



**THE DATASHEET OF**  
**2N5306**



2N5306  
2N5308

**SILICON  
NPN DARLINGTON TRANSISTORS**



**TO-92 CASE**



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N5306 and 2N5308 are silicon NPN epitaxial planar Darlington transistors designed for high gain amplifier applications.

**MARKING: FULL PART NUMBER**

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

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Peak Collector Current
Continuous Base Current
Power Dissipation
Power Dissipation ( $T_C=25^\circ\text{C}$ )
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL	2N5306	2N5308	UNITS
$V_{CB0}$	25	40	V
$V_{CEO}$	25	40	V
$V_{EBO}$		12	V
$I_C$		300	mA
$I_{CM}$		500	mA
$I_B$		100	mA
$P_D$		625	mW
$P_D$		1.5	W
$T_J, T_{stg}$		-65 to +150	$^\circ\text{C}$
$\theta_{JA}$		200	$^\circ\text{C/W}$
$\theta_{JC}$		83.3	$^\circ\text{C/W}$

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

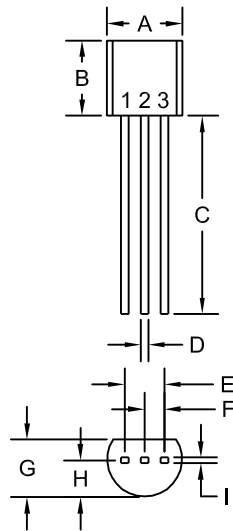
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CBO}$	$V_{CB}=\text{Rated } V_{CB0}$			100	nA
$I_{CBO}$	$V_{CB}=\text{Rated } V_{CB0}, T_A=100^\circ\text{C}$			20	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=12\text{V}$			100	nA
$BV_{CB0}$	$I_C=10\mu\text{A}$ (2N5306)	25			V
$BV_{CB0}$	$I_C=10\mu\text{A}$ (2N5308)	40			V
$BV_{CEO}$	$I_C=10\text{mA}$ (2N5306)	25			V
$BV_{CEO}$	$I_C=10\text{mA}$ (2N5308)	40			V
$BV_{EBO}$	$I_E=10\mu\text{A}$	12			V
$V_{CE(\text{SAT})}$	$I_C=200\text{mA}, I_B=200\mu\text{A}$			1.4	V
$V_{BE(\text{SAT})}$	$I_C=200\text{mA}, I_B=200\mu\text{A}$			1.6	V
$V_{BE(\text{ON})}$	$V_{CE}=5.0\text{V}, I_C=200\text{mA}$			1.5	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}$	7.0K		70K	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	20K			
$h_{fe}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=1.0\text{kHz}$	7.0K			
$ h_{fe} $	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=10\text{MHz}$	15.6			
$h_{ie}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=1.0\text{kHz}$		650		k $\Omega$
$f_T$	$V_{CE}=5.0\text{V}, I_C=2.0\text{mA}, f=10\text{MHz}$	60			MHz
$C_{cb}$	$V_{CB}=10\text{V}, f=1.0\text{MHz}$			10	pF
$C_{eb}$	$V_{EB}=0.5\text{V}, f=1.0\text{MHz}$		12		pF

R2 (13-January 2016)

**2N5306**  
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**TO-92 CASE - MECHANICAL OUTLINE**



R1

SYMBOL	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) Collector
- 3) Base

**MARKING:**  
**FULL PART NUMBER**

R2 (13-January 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)
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- 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

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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