

2N5961
2N5962
2N5963

**SILICON
NPN TRANSISTORS**



TO-92 CASE



www.centralemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N5961 series devices are epoxy molded silicon NPN transistors, manufactured by the epitaxial planar process, designed for applications requiring extremely high gain (h_{FE}) and low noise.

MARKING: FULL PART NUMBER

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

	SYMBOL	2N5961	2N5962	2N5963	UNITS
Collector-Base Voltage	V_{CBO}	60	45	30	V
Collector-Emitter Voltage	V_{CEO}	60	45	30	V
Emitter-Base Voltage	V_{EBO}		7.0		V
Continuous Collector Current	I_C		50		mA
Power Dissipation	P_D		625		mW
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D		1.5		W
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +150		$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	2N5961		2N5962		2N5963		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}$	-	2.0	-	2.0	-	2.0	nA
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}, T_A=65^\circ\text{C}$	-	50	-	50	-	50	nA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	1.0	-	1.0	-	1.0	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60	-	45	-	30	-	V
BV_{CEO}	$I_C=5.0\text{mA}$	60	-	45	-	30	-	V
BV_{EBO}	$I_E=10\mu\text{A}$	7.0	-	7.0	-	7.0	-	V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}, PW=300\mu\text{s}$	-	0.2	-	0.2	-	0.2	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	0.5	0.7	0.5	0.7	0.5	0.7	V
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\mu\text{A}$	100	-	450	-	900	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$	120	-	500	-	1.0K	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	135	-	550	-	1.2K	-	
h_{FE}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	150	700	600	1.4K	1.2K	2.2K	
h_{fe}	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$	150	1.0K	600	2.0K	1.2K	3.0K	
f_T	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	-	100	-	150	-	MHz
C_{ob}	$V_{CB}=5.0\text{V}, I_E=0$	-	4.0	-	4.0	-	4.0	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0$	-	6.0	-	6.0	-	6.0	pF

R1 (2-March 2016)

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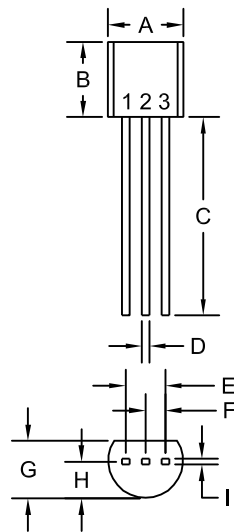


ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N5961	2N5962	2N5963	UNITS
		MAX	MAX	MAX	
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=1.0\text{k}\Omega$, $BW=400\text{Hz}$, $f=1.0\text{kHz}$	6.0	6.0	6.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=10\text{k}\Omega$, $BW=400\text{Hz}$, $f=1.0\text{kHz}$	-	4.0	3.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=100\text{k}\Omega$, $BW=400\text{Hz}$, $f=1.0\text{kHz}$	-	8.0	6.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=10\mu\text{A}$, $R_S=10\text{k}\Omega$, $BW=400\text{Hz}$, $f=1.0\text{kHz}$	3.0	3.0	3.0	dB
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=1.0\text{k}\Omega$, $BW=10\text{Hz}$, $f=10\text{Hz}$	-	-	8.0	dB
NF*	$V_{CE}=5.0\text{V}$, $I_C=10\mu\text{A}$, $R_S=1.0\text{k}\Omega$, $BW=15.7\text{kHz}$, $f=10\text{Hz}$ to 10kHz	3.0	3.0	3.0	dB

* Wide Band Noise Figure

TO-92 CASE - MECHANICAL OUTLINE



R1

SYMBOL	DIMENSIONS			
	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

**MARKING:
FULL PART NUMBER**

R1 (2-March 2016)



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

DESIGNER SUPPORT/SERVICES

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

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- Special wafer diffusions
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- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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

Worldwide Field Representatives:
www.centalsemi.com/wwreps

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