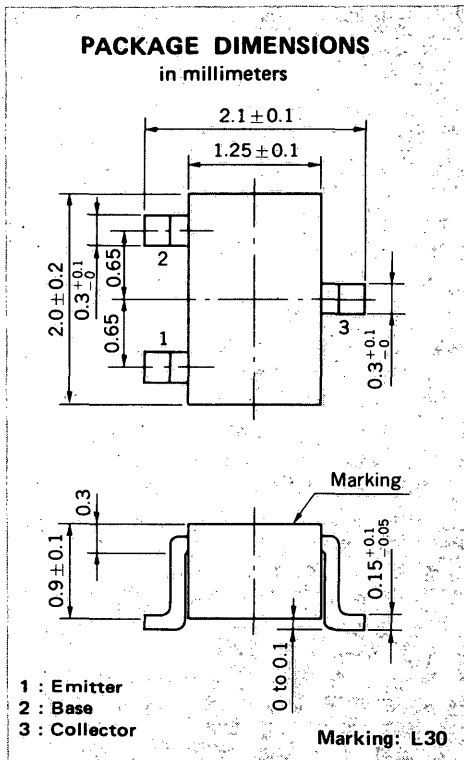
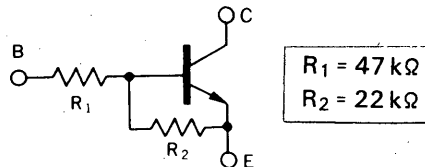


**MEDIUM SPEED SWITCHING
RESISTOR BUILT-IN TYPE NPN TRANSISTOR**



FEATURES

- Resistors Built-in TYPE



- Complementary to GN1L4L

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)

| | | | |
|------------------------------|-----------|-----|----|
| Collector to Base Voltage | V_{CB0} | 60 | V |
| Collector to Emitter Voltage | V_{CEO} | 50 | V |
| Emitter to Base Voltage | V_{EBO} | 15 | V |
| Collector Current (DC) | I_C | 100 | mA |
| Collector Current (Pulse) | I_C | 200 | mA |

Maximum Power Dissipation

| | | | |
|----------------------------------------------------------------------|-------|-----|----|
| Total Power Dissipation at 25°C Ambient Temperature | P_T | 150 | mW |
|----------------------------------------------------------------------|-------|-----|----|

Maximum Temperatures

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

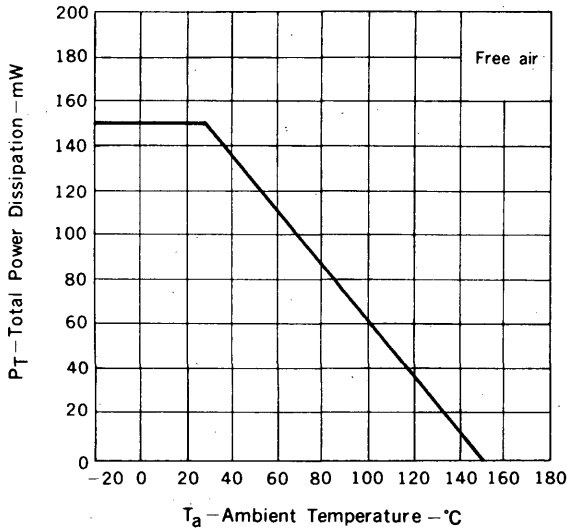
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| 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}^* | 60 | 120 | 195 | | $V_{CE} = 5.0 \text{ V}, I_C = 5.0 \text{ mA}$ |
| DC Current Gain | h_{FE2}^* | 90 | 340 | | | $V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$ |
| 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}^* | | 1.7 | 0.9 | V | $V_{CE} = 5.0 \text{ V}, I_C = 100 \mu\text{A}$ |
| High-Level Input Voltage | V_{IH}^* | 6.0 | 2.5 | | V | $V_{CE} = 0.2 \text{ V}, I_C = 5.0 \text{ mA}$ |
| Input Resistor | R_1 | 32.9 | 47.0 | 61.1 | $\text{k}\Omega$ | |
| E-B Resistor | R_2 | 15.4 | 22.0 | 28.6 | $\text{k}\Omega$ | |
| Turn-on Time | t_{on} | | 0.38 | 1.0 | μs | $V_{CC} = 5 \text{ V}, V_{in} = 5 \text{ V}$ |
| Storage Time | t_{stg} | | 1.2 | 3.0 | μs | $R_L = 1 \text{ k}\Omega$ |
| Turn-off Time | t_{off} | | 1.6 | 5.0 | μs | $PW = 2 \mu\text{s}, \text{Duty Cycle} \leq 2\%$ |

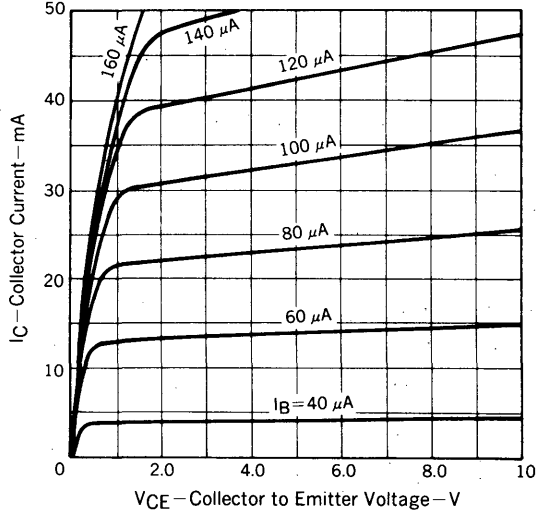
* Pulsed: $PW \leq 350 \mu\text{s}, \text{Duty Cycle} \leq 2\%$

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

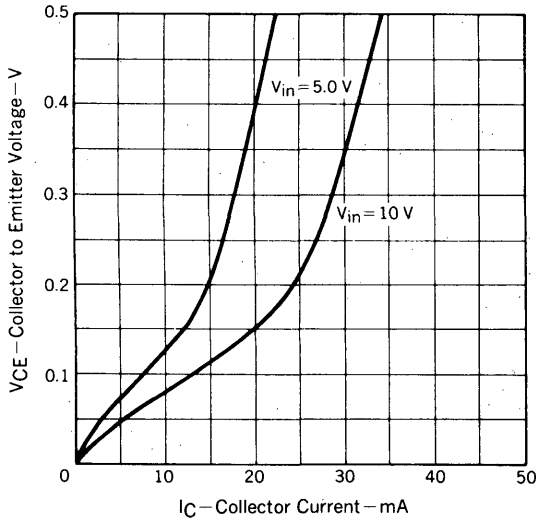
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



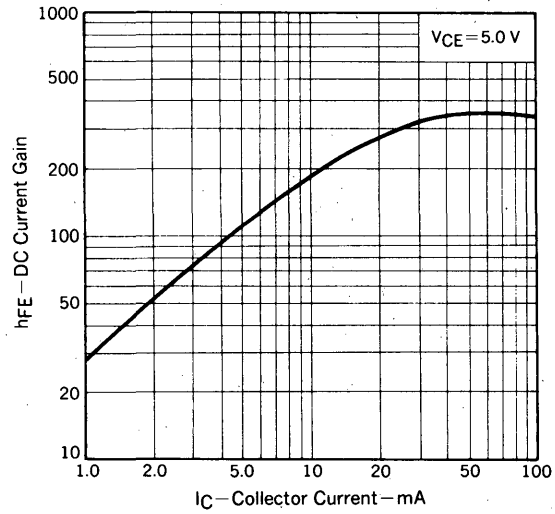
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



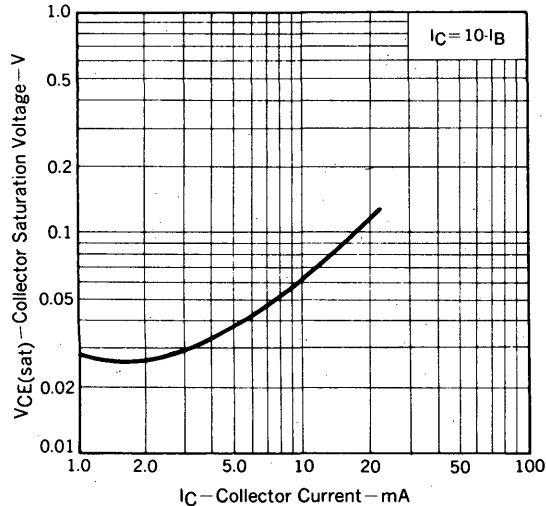
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



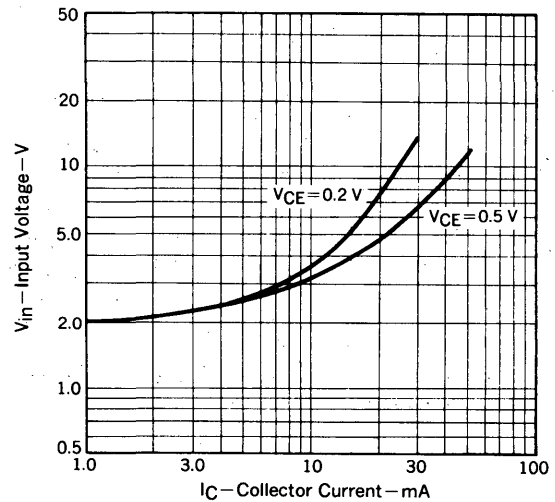
DC CURRENT GAIN vs. COLLECTOR CURRENT

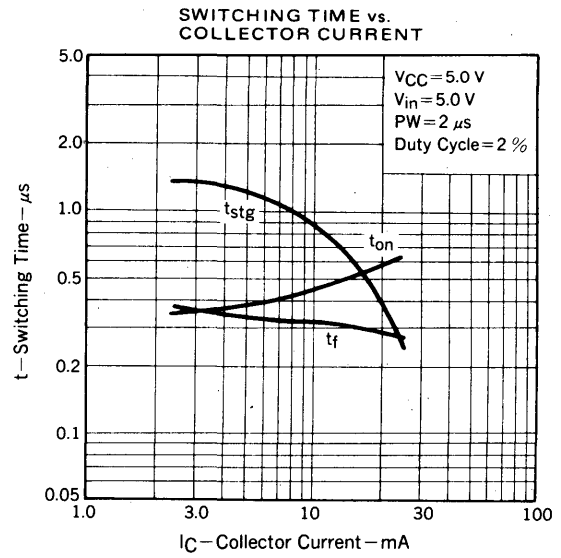
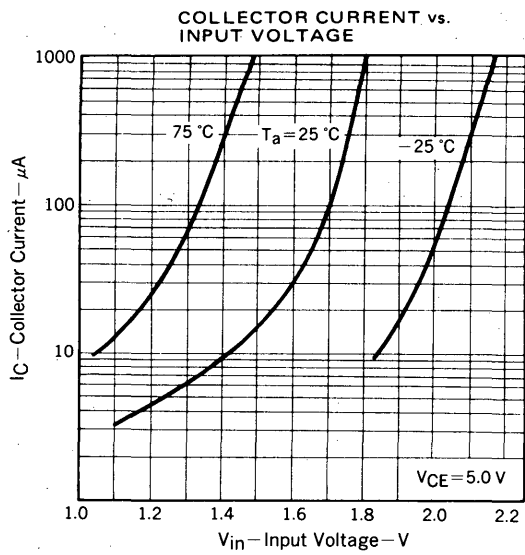


COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



INPUT VOLTAGE vs. COLLECTOR CURRENT







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