

2N4904 2N4905 2N4906 PNP
2N4913 2N4914 2N4915 NPN

**COMPLEMENTARY SILICON
POWER TRANSISTORS**



TO-3 CASE



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4904, 2N4913 series types are complementary silicon power transistors, manufactured by the epitaxial base process, designed for general purpose 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	2N4904	2N4905	2N4906	UNITS
	2N4913	2N4914	2N4915	
V_{CBO}	40	60	80	V
V_{CEO}	40	60	80	V
V_{EBO}		5.0		V
I_C		5.0		A
I_B		1.0		A
P_D		87.5		W
T_J, T_{stg}		-65 to +200		$^\circ\text{C}$
θ_{JC}		2.0		$^\circ\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	PNP		NPN		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=\text{Rated } V_{CBO}$	-	0.1	-	1.0	mA
I_{CEO}	$V_{CE}=\text{Rated } V_{CEO}$	-	1.0	-	1.0	mA
I_{CEV}	$V_{CE}=\text{Rated } V_{CEO}, V_{BE}=1.5\text{V}$	-	0.1	-	1.0	mA
I_{CEV}	$V_{CE}=\text{Rated } V_{CEO}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$	-	2.0	-	2.0	mA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	1.0	-	1.0	mA
BV_{CEO}	$I_C=200\text{mA}$ (2N4904, 2N4913)	40	-	40	-	V
BV_{CEO}	$I_C=200\text{mA}$ (2N4905, 2N4914)	60	-	60	-	V
BV_{CEO}	$I_C=200\text{mA}$ (2N4906, 2N4915)	80	-	80	-	V
$V_{CE(SAT)}$	$I_C=2.5\text{A}, I_B=250\text{mA}$	-	1.0	-	1.0	V
$V_{CE(SAT)}$	$I_C=5.0\text{A}, I_B=1.0\text{A}$	-	1.5	-	1.5	V
$V_{BE(ON)}$	$V_{CE}=2.0\text{V}, I_C=2.5\text{A}$	-	1.4	-	1.4	V
h_{FE}	$V_{CE}=2.0\text{V}, I_C=2.5\text{A}$	25	100	25	100	
h_{FE}	$V_{CE}=2.0\text{V}, I_C=5.0\text{A}$	7.0	-	7.0	-	
h_{fe}	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1.0\text{kHz}$	40	-	20	-	
f_T	$V_{CE}=10\text{V}, I_C=1.0\text{A}, f=1.0\text{MHz}$	4.0	-	4.0	-	MHz

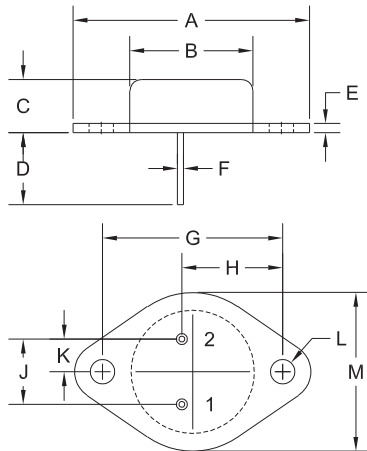
R1 (7-March 2013)

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TO-3 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.516	1.573	38.50	39.96
B (DIA)	0.748	0.875	19.00	22.23
C	0.250	0.450	6.35	11.43
D	0.433	0.516	11.00	13.10
E	0.054	0.065	1.38	1.65
F	0.035	0.045	0.90	1.15
G	1.177	1.197	29.90	30.40
H	0.650	0.681	16.50	17.30
J	0.420	0.440	10.67	11.18
K	0.205	0.225	5.21	5.72
L (DIA)	0.151	0.172	3.84	4.36
M	0.984	1.050	25.00	26.67

TO-3 (REV: R2)

R2

LEAD CODE:

- 1) Base
- 2) Emitter
- Case) Collector

MARKING:

FULL PART NUMBER

R1 (7-March 2013)

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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