

2N5336 2N5338  
2N5337 2N5339

**SILICON  
NPN TRANSISTORS**



**TO-39 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N5336 series devices are silicon epitaxial planar NPN transistors designed for power amplifier and switching power supplies where very low saturation voltage and high speed switching at high current levels are needed.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Continuous Base Current  
Power Dissipation  
Operating and Storage Junction Temperature  
Thermal Resistance

SYMBOL	2N5336	2N5338	UNITS
	<u>2N5337</u>	<u>2N5339</u>	
$V_{CBO}$	80	100	V
$V_{CEO}$	80	100	V
$V_{EBO}$		6.0	V
$I_C$		5.0	A
$I_B$		1.0	A
$P_D$		6.0	W
$T_J, T_{stg}$	-65 to +200		$^\circ\text{C}$
$\Theta_{JC}$		29	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N5336		2N5338		UNITS
		2N5337		2N5339		
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> =Rated V <sub>CBO</sub>	-	10	-	10	μA
I <sub>CEV</sub>	V <sub>CE</sub> =75V, V <sub>EB</sub> =1.5V	-	10	-	-	μA
I <sub>CEV</sub>	V <sub>CE</sub> =90V, V <sub>EB</sub> =1.5V	-	-	-	10	μA
I <sub>CEV</sub>	V <sub>CE</sub> =75V, V <sub>EB</sub> =1.5V, T <sub>C</sub> =150°C	-	1.0	-	-	mA
I <sub>CEV</sub>	V <sub>CE</sub> =90V, V <sub>EB</sub> =1.5V, T <sub>C</sub> =150°C	-	-	-	1.0	mA
I <sub>CEO</sub>	V <sub>CE</sub> =75V	-	100	-	-	μA
I <sub>CEO</sub>	V <sub>CE</sub> =90V	-	-	-	100	μA
I <sub>EBO</sub>	V <sub>EB</sub> =6.0V	-	100	-	100	μA
BV <sub>CEO</sub>	I <sub>C</sub> =50mA	80	-	100	-	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =2.0A, I <sub>B</sub> =200mA	-	0.7	-	0.7	V
V <sub>CE</sub> (SAT)	I <sub>C</sub> =5.0A, I <sub>B</sub> =500mA	-	1.2	-	1.2	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =2.0A, I <sub>B</sub> =200mA	-	1.2	-	1.2	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =5.0A, I <sub>B</sub> =500mA	-	1.8	-	1.8	V
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =500mA (2N5336, 2N5338)	30	-	30	-	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =500mA (2N5337, 2N5339)	60	-	60	-	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =2.0A (2N5336, 2N5338)	30	120	30	120	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =2.0A (2N5337, 2N5339)	60	240	60	240	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =5.0A (2N5336, 2N5338)	20	-	20	-	
h <sub>FE</sub>	V <sub>CE</sub> =2.0V, I <sub>C</sub> =5.0A (2N5337, 2N5339)	40	-	40	-	

R1 (4-April 2014)

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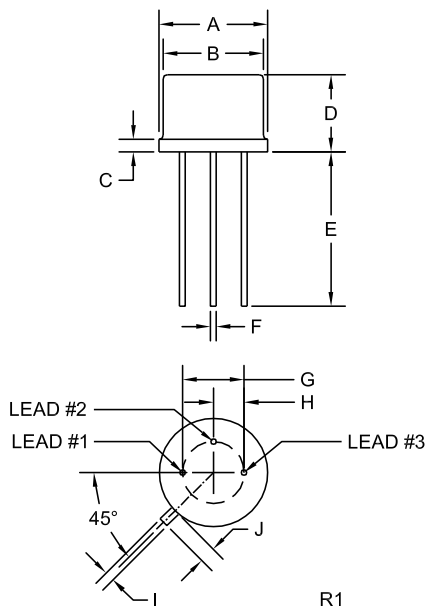
**SILICON  
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N5336		2N5338		UNITS
		2N5337		2N5339		
		MIN	MAX	MIN	MAX	
$f_T$	$V_{CE}=10\text{V}$ , $I_C=500\text{mA}$ , $f=10\text{MHz}$	30	-	30	-	MHz
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=100\text{kHz}$	-	250	-	250	pF
$C_{ib}$	$V_{BE}=2.0\text{V}$ , $I_C=0$ , $f=100\text{kHz}$	-	1.0	-	1.0	nF
$t_{on}$	$V_{CC}=40\text{V}$ , $I_C=2.0\text{A}$ , $I_{B1}=200\text{mA}$	-	200	-	200	ns
$t_s$	$V_{CC}=40\text{V}$ , $I_C=2.0\text{A}$ , $I_{B1}=I_{B2}=200\text{mA}$	-	2.0	-	2.0	$\mu\text{s}$
$t_f$	$V_{CC}=40\text{V}$ , $I_C=2.0\text{A}$ , $I_{B1}=I_{B2}=200\text{mA}$	-	200	-	200	ns

**TO-39 CASE - MECHANICAL OUTLINE**



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

**LEAD CODE:**

- 1) Emitter
- 2) Base
- 3) Collector

**MARKING: FULL PART NUMBER**

R1 (4-April 2014)

## 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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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)



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## Product End of Life Notification

PDN ID:	PDN01121
Notification Date:	3/21/19
Last Buy Date:	Stock Only
Last Shipment Date	Stock Only

Please be advised that Central Semiconductor must immediately discontinue the product(s) listed in the attached PDN notice. We are unable to accept any further orders for these products unless we have available inventory on hand.

You may have purchased one or more of the products listed. Please do not hesitate to contact your local Central Semiconductor sales representative with any questions or needs you may have. Central regrets any inconvenience this may cause.

Sincerely,

Central Semiconductor Corp.

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DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. 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.



<http://www.centrasemi.com>

# Product End of Life Notification

<b>PDN ID:</b>	PDN01121
<b>Notification Date:</b>	3/21/19
<b>Last Buy Date:</b>	Stock Only
<b>Last Shipment Date</b>	Stock Only

Summary: The CP219 transistor die process is discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. 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 Management Process. 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.

<b>Central Part Number</b>	<b>Replacement</b>
CP219-2N5338-WN	N/A, Stock Only
CP219-2N5339-CM	N/A, Stock Only
CP219-2N5339-CT	N/A, Stock Only
CP219-2N5339-WN	N/A, Stock Only
2N5339	N/A, Stock Only
2N5430	N/A, Stock Only

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. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. 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.