

# New Jersey Semi-Conductor Products, Inc.

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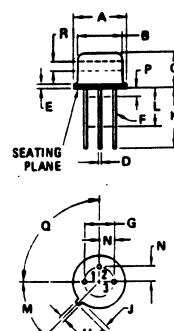
## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Sustaining Voltage ( $I_C = 5.0 \text{ mA}_\text{dc}, I_B = 0$ )	$V_{CEO}$ (sus)	20	—	—	Vdc
Collector-Emitter Sustaining Voltage (1) ( $I_C = 5.0 \text{ mA}_\text{dc}, R_{BE} = 10 \Omega$ )	$V_{CE(sus)}$	40	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = 15 \text{ Vdc}, I_B = 0$ )	$I_{CEO}$	—	—	20	$\mu\text{A}_\text{dc}$
Collector Cutoff Current ( $V_{CE} = 15 \text{ Vdc}, V_{BE} = -1.5 \text{ V}, T_C = 150^\circ\text{C}$ ) ( $V_{CE} = 35 \text{ Vdc}, V_{BE} = -1.5 \text{ V}$ )	$I_{CEX}$	—	—	5.0	$\text{mA}_\text{dc}$
Emitter Cutoff Current ( $V_{BE} = 3.0 \text{ Vdc}, I_C = 0$ )	$I_{EBO}$	—	—	100	$\mu\text{A}_\text{dc}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 360 \text{ mA}_\text{dc}, V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 50 \text{ mA}_\text{dc}, V_{CE} = 15 \text{ Vdc}$ )	$h_{FE}$	5.0 40	—	— 120	—
<b>DYNAMIC CHARACTERISTICS</b>					
*Current-Gain – Bandwidth Product ( $I_C = 50 \text{ mA}_\text{dc}, V_{CE} = 15 \text{ Vdc}, f = 200 \text{ MHz}$ )	$f_T$	1200	—	—	MHz
Collector-Base Capacitance ( $V_{CB} = 15 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$ )	$C_{cb}$	—	1.8	3.5	pF
Noise Figure ( $I_C = 10 \text{ mA}_\text{dc}, V_{CE} = 15 \text{ Vdc}, f = 200 \text{ MHz}$ ) (Figure 2)	NF	—	3.0	—	dB
<b>FUNCTIONAL TEST</b>					
*Common-Emitter Amplifier Voltage Gain (Figure 1) ( $I_C = 50 \text{ mA}_\text{dc}, V_{CC} = 15 \text{ Vdc}, f = 50 \text{ to } 216 \text{ MHz}$ )	$G_{ve}$	11	—	—	dB
*Power Input (Figure 2) ( $I_C = 50 \text{ mA}_\text{dc}, V_{CC} = 15 \text{ Vdc}, R_S = 50 \text{ ohms}$ , $P_{out} = 1.26 \text{ mW}, f = 200 \text{ MHz}$ )	$P_{in}$	—	—	.0.1	mW

\*Indicates JEDEC Registered Data.

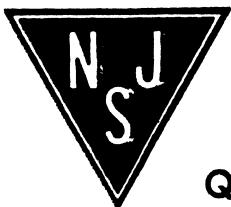
(1) Pulsed thru a 25 mH Inductor; 50% Duty Cycle

2N5109



STYLE 1  
PIN 1. Emitter  
2. Base  
3. Collector

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45° NOM	45° NOM	—	—
P	—	1.27	—	0.050
Q	90° NOM	90° NOM	—	—
R	2.54	—	0.100	—



Quality Semi-Conductors