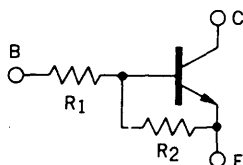


**DESCRIPTION** The AA1L4M is designed for use in medium speed switching circuit.

**FEATURE** • Bias resistors built-in type NPN transistor equivalent circuit.



$R_1 = 47 \text{ k}\Omega$   
 $R_2 = 47 \text{ k}\Omega$

### ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature . . . . .  $-55$  to  $+150$   $^{\circ}\text{C}$

Junction Temperature . . . . .  $150$   $^{\circ}\text{C}$  Maximum

Maximum Power Dissipation ( $T_a = 25$   $^{\circ}\text{C}$ )

Total Power Dissipation . . . . . 300 mW

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

$V_{CBO}$  Collector to Base Voltage . . . . . 60 V

$V_{CEO}$  Collector to Emitter Voltage . . . . . 50 V

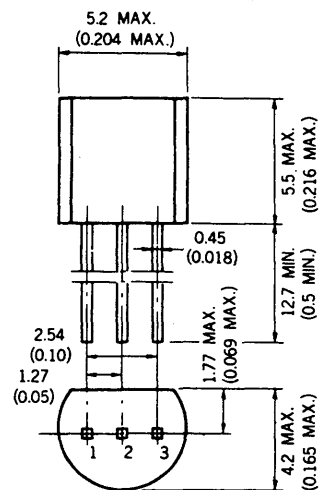
$V_{EBO}$  Emitter to Base Voltage . . . . . 10 V

$I_{C(DC)}$  Collector Current (DC) . . . . . 100 mA

$I_{C(pulse)}$  Collector Current (pulse) . . . . . 200 mA

### PACKAGE DIMENSIONS

in millimeters (inches)



1. EMITTER EIAJ : SC-43B  
2. COLLECTOR JEDEC : TO-92  
3. BASE IEC : PA33

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

| SYMBOL        | CHARACTERISTIC               | MIN. | TYP. | MAX. | UNIT             | TEST CONDITIONS                                                                                                                      |
|---------------|------------------------------|------|------|------|------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| $R_1$         | Input Resistance             | 32.9 | 47.0 | 61.1 | $\text{k}\Omega$ |                                                                                                                                      |
| $R_1/R_2$     | Resistors Ratio              | 0.9  | 1.0  | 1.1  | —                |                                                                                                                                      |
| $V_{IL}$      | Low Level Input Voltage      |      | 1.1  | 0.8  | V                | $V_{CE} = 5.0 \text{ V}, I_C = 100 \mu\text{A}$                                                                                      |
| $V_{IH}$      | Hi Level Input Voltage       | 5.0  | 1.7  |      | V                | $V_{CE} = 0.2 \text{ V}, I_C = 5.0 \text{ mA}$                                                                                       |
| $t_{on}$      | Turn on Time                 |      | 0.27 | 0.7  | $\mu\text{s}$    | $V_{CC} = 5.0 \text{ V}, R_L = 1.0 \text{ k}\Omega$<br>$V_{in} = 5.0 \text{ V},$<br>$PW = 2 \mu\text{s}, \text{Duty Cycle} \leq 2\%$ |
| $t_{stg}$     | Storage Time                 |      | 2.0  | 5.0  | $\mu\text{s}$    |                                                                                                                                      |
| $t_{off}$     | Turn off Time                |      | 2.48 | 6.0  | $\mu\text{s}$    |                                                                                                                                      |
| $h_{FE1}$     | DC Current Gain              | 85   | 240  | 340  | —                | $V_{CE} = 5.0 \text{ V}, I_C = 5.0 \text{ mA}$                                                                                       |
| $h_{FE2}$     | DC Current Gain              | 95   | 640  |      | —                | $V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$                                                                                        |
| $V_{CE(sat)}$ | Collector Saturation Voltage |      | 0.04 | 0.2  | V                | $I_C = 5.0 \text{ mA}, I_B = 0.25 \text{ mA}$                                                                                        |
| $I_{CBO}$     | Collector Cutoff Current     |      |      | 0.1  | $\mu\text{A}$    | $V_{CB} = 50 \text{ V}, I_E = 0$                                                                                                     |

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