

2N5336 2N5338
2N5337 2N5339

**SILICON
NPN TRANSISTORS**



TO-39 CASE



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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
	2N5337	2N5339	
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		$^\circ\text{C}$
θ_{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	2N5337	2N5339	
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}$	-	10	-	10	μA
I_{CEV}	$V_{CE}=75\text{V}, V_{EB}=1.5\text{V}$	-	10	-	-	μA
I_{CEV}	$V_{CE}=90\text{V}, V_{EB}=1.5\text{V}$	-	-	-	10	μA
I_{CEV}	$V_{CE}=75\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$	-	1.0	-	-	mA
I_{CEV}	$V_{CE}=90\text{V}, V_{EB}=1.5\text{V}, T_C=150^\circ\text{C}$	-	-	-	1.0	mA
I_{CEO}	$V_{CE}=75\text{V}$	-	100	-	-	μA
I_{CEO}	$V_{CE}=90\text{V}$	-	-	-	100	μA
I_{EBO}	$V_{EB}=6.0\text{V}$	-	100	-	100	μA
BV_{CEO}	$I_C=50\text{mA}$	80	-	100	-	V
$V_{CE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$	-	0.7	-	0.7	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$	-	1.2	-	1.2	V
$V_{BE(SAT)}$	$I_C=2.0\text{A}, I_B=200\text{mA}$	-	1.2	-	1.2	V
$V_{BE(SAT)}$	$I_C=5.0\text{A}, I_B=500\text{mA}$	-	1.8	-	1.8	V
h_{FE}	$V_{CE}=2.0\text{V}, I_C=500\text{mA}$ (2N5336, 2N5338)	30	-	30	-	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=500\text{mA}$ (2N5337, 2N5339)	60	-	60	-	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=2.0\text{A}$ (2N5336, 2N5338)	30	120	30	120	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=2.0\text{A}$ (2N5337, 2N5339)	60	240	60	240	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=5.0\text{A}$ (2N5336, 2N5338)	20	-	20	-	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=5.0\text{A}$ (2N5337, 2N5339)	40	-	40	-	

R1 (4-April 2014)

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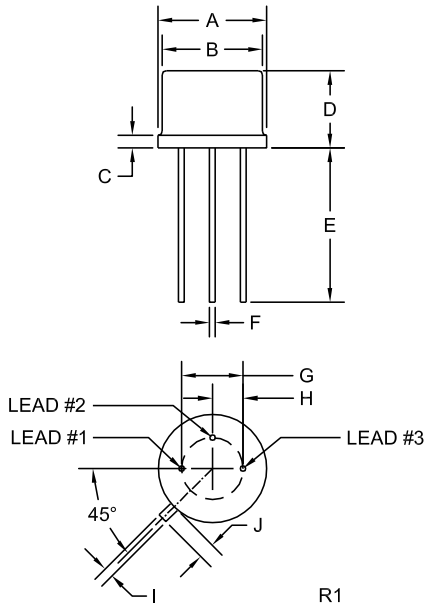
SILICON
NPN TRANSISTORS



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

SYMBOL	TEST CONDITIONS	2N5336		2N5338		UNITS
		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	μs
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



SYMBOL	DIMENSIONS			
	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



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).

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