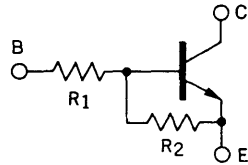


**DESCRIPTION** The BA1F4M is designed for use in medium speed switching circuit.

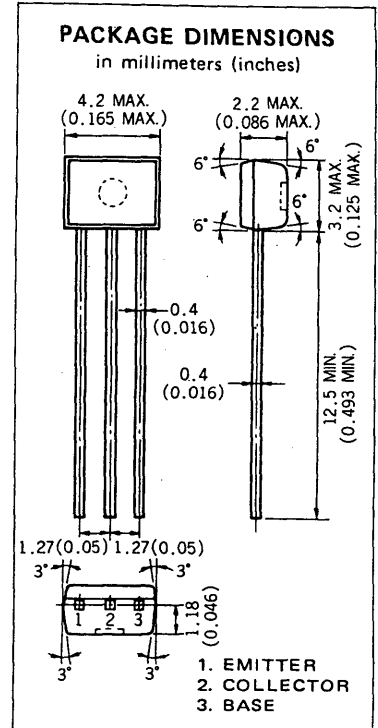
**FEATURE** • Bias resistors built-in type NPN transistor equivalent circuit.



$R_1 = 22 \text{ k}\Omega$   
 $R_2 = 22 \text{ k}\Omega$

### ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures	
Storage Temperature	-55 to +150 °C
Junction Temperature	150 °C Maximum
Maximum Power Dissipation ( $T_a = 25 \text{ °C}$ )	
Total Power Dissipation	250 mW
Maximum Voltages and Currents ( $T_a = 25 \text{ °C}$ )	
$V_{CBO}$ 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



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_1$	Input Resistance	15.4	22.0	28.6	$\text{k}\Omega$	
$R_1/R_2$	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	4.0	1.6		V	$V_{CE} = 0.2 \text{ V}, I_C = 5.0 \text{ mA}$
$t_{on}$	Turn on Time		0.11	0.4	$\mu\text{s}$	$V_{CC} = 5.0 \text{ V}, R_L = 1.0 \text{ k}\Omega$ $V_{in} = 5.0 \text{ V},$ $PW = 2 \mu\text{s}, \text{Duty Cycle} \leq 2 \%$
$t_{stg}$	Storage Time		2.3	5.0	$\mu\text{s}$	
$t_{off}$	Turn off Time		2.6	6.0	$\mu\text{s}$	
$h_{FE1}$	DC Current Gain	60	120	195	—	$V_{CE} = 5.0 \text{ V}, I_C = 5.0 \text{ mA}$
$h_{FE2}$	DC Current Gain	90	400		—	$V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$
$V_{CE(sat)}$	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 ( $T_a = 25^\circ\text{C}$ )

