

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

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

2N5306  
2N5308

NPN SILICON  
DARLINGTON TRANSISTOR

JEDEC TO-92 CASE (ECB)

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5306, 2N5308 types are NPN Silicon Epitaxial Planar Darlington Transistors designed for high gain amplifier applications.

## MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

	SYMBOL	2N5306	2N5308	UNITS
Collector-Base Voltage	V <sub>CB0</sub>	25	40	V
Collector-Emitter Voltage	V <sub>CEO</sub>	25	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	12		V
Continuous Collector Current	I <sub>C</sub>	300		mA
Peak Collector Current	I <sub>CM</sub>	500		mA
Continuous Base Current	I <sub>B</sub>	50		mA
Power Dissipation	P <sub>D</sub>	625		mW
Power Dissipation (T <sub>C</sub> = 25°C)	P <sub>D</sub>	1.5		W
Operating and Storage				
Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150		°C
Thermal Resistance	θ <sub>JA</sub>	200		°C/W
Thermal Resistance	θ <sub>JC</sub>	83.3		°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N5306		2N5308		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> = Rated V <sub>CB0</sub>		100		100	nA
I <sub>CBO</sub>	V <sub>CB</sub> = Rated V <sub>CB0</sub> , T <sub>A</sub> = 100°C		20		20	μA
I <sub>EBO</sub>	V <sub>EB</sub> = 12V		100		100	nA
BV <sub>CB0</sub>	I <sub>C</sub> = 100nA	25		40		V
BV <sub>CEO</sub>	I <sub>C</sub> = 10mA	25		40		V
BV <sub>EBO</sub>	I <sub>E</sub> = 100nA	12		12		V
V <sub>CE(SAT)</sub>	I <sub>C</sub> = 200mA, I <sub>B</sub> = 0.2mA		1.4		1.4	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> = 200mA, I <sub>B</sub> = 0.2mA		1.6		1.6	V
V <sub>BE(ON)</sub>	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 200mA		1.5		1.5	V
h <sub>FE</sub>	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 2.0mA	7K	70K	7K	70K	
h <sub>FE</sub>	V <sub>CE</sub> = 5.0V, I <sub>C</sub> = 100mA	20K		20K		

(Continued on Reverse Side)

ELECTRICAL CHARACTERISTICS (Continued)

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
$h_{fe}$	$V_{CE} = 5.0V, I_C = 2.0mA, f = 1.0kHz$	7K			
$ h_{fe} $	$V_{CE} = 5.0V, I_C = 2.0mA, f = 10MHz$	15.6			dB
$f_T$	$V_{CE} = 5.0V, I_C = 2.0mA, f = 10MHz$	60			MHz
$h_{ie}$	$V_{CE} = 5.0V, I_C = 2.0mA, f = 1.0kHz$		650		k $\Omega$
$C_{cb}$	$V_{CB} = 10V, f = 1.0MHz$			10	pF
$C_{eb}$	$V_{EB} = 0.5V, f = 1.0MHz$		12		pF

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