

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	$^\circ\text{C}$
θ_{JA}		200	$^\circ\text{C/W}$
θ_{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	μA
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
$V_{CE(SAT)}$	$I_C=200\text{mA}, I_B=200\mu\text{A}$			1.4	V
$V_{BE(SAT)}$	$I_C=200\text{mA}, I_B=200\mu\text{A}$			1.6	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=200\text{mA}$			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 Ω
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)

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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



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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