

2N5961
2N5962
2N5963

SILICON
NPN TRANSISTORS



TO-92 CASE



www.centralsemi.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
$V_{CE(\text{SAT})}$	$I_C=10\text{mA}, I_B=0.5\text{mA}, PW=300\mu\text{s}$	-	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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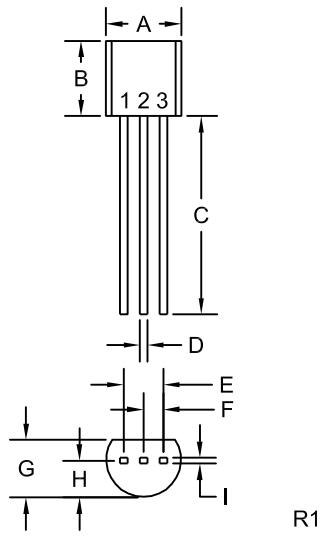


ELECTRICAL CHARACTERISTICS - Continued: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	UNITS			
		2N5961	2N5962	2N5963	
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



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)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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.

- Free quick ship samples (2nd 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

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).

CONTACT US

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<https://www.centralsemi.com>

Product End of Life Notification

PDN ID:	PDN01269
Notification Date:	2/04/25
Last Buy Date:	8/04/25
Last Shipment Date	2/04/26

Summary: The following Small Signal transistors are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Portfolio Management. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

* All Plating types (PBFREE, TIN/LEAD) for each item listed are included in this notice.

<u>Central Part Number</u>	<u>Suggested Replacement</u>
BCV72 BK	N/A
BCV72 TR	N/A
BCY58-VII	N/A
BCY59	N/A
BCY59-VII	N/A
BC107A	N/A
BC848A TR	N/A
CMPT930 BK	N/A
CMPT930 TR	N/A
MPS3393	N/A
MPS3707	N/A
MPS3710	N/A
MPS6520	N/A
MPS6520 APM	N/A
MPS6520 TRE	N/A
PE4001	N/A
PE4001-18	N/A
PN3565	N/A
PN3565 APM	N/A
PN3565 TRE	N/A
PN3565-18	N/A
PN930	N/A
2N2923	N/A
2N2923 APM	N/A
2N2923 TRE	N/A
2N2924	N/A
2N2924 APM	N/A
2N2924 TRE	N/A
2N2926	N/A
2N2926 APM	N/A
2N2926 TRE	N/A
2N3392	N/A
2N3392 APM	N/A
2N3392 TRE	N/A
2N3393	N/A
2N3393 APM	N/A

*** CONTINUED ***

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.

Product End of Life Notification

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*** CONTINUED FROM PRIOR PAGE ***

* All Plating types (PBFREE,TIN/LEAD) for each item listed are included in this notice.

<u>Central Part Number</u>	<u>Suggested Replacement</u>
2N3393 TRE	N/A
2N3397	N/A
2N3414	N/A
2N3416	N/A
2N3416 APM	N/A
2N3416 APP	N/A
2N3416 TRA	N/A
2N3416 TRE	N/A
2N3709	N/A
2N5172	N/A
2N5172 APM	N/A
2N5172 TRE	N/A
2N5209	N/A
2N5209 APM	N/A
2N5209 TRE	N/A
2N5961	N/A
2N5961 APM	N/A
2N5961 TRE	N/A
2N930	N/A
2N930A	N/A
2N930B	N/A
2SC1815	N/A
2SC1815 APM	N/A
2SC1815 TRE	N/A
2SC1815-BL	N/A
2SC1815-GR	N/A
2SC1815-O	N/A
2SC1815-Y	N/A
2SC1815-Y APM	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. If you would like assistance, please visit <https://my. centralesemi.com/submit-inquiry?type=ER> to submit an online inquiry.

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