

2N4296
2N4298
2N4299

**SILICON
NPN POWER TRANSISTORS**



TO-66 CASE



www.centralemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4296, 2N4298, and 2N4299 devices are silicon NPN power transistors designed for power amplifier and switching applications.

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	2N4296	2N4298	2N4299	UNITS
V_{CBO}	350	500	350	V
V_{CEO}	250	350	250	V
V_{EBO}		4.0		V
I_{C}		1.0		A
I_{B}		250		mA
P_{D}		20		W
$T_{\text{J}}, T_{\text{stg}}$		-65 to +175		$^{\circ}\text{C}$
Θ_{JC}		7.5		$^{\circ}\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N4296		2N4298		2N4299		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CEV}	$V_{\text{CE}}=150\text{V}, V_{\text{BE}}=1.5\text{V}, T_C=135^{\circ}\text{C}$	-	600	-	600	-	600	μA
I_{CBO}	$V_{\text{CB}}=350\text{V}$	-	100	-	-	-	100	μA
I_{CBO}	$V_{\text{CB}}=500\text{V}$	-	-	-	100	-	-	μA
I_{EBO}	$V_{\text{BE}}=4.0\text{V}$	-	100	-	100	-	100	μA
BV_{CEO}	$I_{\text{C}}=50\text{mA}$	200	-	350	-	250	-	V
$V_{\text{CE(SAT)}}$	$I_{\text{C}}=50\text{mA}, I_{\text{B}}=5.0\text{mA}$	-	0.9	-	0.9	-	0.75	V
$V_{\text{BE(SAT)}}$	$I_{\text{C}}=50\text{mA}, I_{\text{B}}=5.0\text{mA}$	-	1.5	-	1.5	-	1.5	V
$V_{\text{BE(ON)}}$	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=100\text{mA}$	-	0.9	-	0.9	-	0.9	V
h_{FE}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=5.0\text{mA}$	35	-	20	-	35	-	
h_{FE}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=50\text{mA}$	50	150	25	75	50	150	
h_{FE}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=100\text{mA}$	35	-	20	-	35	-	
f_{T}	$V_{\text{CE}}=10\text{V}, I_{\text{C}}=20\text{mA}, f=5.0\text{MHz}$	20	-	20	-	20	-	MHz
C_{cb}	$V_{\text{CB}}=100\text{V}, I_{\text{C}}=0, f=0.1$ to 1.0MHz	-	6.0	-	6.0	-	6.0	pF
t_{on}	$V_{\text{CC}}=100\text{V}, I_{\text{C}}=100\text{mA}, I_{\text{B1}}=I_{\text{B2}}=10\text{mA}$	-	7.0	-	7.0	-	7.0	μs
t_{off}	$V_{\text{CC}}=200\text{V}, I_{\text{C}}=100\text{mA}, I_{\text{B1}}=I_{\text{B2}}=10\text{mA}$	-	10	-	10	-	10	μs
$I_{\text{S/b}}$	$V_{\text{CE}}=200\text{V}$	75	-	75	-	75	-	mA

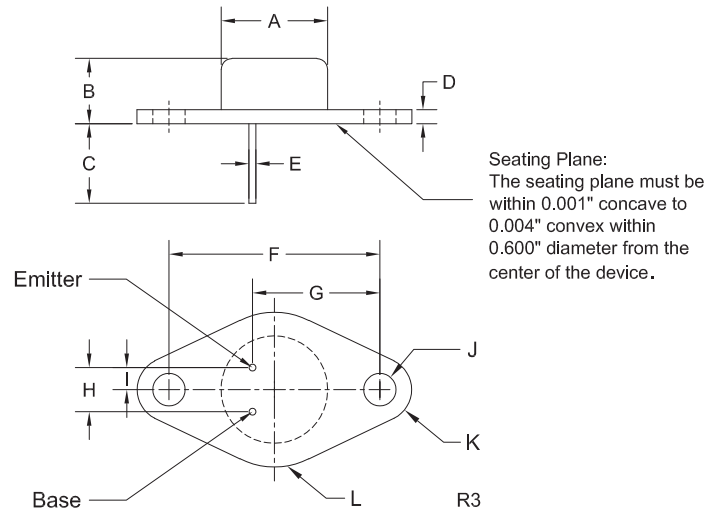
R1 (2-September 2014)

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TO-66 CASE - MECHANICAL OUTLINE



MARKING:
FULL PART NUMBER

DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.470	0.500	11.94	12.70
B	0.250	0.340	6.35	8.64
C	0.360	-	9.14	-
D	0.050	0.075	1.27	1.91
E (DIA)	0.028	0.034	0.71	0.86
F	0.956	0.964	24.28	24.48
G	0.570	0.590	14.48	14.99
H	0.190	0.210	4.83	5.33
I	0.093	0.107	2.36	2.72
J (DIA)	0.142	0.152	3.61	3.86
K (RAD)	0.141		3.58	
L (RAD)	0.345		8.76	

TO-66 (REV:R3)

R1 (2-September 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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