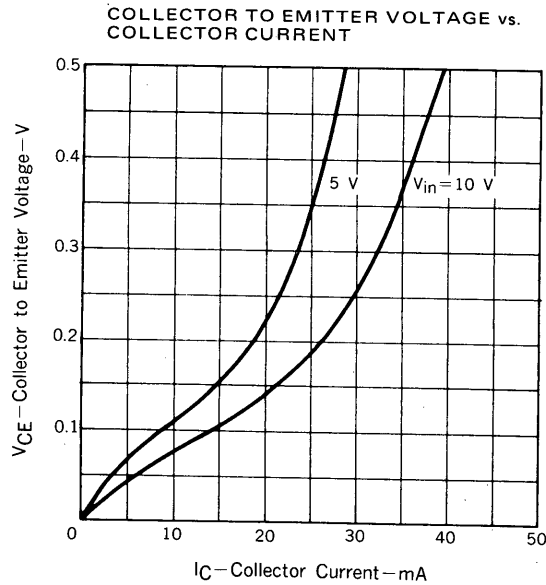
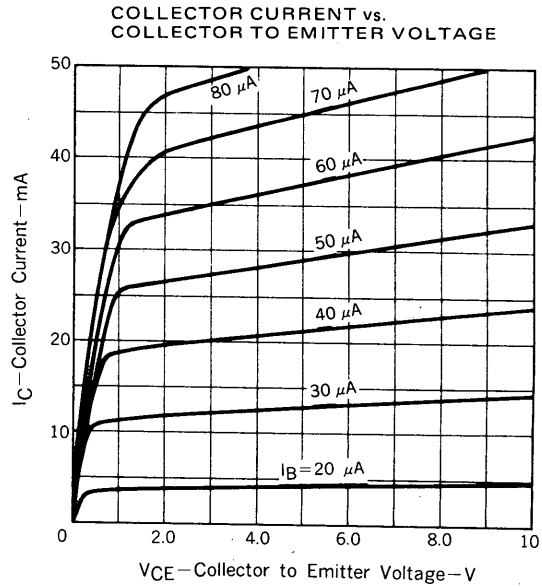
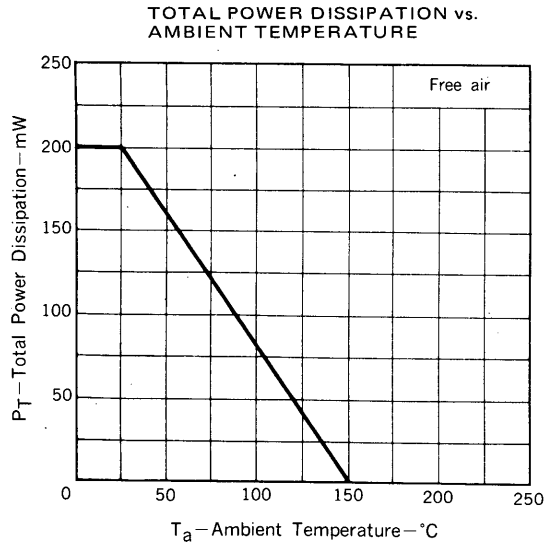
|                           |           |             |                  |
|---------------------------|-----------|-------------|------------------|
| Junction Temperature      | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

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

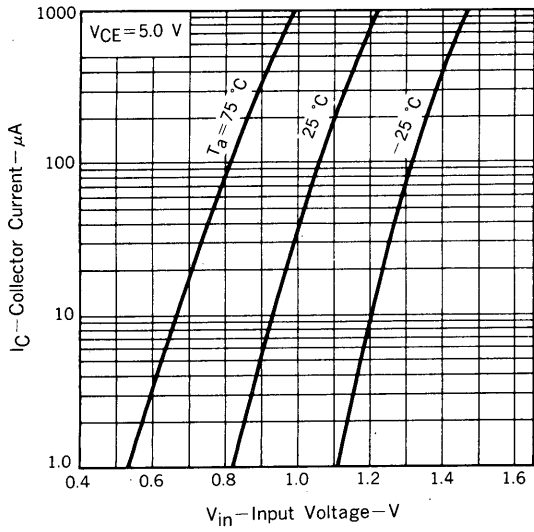
| CHARACTERISTIC               | SYMBOL          | MIN. | TYP. | MAX. | UNIT             | TEST CONDITIONS   |
|------------------------------|-----------------|------|------|------|------------------|---|
| Collector Cutoff Current     | $I_{CBO}$       |      |      | 100  | nA               | $V_{CB} = 50\text{ V}, I_E = 0$   |
| DC Current Gain              | $h_{FE1}^*$     | 85   | 240  | 340  |                  | $V_{CE} = 5.0\text{ V}, I_C = 5.0\text{ mA}$  |
| DC Current Gain              | $h_{FE2}^*$     | 95   | 640  |      |                  | $V_{CE} = 5.0\text{ V}, I_C = 50\text{ mA}$   |
| Collector Saturation Voltage | $V_{CE(sat)}^*$ |      | 0.04 | 0.2  | V                | $I_C = 5.0\text{ mA}, I_B = 0.25\text{ mA}$   |
| Low-Level Input Voltage      | $V_{IL}^*$      |      | 1.07 | 0.8  | V                | $V_{CE} = 5.0\text{ V}, I_C = 100\text{ }\mu\text{A}$   |
| High-Level Input Voltage     | $V_{IH}^*$      | 5.0  | 1.7  |      | V                | $V_{CE} = 0.2\text{ V}, I_C = 5.0\text{ mA}$  |
| Input Resistor               | $R_1$           | 32.9 | 47.0 | 61.1 | $\text{k}\Omega$ |   |
| Resistor Ratio               | $R_1/R_2$       | 0.9  | 1.0  | 1.1  |                  |   |
| Turn-on Time                 | $t_{on}$        |      | 0.27 | 0.7  | $\mu\text{s}$    | $V_{CC} = 5\text{ V}, V_{in} = 5\text{ V}$<br>$R_L = 1\text{ k}\Omega$<br>$PW = 2\text{ }\mu\text{s}, \text{Duty Cycle} \leq 2\%$ |
| Storage Time                 | $t_{stg}$       |      | 2.0  | 5.0  | $\mu\text{s}$    |   |
| Turn-off Time                | $t_{off}$       |      | 2.48 | 6.0  | $\mu\text{s}$    |   |

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

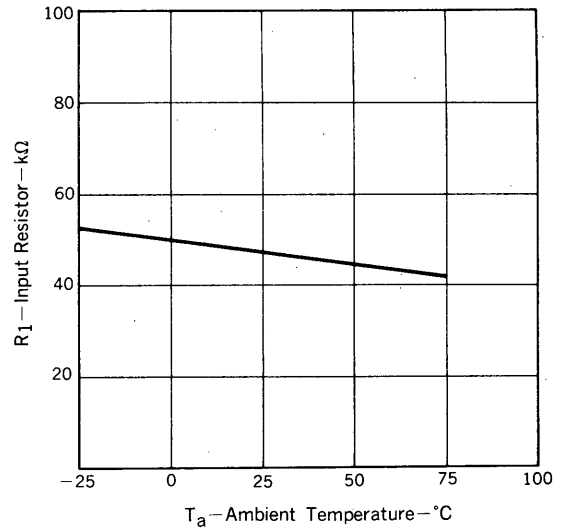
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



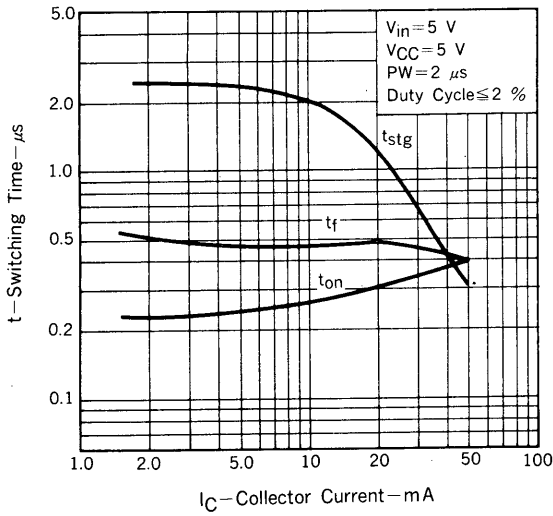
COLLECTOR CURRENT vs. INPUT VOLTAGE



RESISTOR vs. AMBIENT TEMPERATURE



SWITCHING TIME vs. COLLECTOR CURRENT







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