

## NTE69 Silicon NPN Transistor UHF/VHF Amplifier

**Absolute Maximum Ratings:**

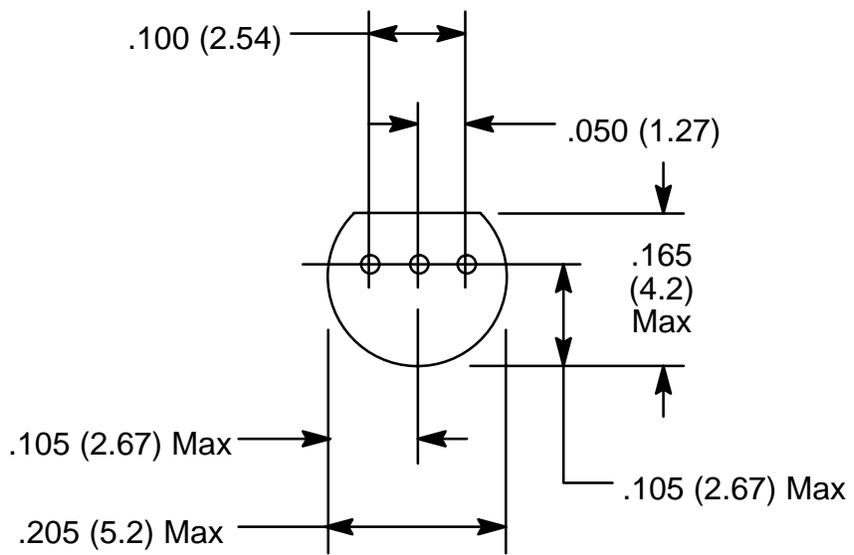
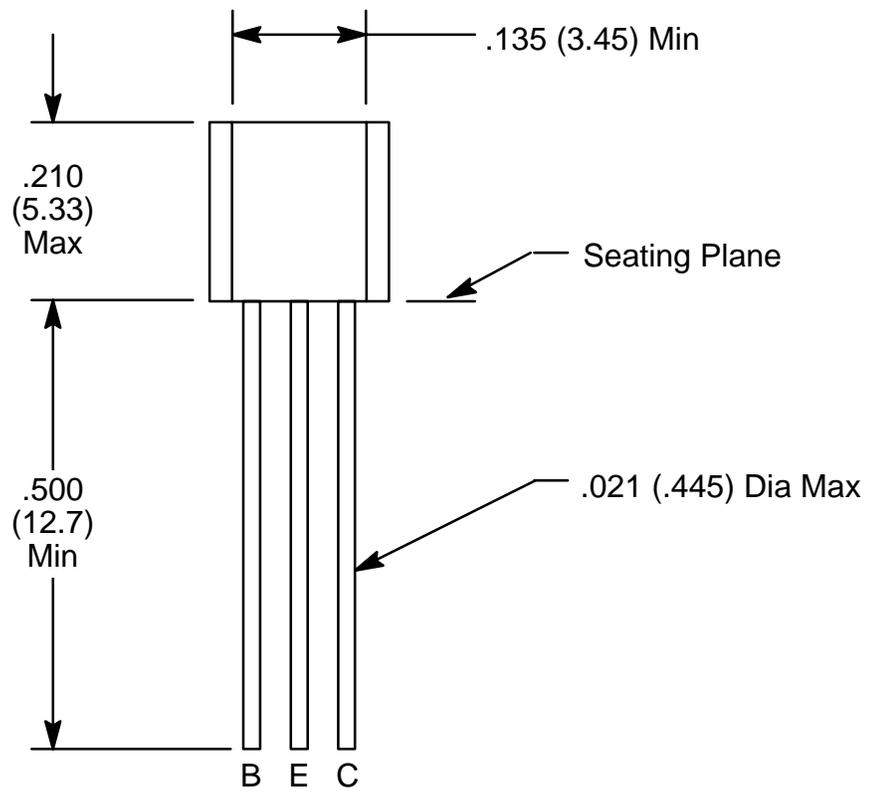
Collector–Emitter Voltage, $V_{CEO}$ .....	25V
Collector–Base Voltage, $V_{CBO}$ .....	35V
Emitter–Base Voltage, $V_{EBO}$ .....	3V
Continuous Collector Current, $I_C$ .....	50mA
Total Device Dissipation ( $T_A = +25^\circ\text{C}$ ), $P_D$ .....	350mW
Derate above $25^\circ\text{C}$ .....	2.8mW/ $^\circ\text{C}$
Total Device Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	1.0W
Derate above $25^\circ\text{C}$ .....	8.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	125 $^\circ\text{C}/\text{W}$
Thermal Resistance, Junction–to–Ambient (Note 1), $R_{thJA}$ .....	357 $^\circ\text{C}/\text{W}$

Note 1  $R_{thJA}$  is measured with the device soldered into a typical printed circuit board.

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$ , $I_B = 0$ , Note 2	25	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$ , $I_E = 0$	35	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$ , $I_C = 0$	3	–	–	V
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 4\text{V}$ , $I_C = 4\text{mA}$	25	60	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}$ , $I_B = 1\text{mA}$	–	200	350	mV
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}$ , $I_B = 1\text{mA}$	–	750	950	mV
<b>Small–Signal Characteristics</b>						
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 12\text{V}$ , $I_C = 4\text{mA}$ , $f = 100\text{MHz}$	750	1100	–	MHz
Output Capacitance	$C_{obo}$	$V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$	–	0.8	1.0	pF
Collector–Base Time Constant	$\tau_{bc}$	$V_{CE} = 12\text{V}$ , $I_E = 4\text{mA}$ , $f = 31.8\text{MHz}$	–	–	9.5	ps

Note 2 Pulse test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$



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