

# Central<sup>TM</sup> Semiconductor Corp.

145 Adams Ave., Hauppauge, NY 11788 USA  
Phone (631) 435-1110 FAX (631) 435-1824

Manufacturers of World Class Discrete Semiconductors  
www.centrasemi.com

2N5209  
2N5210

NPN SILICON TRANSISTOR

TO-92 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5209 and 2N5210 are silicon NPN Transistors, manufactured by the epitaxial planar process, designed for applications requiring high gain and low noise.

## MAXIMUM RATINGS (T<sub>A</sub>=25°C)

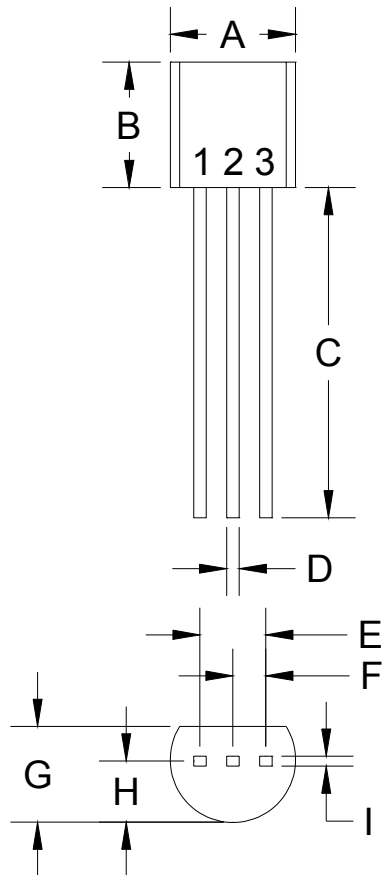
	SYMBOL		UNITS
Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
Collector-Base Voltage	V <sub>CBO</sub>	50	V
Emitter-Base Voltage	V <sub>EBO</sub>	4.5	V
Collector Current	I <sub>C</sub>	50	mA
Power Dissipation	P <sub>D</sub>	350	mW
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	1.0	W
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
Thermal Resistance	θ <sub>JA</sub>	357	°C/W
Thermal Resistance	θ <sub>JC</sub>	125	°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

SYMBOL	TEST CONDITIONS	2N5209		2N5210		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> =35V		50		50	nA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V		50		50	nA
BV <sub>CBO</sub>	I <sub>C</sub> =100μA	50		50		V
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	50		50		V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA		0.70		0.70	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA		0.85		0.85	V
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100μA	100	300	200	600	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA	150		250		
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA	150		250		
f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =500μA, f=20MHz	30		30		MHz
C <sub>cb</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=100kHz		4.0		4.0	pF
h <sub>fe</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA, f=1.0kHz	150	600	250	900	
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =20μA, R <sub>S</sub> =22kΩ, f=10Hz to 15.7kHz		3.0		2.0	dB
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =20μA, R <sub>S</sub> =10kΩ, f=1.0kHz		4.0		3.0	dB

(SEE REVERSE SIDE)

TO-92 PACKAGE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.175	0.205	4.45	5.21
B	0.170	0.210	4.32	5.33
C	0.500	-	12.70	-
D	0.016	0.022	0.41	0.56
E	0.100		2.54	
F	0.050		1.27	
G	0.125	0.165	3.18	4.19
H	0.080	0.105	2.03	2.67
I	0.015		0.38	

TO-92 (REV: R1)

Lead Code: 1) Emitter  
2) Base  
3) Collector

R1

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## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
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- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centalsemi.com](http://www.centalsemi.com)

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[www.centalsemi.com/wwreps](http://www.centalsemi.com/wwreps)

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