

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

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Manufacturers of World Class Discrete Semiconductors

2N5303

NPN SILICON  
POWER TRANSISTOR

JEDEC TO-3 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5303 type is a NPN Silicon Epitaxial Planar Transistors designed for power amplifier and switching applications.

## MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ )

	<u>SYMBOL</u>		<u>UNITS</u>
Collector-Base Voltage	$V_{CB0}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Collector Current	$I_C$	20	A
Base Current	$I_B$	7.5	A
Power Dissipation	$P_D$	200	W
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$	0.875	$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>MAX</u>	<u>UNITS</u>
$I_{CBO}$	$V_{CB} = 80\text{V}$		1.0	mA
$I_{CEO}$	$V_{CE} = 80\text{V}$		5.0	mA
$I_{CEX}$	$V_{CE} = 80\text{V}, V_{BE} = 1.5\text{V}$		1.0	mA
$I_{CEX}$	$V_{CE} = 80\text{V}, V_{BE} = 1.5\text{V}, T_C = 150^\circ\text{C}$		10	mA
$I_{EBO}$	$V_{BE} = 5.0\text{V}$		5.0	mA
$BV_{CEO}$	$I_C = 200\text{mA}$	80		V
$V_{CE(SAT)}$	$I_C = 10\text{A}, I_B = 1.0\text{A}$		1.0	V
$V_{CE(SAT)}$	$I_C = 15\text{A}, I_B = 1.5\text{A}$		1.5	V
$V_{CE(SAT)}$	$I_C = 20\text{A}, I_B = 4.0\text{A}$		2.0	V
$V_{BE(SAT)}$	$I_C = 10\text{A}, I_B = 1.0\text{A}$		1.7	V
$V_{BE(SAT)}$	$I_C = 15\text{A}, I_B = 1.5\text{A}$		2.0	V
$V_{BE(SAT)}$	$I_C = 20\text{A}, I_B = 4.0\text{A}$		2.5	V
$V_{BE(ON)}$	$V_{CE} = 2.0\text{V}, I_C = 10\text{A}$		1.5	V
$V_{BE(ON)}$	$V_{CE} = 4.0\text{V}, I_C = 20\text{A}$		2.5	V

(Continued on Reverse Side)

**ELECTRICAL CHARACTERISTICS** (Continued)

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>MIN</b>	<b>MAX</b>	<b>Units</b>
$h_{FE}$	$V_{CE}=2.0V, I_C=1.0A$	40		
$h_{FE}$	$V_{CE}=2.0V, I_C=10A$	15	60	
$h_{FE}$	$V_{CE}=4.0V, I_C=20A$	5.0		
$f_T$	$V_{CE}=10V, I_C=1.0A, f=1.0MHz$	2.0		MHz
$h_{fe}$	$V_{CE}=10V, I_C=1.0A, f=1.0kHz$	40		
$t_r$	$V_{CC}=30V, I_C=10A, I_{B1}=I_{B2}=1.0A$		1.0	$\mu s$
$t_s$	$V_{CC}=30V, I_C=10A, I_{B1}=I_{B2}=1.0A$		2.0	$\mu s$
$t_f$	$V_{CC}=30V, I_C=10A, I_{B1}=I_{B2}=1.0A$		1.0	$\mu s$

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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)
- 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

#### Corporate Headquarters & Customer Support Team

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