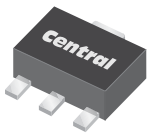
**CXT3904 NPN**
**CXT3906 PNP**

**SURFACE MOUNT SILICON COMPLEMENTARY TRANSISTORS**




**SOT-89 CASE**

Central Semiconductor Corp.

www.centralsemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CXT3904 and CXT3906 are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

**MARKING: FULL PART NUMBER**

| **MAXIMUM RATINGS:** ($T_A$=25°C) | **SYMBOL** | **CXT3904** | **CXT3906** | **UNITS** |
|---|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 60 | 40 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 40 | 40 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 6.0 | 5.0 | V |
| Continuous Collector Current | $I_C$ | 200 | | mA |
| Power Dissipation | $P_D$ | 1.2 | | W |
| Operating and Storage Junction Temperature | $T_J$, $T_{stg}$ | -65 to +150 | | °C |
| Thermal Resistance | $\Theta_{JA}$ | 104 | | °C/W |

**ELECTRICAL CHARACTERISTICS**: ($T_A$=25°C unless otherwise noted)

| | | **CXT3904** | | **CXT3906** | | |
|---|---|---|---|---|---|---|
| **SYMBOL** | **TEST CONDITIONS** | **MIN** | **MAX** | **MIN** | **MAX** | **UNITS** |
| $I_{CEV}$ | $V_{CE}$=30V, $V_{EB}$=3.0V | - | 50 | - | 50 | nA |
| $I_{BL}$ | $V_{CE}$=30V, $V_{EB}$=3.0V | - | 50 | - | 50 | nA |
| $BV_{CBO}$ | $I_C$=10μA | 60 | - | 40 | - | V |
| $BV_{CEO}$ | $I_C$=1.0mA | 40 | - | 40 | - | V |
| $BV_{EBO}$ | $I_E$=10μA | 6.0 | - | 5.0 | - | V |
| $V_{CE(SAT)}$ | $I_C$=10mA, $I_B$=1.0mA | - | 0.20 | - | 0.25 | V |
| $V_{CE(SAT)}$ | $I_C$=50mA, $I_B$=5.0mA | - | 0.30 | - | 0.40 | V |
| $V_{BE(SAT)}$ | $I_C$=10mA, $I_B$=1.0mA | 0.65 | 0.85 | 0.65 | 0.85 | V |
| $V_{BE(SAT)}$ | $I_C$=50mA, $I_B$=5.0mA | - | 0.95 | - | 0.95 | V |
| $h_{FE}$ | $V_{CE}$=1.0V, $I_C$=0.1mA | 40 | - | 60 | - | |
| $h_{FE}$ | $V_{CE}$=1.0V, $I_C$=1.0mA | 70 | - | 80 | - | |
| $h_{FE}$ | $V_{CE}$=1.0V, $I_C$=10mA | 100 | 300 | 100 | 300 | |
| $h_{FE}$ | $V_{CE}$=1.0V, $I_C$=50mA | 60 | - | 60 | - | |
| $h_{FE}$ | $V_{CE}$=1.0V, $I_C$=100mA | 30 | - | 30 | - | |

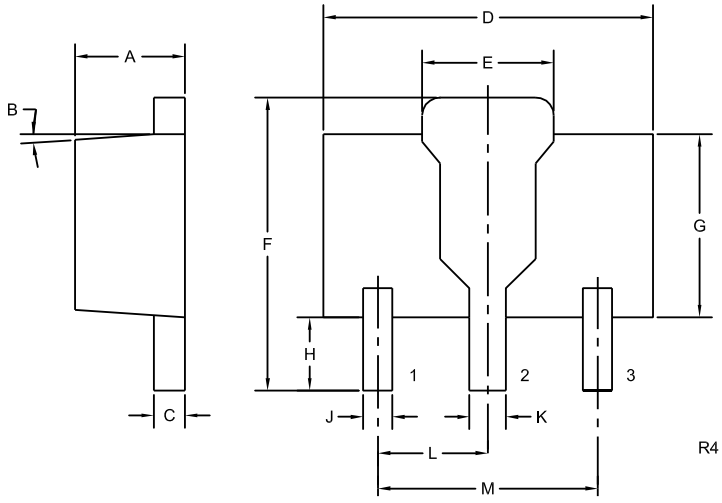
**CXT3904 NPN**
**CXT3906 PNP**

**SURFACE MOUNT SILICON COMPLEMENTARY TRANSISTORS**

**ELECTRICAL CHARACTERISTICS - Continued:** ($T_A$=25°C unless otherwise noted)

| | | CXT3904 | | CXT3906 | | |
|---|---|---|---|---|---|---|
| **SYMBOL** | **TEST CONDITIONS** | **MIN** | **MAX** | **MIN** | **MAX** | **UNITS** |
| $f_T$ | $V_{CE}$=20V, $I_C$=10mA, f=100MHz | 300 | - | 250 | - | MHz |
| $C_{ob}$ | $V_{CB}$=5.0V, $I_E$=0, f=1.0MHz | - | 4.0 | - | 4.5 | pF |
| $C_{ib}$ | $V_{BE}$=0.5V, $I_C$=0, f=1.0MHz | - | 12 | - | 10 | pF |
| $h_{ie}$ | $V_{CE}$=10V, $I_C$=1.0mA, f=1.0kHz | 1.0 | 10 | 2.0 | 12 | kΩ |
| $h_{re}$ | $V_{CE}$=10V, $I_C$=1.0mA, f=1.0kHz | 0.5 | 8.0 | 0.1 | 10 | $x10^{-4}$ |
| $h_{fe}$ | $V_{CE}$=10V, $I_C$=1.0mA, f=1.0kHz | 100 | 400 | 100 | 400 | |
| $h_{oe}$ | $V_{CE}$=10V, $I_C$=1.0mA, f=1.0kHz | 1.0 | 40 | 3.0 | 60 | mS |
| NF | $V_{CE}$=5.0V, $I_C$=100μA, $R_S$=1.0kΩ, f=10Hz to 15.7kHz | - | 5.0 | - | 4.0 | dB |
| $t_d$ | $V_{CC}$=3.0V, $V_{BE}$=0.5, $I_C$=10mA, $I_{B1}$=1.0mA | - | 35 | - | 35 | ns |
| $t_r$ | $V_{CC}$=3.0V, $V_{BE}$=0.5, $I_C$=10mA, $I_{B1}$=1.0mA | - | 35 | - | 35 | ns |
| $t_s$ | $V_{CC}$=3.0V, $I_C$=10mA, $I_{B1}$=$I_{B2}$=1.0mA | - | 200 | - | 225 | ns |
| $t_f$ | $V_{CC}$=3.0V, $I_C$=10mA, $I_{B1}$=$I_{B2}$=1.0mA | - | 50 | - | 75 | ns |

## SOT-89 CASE - MECHANICAL OUTLINE




(Bottom View)

| DIMENSIONS | | | | |
|---|---|---|---|---|
| | INCHES | | MILLIMETERS | |
| SYMBOL | MIN | MAX | MIN | MAX |
| A | 0.055 | 0.067 | 1.40 | 1.70 |
| B | 4° | | 4° | |
| C | 0.014 | 0.018 | 0.35 | 0.46 |
| D | 0.173 | 0.185 | 4.40 | 4.70 |
| E | 0.064 | 0.074 | 1.62 | 1.87 |
| F | 0.146 | 0.177 | 3.70 | 4.50 |
| G | 0.090 | 0.106 | 2.29 | 2.70 |
| H | 0.028 | 0.051 | 0.70 | 1.30 |
| J | 0.014 | 0.019 | 0.36 | 0.48 |
| K | 0.017 | 0.023 | 0.44 | 0.58 |
| L | 0.059 | | 1.50 | |
| M | 0.118 | | 3.00 | |

SOT-89 (REV: R4)

**LEAD CODE:**
1) Emitter
2) Collector
3) Base

**MARKING:**
**FULL PART NUMBER**

R8 (25-September 2018)

## 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).

### CONTACT US

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