Data Sheet

# Central Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

## 2N4904 THRU 2N4906 PNP
## 2N4913 THRU 2N4915 NPN

COMPLEMENTARY SILICON POWER TRANSISTORS

JEDEC TO-3 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4904, 4913 series types are complementary silicon power transistors manufactured by the epitaxial base process, mounted in a hermetically sealed metal case, designed for general purpose amplifier and switching application.

## MAXIMUM RATINGS ($T_C$=25°C)

| | SYMBOL | 2N4904 2N4913 | 2N4905 2N4914 | 2N4906 2N4915 | UNIT |
|---|---|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 40 | 60 | 80 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 40 | 60 | 80 | V |
| Emitter-Base Voltage | $V_{EBO}$ | | 5.0 | | V |
| Collector Current | $I_C$ | | 5.0 | | A |
| Base Current | $I_B$ | | 1.0 | | A |
| Power Dissipation | $P_D$ | | 87.5 | | W |
| Operating and Storage Junction Temperature | $T_J$, $T_{STG}$ | | -65 to +200 | | °C |
| Thermal Resistance | $\Theta_{JC}$ | | 2.0 | | °C/W |

## ELECTRICAL CHARACTERISTICS ($T_C$=25°C unless otherwise noted)

| SYMBOL | TEST CONDITIONS | PNP TYPES MIN | PNP TYPES MAX | NPN TYPES MIN | NPN TYPES MAX | UNIT |
|---|---|---|---|---|---|---|
| $I_{CBO}$ | $V_{CB}$=Rated $V_{CBO}$ | | 0.1 | | 1.0 | mA |
| $I_{CEO}$ | $V_{CE}$=Rated $V_{CEO}$ | | 1.0 | | 1.0 | mA |
| $I_{CEV}$ | $V_{CE}$=Rated $V_{CEO}$, $V_{BE(OFF)}$=1.5V | | 0.1 | | 1.0 | mA |
| $I_{CEV}$ | $V_{CE}$=Rated $V_{CEO}$, $V_{BE(OFF)}$=1.5V, $T_C$=150°C | | 2.0 | | 2.0 | mA |
| $I_{EBO}$ | $V_{BE}$=5.0V | | 1.0 | | 1.0 | mA |
| $BV_{CEO}$ | $I_C$=0.2A (2N4904, 2N4913) | 40 | | 40 | | V |
| $BV_{CEO}$ | $I_C$=0.2A (2N4905, 2N4914) | 60 | | 60 | | V |
| $BV_{CEO}$ | $I_C$=0.2A (2N4906, 2N4915) | 80 | | 80 | | V |
| $V_{CE(SAT)}$ | $I_C$=2.5A, $I_B$=250mA | | 1.0 | | 1.0 | V |
| $V_{CE(SAT)}$ | $I_C$=5.0A, $I_B$=1.0A | | 1.5 | | 1.5 | V |
| $V_{BE(ON)}$ | $V_{CE}$=2.0V, $I_C$=2.5A | | 1.4 | | 1.4 | V |
| $h_{FE}$ | $V_{CE}$=2.0V, $I_C$=2.5A | 25 | 100 | 25 | 100 | |
| $h_{FE}$ | $V_{CE}$=2.0V, $I_C$=5.0A | 7.0 | - | 7.0 | - | |
| $h_{fe}$ | $V_{CE}$=10V, $I_C$=500mA, f=1.0kHz | 40 | - | 20 | - | |
| $f_T$ | $V_{CE}$=10V, $I_C$=1.0A, f=1.0MHz | 4.0 | | 4.0 | | MHz |