

CMPT2222A
SURFACE MOUNT
NPN SILICON TRANSISTOR



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal, general purpose and switching applications.

MARKING CODE: C1P



SOT-23 CASE

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

| |
|--|
| Collector-Base Voltage |
| Collector-Emitter Voltage |
| Emitter-Base Voltage |
| Continuous Collector Current |
| Power Dissipation |
| Operating and Storage Junction Temperature |
| Thermal Resistance |

| SYMBOL | | UNITS |
|----------------|-------------|--------------------|
| V_{CBO} | 75 | V |
| V_{CEO} | 40 | V |
| V_{EBO} | 6.0 | V |
| I_C | 600 | mA |
| P_D | 350 | mW |
| T_J, T_{stg} | -65 to +150 | $^\circ\text{C}$ |
| θ_{JA} | 357 | $^\circ\text{C/W}$ |

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

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|---------------|---|-----|-----|---------------|
| I_{CBO} | $V_{CB}=60\text{V}$ | | 10 | nA |
| I_{CBO} | $V_{CB}=60\text{V}, T_A=125^\circ\text{C}$ | | 10 | μA |
| I_{CEV} | $V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$ | | 10 | nA |
| I_{EBO} | $V_{EB}=3.0\text{V}$ | | 10 | nA |
| BV_{CBO} | $I_C=10\mu\text{A}$ | 75 | | V |
| BV_{CEO} | $I_C=10\text{mA}$ | 40 | | V |
| BV_{EBO} | $I_E=10\mu\text{A}$ | 6.0 | | V |
| $V_{CE(SAT)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$ | | 0.3 | V |
| $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | 1.0 | V |
| $V_{BE(SAT)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$ | 0.6 | 1.2 | V |
| $V_{BE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | 2.0 | V |
| h_{FE} | $V_{CE}=10\text{V}, I_C=0.1\text{mA}$ | 35 | | |
| h_{FE} | $V_{CE}=10\text{V}, I_C=1.0\text{mA}$ | 50 | | |
| h_{FE} | $V_{CE}=10\text{V}, I_C=10\text{mA}$ | 75 | | |
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=150\text{mA}$ | 50 | | |
| h_{FE} | $V_{CE}=10\text{V}, I_C=150\text{mA}$ | 100 | 300 | |
| h_{FE} | $V_{CE}=10\text{V}, I_C=500\text{mA}$ | 40 | | |
| f_T | $V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$ | 300 | | MHz |
| C_{ob} | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$ | | 8.0 | pF |
| C_{ib} | $V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$ | | 25 | pF |

R5 (1-February 2010)

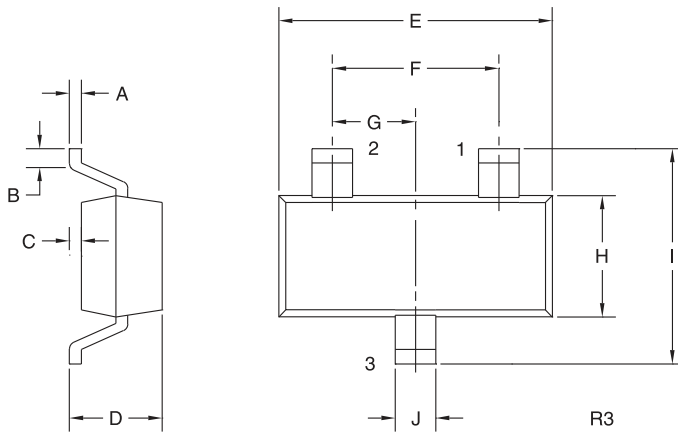
CMPT2222A
SURFACE MOUNT
NPN SILICON TRANSISTOR



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

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|-----------|---|------|------|------------------|
| h_{ie} | $V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$ | 2.0 | 8.0 | $k\Omega$ |
| h_{ie} | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$ | 0.25 | 1.25 | $k\Omega$ |
| h_{re} | $V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$ | | 8.0 | $\times 10^{-4}$ |
| h_{re} | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$ | | 4.0 | $\times 10^{-4}$ |
| h_{fe} | $V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$ | 50 | 300 | |
| h_{fe} | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$ | 75 | 375 | |
| h_{oe} | $V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$ | 5.0 | 35 | μS |
| h_{oe} | $V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$ | 25 | 200 | μS |
| rb^*C_C | $V_{CB}=10\text{V}, I_E=20\text{mA}, f=31.8\text{MHz}$ | | 150 | ps |
| NF | $V_{CE}=10\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{K}\Omega, f=1.0\text{kHz}$ | | 4.0 | dB |
| t_d | $V_{CC}=30\text{V}, V_{BE}=0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$ | | 10 | ns |
| t_r | $V_{CC}=30\text{V}, V_{BE}=0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$ | | 25 | ns |
| t_s | $V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$ | | 225 | ns |
| t_f | $V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$ | | 60 | ns |

SOT-23 CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS | | DIMENSIONS | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.003 | 0.007 | 0.08 | 0.18 |
| B | 0.006 | - | 0.15 | - |
| C | - | 0.005 | - | 0.13 |
| D | 0.035 | 0.043 | 0.89 | 1.09 |
| E | 0.110 | 0.120 | 2.80 | 3.05 |
| F | 0.075 | | 1.90 | |
| G | 0.037 | | 0.95 | |
| H | 0.047 | 0.055 | 1.19 | 1.40 |
| I | 0.083 | 0.098 | 2.10 | 2.49 |
| J | 0.014 | 0.020 | 0.35 | 0.50 |

SOT-23 (REV: R3)

LEAD CODE:

- 1) Base
- 2) Emitter
- 3) Collector

MARKING CODE: C1P

R5 (1-February 2010)

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

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centrasemi.com

Worldwide Field Representatives:
www.centrasemi.com/wwreps

Worldwide Distributors:
www.centrasemi.com/wwdistributors

For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: www.centrasemi.com/terms