

CentralTM Semiconductor Corp.

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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 ($T_A = 25^\circ\text{C}$)

	SYMBOL	2N5306	2N5308	UNITS
Collector-Base Voltage	V_{CBO}	25	40	V
Collector-Emitter Voltage	V_{CEO}	25	40	V
Emitter-Base Voltage	V_{EBO}	12		V
Continuous Collector Current	I_C	300		mA
Peak Collector Current	I_{CM}	500		mA
Continuous Base Current	I_B	50		mA
Power Dissipation	P_D	625		mW
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	1.5		W
Operating and Storage				
Junction Temperature	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Thermal Resistance	Θ_{JA}	200		$^\circ\text{C/W}$
Thermal Resistance	Θ_{JC}	83.3		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N5306		2N5308		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB} = \text{Rated } V_{CBO}$		100		100	nA
I_{CBO}	$V_{CB} = \text{Rated } V_{CBO}, T_A = 100^\circ\text{C}$		20		20	μA
I_{EBO}	$V_{EB} = 12\text{V}$		100		100	nA
BV_{CBO}	$I_C = 100\text{nA}$	25		40		V
BV_{CEO}	$I_C = 10\text{mA}$	25		40		V
BV_{EBO}	$I_E = 100\text{nA}$	12		12		V
$V_{CE(\text{SAT})}$	$I_C = 200\text{mA}, I_B = 0.2\text{mA}$		1.4		1.4	V
$V_{BE(\text{SAT})}$	$I_C = 200\text{mA}, I_B = 0.2\text{mA}$		1.6		1.6	V
$V_{BE(\text{ON})}$	$V_{CE} = 5.0\text{V}, I_C = 200\text{mA}$		1.5		1.5	V
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 2.0\text{mA}$	7K	70K	7K	70K	
h_{FE}	$V_{CE} = 5.0\text{V}, I_C = 100\text{mA}$	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 Ω
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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