

CMPT4401 NPN  
CMPT4403 PNP

**SURFACE MOUNT  
COMPLEMENTARY  
SILICON TRANSISTORS**



**SOT-23 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT4401 and CMPT4403 are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose amplifier and switching applications.

**MARKING CODES: CMPT4401: C2X  
CMPT4403: C2T**

**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         | CMPT4401    | CMPT4403 | UNITS                |
|----------------|-------------|----------|----------------------|
| $V_{CBO}$      | 60          | 40       | V                    |
| $V_{CEO}$      | 40          | 40       | V                    |
| $V_{EBO}$      | 6.0         | 5.0      | V                    |
| $I_C$          | 600         |          | mA                   |
| $P_D$          | 225         |          | mW                   |
| $T_J, T_{stg}$ | -65 to +150 |          | $^{\circ}\text{C}$   |
| $\Theta_{JA}$  | 556         |          | $^{\circ}\text{C/W}$ |

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

| SYMBOL        | TEST CONDITIONS                                       | CMPT4401 |      | CMPT4403 |      | UNITS         |
|---------------|-------------------------------------------------------|----------|------|----------|------|---------------|
|               |                                                       | MIN      | MAX  | MIN      | MAX  |               |
| $I_{CEV}$     | $V_{CE}=35\text{V}, V_{EB}=0.4\text{V}$               | -        | 0.1  | -        | 0.1  | $\mu\text{A}$ |
| $I_{BEV}$     | $V_{CE}=35\text{V}, V_{EB}=0.4\text{V}$               | -        | 0.1  | -        | 0.1  | $\mu\text{A}$ |
| $BV_{CBO}$    | $I_C=100\mu\text{A}$                                  | 60       | -    | 40       | -    | V             |
| $BV_{CEO}$    | $I_C=1.0\text{mA}$                                    | 40       | -    | 40       | -    | V             |
| $BV_{EBO}$    | $I_E=100\mu\text{A}$                                  | 6.0      | -    | 5.0      | -    | V             |
| $V_{CE(SAT)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$                   | -        | 0.40 | -        | 0.40 | V             |
| $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                   | -        | 0.75 | -        | 0.75 | V             |
| $V_{BE(SAT)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$                   | 0.75     | 0.95 | 0.75     | 0.95 | V             |
| $V_{BE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                   | -        | 1.2  | -        | 1.3  | V             |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$                | 20       | -    | 30       | -    |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$                | 40       | -    | 60       | -    |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=10\text{mA}$                 | 80       | -    | 100      | -    |               |
| $h_{FE}$      | $V_{CE}=1.0\text{V}, I_C=150\text{mA}$                | 100      | 300  | -        | -    |               |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=150\text{mA}$                | -        | -    | 100      | 300  |               |
| $h_{FE}$      | $V_{CE}=2.0\text{V}, I_C=500\text{mA}$                | 40       | -    | 20       | -    |               |
| $f_T$         | $V_{CE}=10\text{V}, I_C=20\text{mA}, f=100\text{MHz}$ | 250      | -    | 200      | -    | MHz           |
| $C_{ob}$      | $V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$          | -        | 6.5  | -        | 8.5  | pF            |
| $C_{ib}$      | $V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$          | -        | 30   | -        | 30   | pF            |

R7 (29-June 2021)

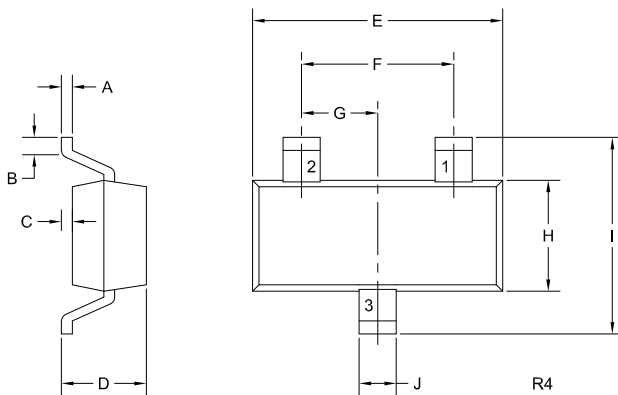
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| SYMBOL   | TEST CONDITIONS                                                                        | CMPT4401 |     | CMPT4403 |     | UNITS            |
|----------|----------------------------------------------------------------------------------------|----------|-----|----------|-----|------------------|
|          |                                                                                        | MIN      | MAX | MIN      | MAX |                  |
| $h_{ie}$ | $V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$                           | 1.0      | 15  | 1.5      | 15  | $k\Omega$        |
| $h_{re}$ | $V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$                           | 0.1      | 8.0 | 0.1      | 8.0 | $\times 10^{-4}$ |
| $h_{fe}$ | $V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$                           | 40       | 500 | 60       | 500 |                  |
| $h_{oe}$ | $V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$                           | 1.0      | 30  | 1.0      | 100 | $\mu\text{S}$    |
| $t_d$    | $V_{CC}=30\text{V}$ , $V_{BE}=2.0\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ | -        | 15  | -        | 15  | ns               |
| $t_r$    | $V_{CC}=30\text{V}$ , $V_{BE}=2.0\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ | -        | 20  | -        | 20  | ns               |
| $t_s$    | $V_{CC}=30\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$                 | -        | 225 | -        | 225 | ns               |
| $t_f$    | $V_{CC}=30\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$                 | -        | 30  | -        | 50  | ns               |

**SOT-23 CASE - MECHANICAL OUTLINE**



| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | 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  | 0.044 | 0.89        | 1.12 |
| 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  | 0.104 | 2.10        | 2.64 |
| J          | 0.014  | 0.020 | 0.35        | 0.50 |

SOT-23 (REV: R4)

**LEAD CODE:**

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

**MARKING CODES:**

**CMPT4401: C2X**  
**CMPT4403: C2T**

R7 (29-June 2021)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> 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

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### 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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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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