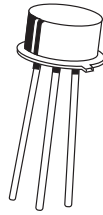


**2N5109**  
**SILICON**  
**NPN RF TRANSISTOR**



**TO-39 CASE**

# Central<sup>TM</sup>

**Semiconductor Corp.**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N5109 is a Silicon NPN Epitaxial Planar RF Transistor mounted in a hermetically sealed package designed for high frequency amplifier applications.

**MARKING CODE: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

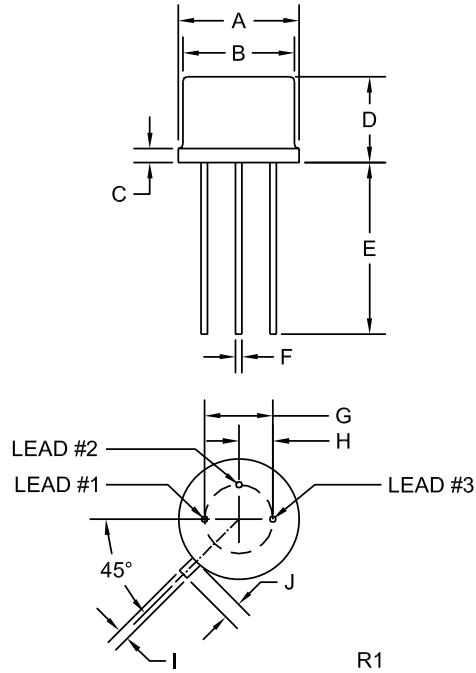
	<b>SYMBOL</b>		<b>UNITS</b>
Collector-Base Voltage	$V_{CBO}$	40	V
Collector-Emitter Voltage	$V_{CEO}$	20	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current	$I_C$	400	mA
Base Current	$I_B$	400	mA
Power Dissipation	$P_D$	1.0	W
Power Dissipation ( $T_C=75^\circ\text{C}$ )	$P_D$	2.5	W
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNITS</b>
$I_{CEV}$	$V_{CE}=35\text{V}, V_{BE}=1.5\text{V}$			5.0	mA
$I_{CEV}$	$V_{CE}=15\text{V}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$			5.0	mA
$I_{CEO}$	$V_{CE}=15\text{V}$			20	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=3.0\text{V}$			100	$\mu\text{A}$
$BV_{CBO}$	$I_C=0.1\text{mA}$	40			V
$BV_{CER}$	$I_C=5.0\text{mA}, R_{BE}=10\Omega$	40			V
$BV_{CEO}$	$I_C=5.0\text{mA}$	20			V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$			0.5	V
$h_{FE}$	$V_{CE}=15\text{V}, I_C=50\text{mA}$	40		150	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=360\text{mA}$	5.0			
$f_T$	$V_{CE}=15\text{V}, I_C=50\text{mA}, f=200\text{MHz}$	1200			MHz
$C_{ob}$	$V_{CB}=15\text{V}, I_E=0, f=1.0\text{MHz}$			3.5	pF
NF	$V_{CE}=15\text{V}, I_C=10\text{mA}, f=200\text{MHz}$		3.0		dB
$G_{PE}$	$V_{CE}=15\text{V}, I_C=50\text{mA}, f=200\text{MHz}$	11			dB

R3 (23-June 2005)

TO-39 CASE - MECHANICAL OUTLINE



**LEAD CODE:**

- 1) EMITTER
- 2) BASE
- 3) COLLECTOR

**MARKING CODE: Full Part Number**

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)