

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°C	2.8mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	1.0W
Derate above 25°C	8.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° 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
OFF Characteristics						
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
ON Characteristics						
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
Small–Signal Characteristics						
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	τ_{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 $\leq 2.0\%$

