

CMPT2907AE

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
PNP SILICON TRANSISTOR**



**SOT-23 CASE**



[www.centra-semi.com](http://www.centra-semi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT2907AE is an Enhanced version of the CMPT2907A PNP Switching transistor in a SOT-23 surface mount package, designed for switching applications, interface circuit and driver circuit applications.

**MARKING CODE: C2FE**

**FEATURED ENHANCED SPECIFICATIONS:**

- ◆  $BV_{CBO}$  from 60V min to 90V min. (115V TYP)
- ◆  $V_{CE(SAT)}$  from 1.6V max to 0.7V max. (0.280V TYP)
- ◆  $h_{FE}$  from 50 min to 75 min. (110 TYP)

**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**

|                |             |                    |
|----------------|-------------|--------------------|
| $V_{CBO}$      | <b>90</b>   | <b>V</b>           |
| $V_{CEO}$      | 60          | V                  |
| $V_{EBO}$      | 5.0         | V                  |
| $I_C$          | 600         | mA                 |
| $P_D$          | 350         | mW                 |
| $T_J, T_{stg}$ | -65 to +150 | $^\circ\text{C}$   |
| $\theta_{JA}$  | 357         | $^\circ\text{C/W}$ |

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

| SYMBOL          | TEST CONDITIONS                                       | MIN        | TYP          | MAX        | UNITS         |
|-----------------|-------------------------------------------------------|------------|--------------|------------|---------------|
| $I_{CBO}$       | $V_{CB}=50\text{V}$                                   |            |              | 10         | nA            |
| $I_{CBO}$       | $V_{CB}=50\text{V}, T_A=125^\circ\text{C}$            |            |              | 10         | $\mu\text{A}$ |
| $I_{CEV}$       | $V_{CE}=30\text{V}, V_{EB}=0.5\text{V}$               |            |              | 50         | nA            |
| ◆ $BV_{CBO}$    | $I_C=10\mu\text{A}$                                   | <b>90</b>  | <b>115</b>   |            | <b>V</b>      |
| $BV_{CEO}$      | $I_C=10\text{mA}$                                     | 60         |              |            | V             |
| $BV_{EBO}$      | $I_E=10\mu\text{A}$                                   | 5.0        |              |            | V             |
| ◆ $V_{CE(SAT)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$                   |            | <b>0.103</b> | <b>0.2</b> | <b>V</b>      |
| ◆ $V_{CE(SAT)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$                   |            | <b>0.280</b> | <b>0.7</b> | <b>V</b>      |
| $V_{BE(SAT)}$   | $I_C=150\text{mA}, I_B=15\text{mA}$                   |            |              | 1.3        | V             |
| $V_{BE(SAT)}$   | $I_C=500\text{mA}, I_B=50\text{mA}$                   |            |              | 2.6        | V             |
| ◆ $h_{FE}$      | $V_{CE}=10\text{V}, I_C=0.1\text{mA}$                 | <b>100</b> | <b>205</b>   |            |               |
| $h_{FE}$        | $V_{CE}=10\text{V}, I_C=1.0\text{mA}$                 | 100        |              |            |               |
| $h_{FE}$        | $V_{CE}=10\text{V}, I_C=10\text{mA}$                  | 100        |              |            |               |
| $h_{FE}$        | $V_{CE}=10\text{V}, I_C=150\text{mA}$                 | 100        |              | 300        |               |
| ◆ $h_{FE}$      | $V_{CE}=10\text{V}, I_C=500\text{mA}$                 | <b>75</b>  | <b>110</b>   |            |               |
| $f_T$           | $V_{CE}=20\text{V}, I_C=50\text{mA}, f=100\text{MHz}$ | 200        |              |            | MHz           |
| $C_{ob}$        | $V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$           |            |              | 8.0        | pF            |
| $C_{ib}$        | $V_{BE}=2.0\text{V}, I_C=0, f=1.0\text{MHz}$          |            |              | 30         | pF            |

- ◆ Enhanced specification

R2 (1-February 2010)

CMPT2907AE

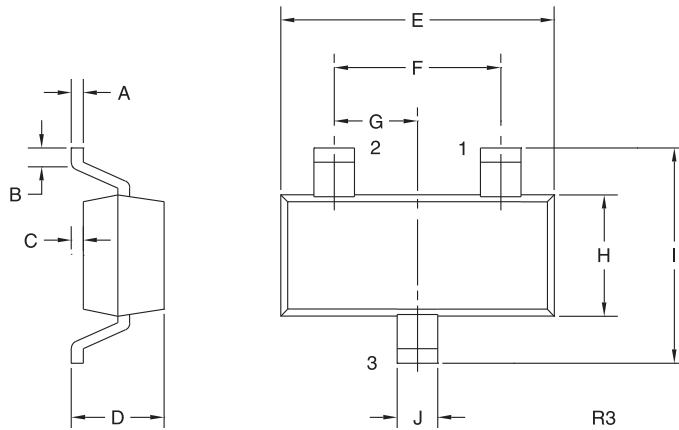
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| SYMBOL    | TEST CONDITIONS                                                                        | MAX | UNITS |
|-----------|----------------------------------------------------------------------------------------|-----|-------|
| $t_{on}$  | $V_{CC}=30\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ | 45  | ns    |
| $t_d$     | $V_{CC}=30\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ | 10  | ns    |
| $t_r$     | $V_{CC}=30\text{V}$ , $V_{BE}=0.5\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ | 40  | ns    |
| $t_{off}$ | $V_{CC}=6.0\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$                | 100 | ns    |
| $t_s$     | $V_{CC}=6.0\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$                | 80  | ns    |
| $t_f$     | $V_{CC}=6.0\text{V}$ , $I_C=150\text{mA}$ , $I_{B1}=I_{B2}=15\text{mA}$                | 30  | ns    |

**SOT-23 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

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

**MARKING CODE: C2FE**

| 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  | 0.043 | 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)

R2 (1-February 2010)

## 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

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