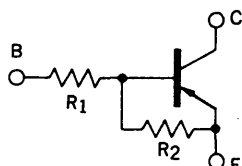


**DESCRIPTION** The BN1F4N is designed for use in medium speed switching circuit.

### FEATURE

- Bias resistors built-in type PNP transistor equivalent circuit.



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

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

### 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 ..... 250 mW

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

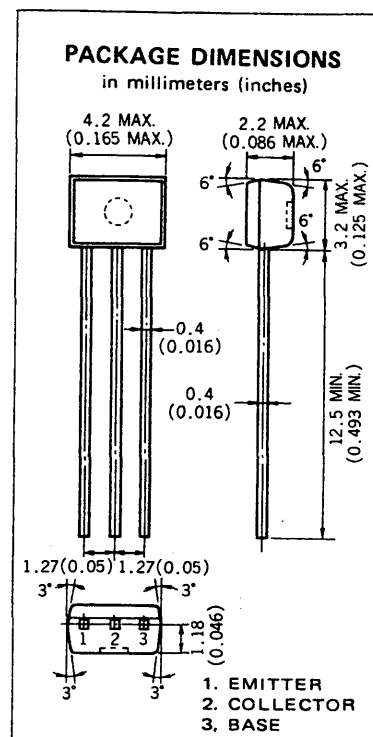
$V_{\text{CBO}}$  Collector to Base Voltage .....  $-60$  V

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

$V_{\text{EBO}}$  Emitter to Base Voltage .....  $-5.0$  V

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

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



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

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$R_1$	Input Resistance	15.4	22.0	28.6	$\text{k}\Omega$	
$R_2$	Input Resistance	32.9	47.0	61.1	$\text{k}\Omega$	
$V_{\text{IL}}$	Low Level Input Voltage		$-0.85$	$-0.6$	V	$V_{\text{CE}} = -5.0 \text{ V}, I_{\text{C}} = -100 \mu\text{A}$
$V_{\text{IH}}$	Hi Level Input Voltage	$-3.0$	$-1.3$		V	$V_{\text{CE}} = -0.2 \text{ V}, I_{\text{C}} = -5.0 \text{ mA}$
$t_{\text{on}}$	Turn On Time		0.2	0.3	$\mu\text{s}$	$V_{\text{CC}} = -5.0 \text{ V}, R_{\text{L}} = 1.0 \text{ k}\Omega,$ $V_{\text{in}} = -5.0 \text{ V},$ $\text{PW} = 2 \mu\text{s}, \text{Duty Cycle} \leq 2 \%$
$t_{\text{stg}}$	Storage Time		1.5	5.0	$\mu\text{s}$	
$t_{\text{off}}$	Turn Off Time		2.0	6.0	$\mu\text{s}$	
$h_{\text{FE1}}$	DC Current Gain	85	150	340	—	$V_{\text{CE}} = -5.0 \text{ V}, I_{\text{C}} = -5.0 \text{ mA}$
$h_{\text{FE2}}$	DC Current Gain	95	200		—	$V_{\text{CE}} = -5.0 \text{ V}, I_{\text{C}} = -50 \text{ mA}$
$V_{\text{CE(sat)}}$	Collector Saturation Voltage		$-0.04$	$-0.2$	V	$I_{\text{C}} = -5.0 \text{ mA}, I_{\text{B}} = -0.25 \text{ mA}$
$I_{\text{CBO}}$	Collector Cutoff Current			$-0.1$	$\mu\text{A}$	$V_{\text{CB}} = -50 \text{ V}, I_{\text{E}} = 0$

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