

2N5961  
2N5962  
2N5963

**SILICON  
NPN TRANSISTORS**



**TO-92 CASE**



[www.centrasemi.com](http://www.centrasemi.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
$V_{CE(\text{SAT})}$	$I_C=10\text{mA}, I_B=0.5\text{mA}, \text{PW}=300\mu\text{s}$	-	0.2	-	0.2	-	0.2	V
$V_{BE(\text{ON})}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	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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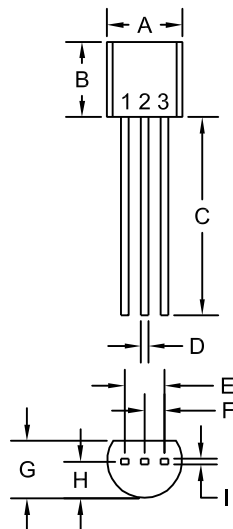


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

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 $10\text{kHz}$	3.0	3.0	3.0	dB

\* Wide Band Noise Figure

**TO-92 CASE - MECHANICAL OUTLINE**



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

R1 (2-March 2016)

## 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)
- Online technical data and parametric search
- 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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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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