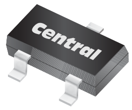
## CMPT591E

## ENHANCED SPECIFICATION
SURFACE MOUNT
PNP SILICON TRANSISTOR



SOT-23 CASE

www.centralsemi.com

### DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT591E type is an Enhanced version of the industry standard 591 PNP silicon transistor. This device is manufactured by the epitaxial planar process and epoxy molded in an SOT-23 surface mount package. The CMPT591E features Low $V_{CE(SAT)}$, high $h_{FE}$, and has been designed for high current general purpose amplifier applications.

**MARKING CODE: C59**

**COMPLEMENTARY TYPE: CMPT491E**

### FEATURED ENHANCED SPECIFICATIONS:

- ♦ $V_{CE(SAT)}$ @ 1.0A = 0.6V MAX (from 0.4V MAX)
- ♦ $h_{FE}$ @ 500mA = 200 MIN (from 100 MIN)

| **MAXIMUM RATINGS:** ($T_A$=25°C) | **SYMBOL** | | **UNITS** |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 80 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 60 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5.0 | V |
| Continuous Collector Current | $I_C$ | 1.0 | A |
| Continuous Base Current | $I_B$ | 200 | mA |
| Peak Collector Current | $I_{CM}$ | 2.0 | A |
| Power Dissipation | $P_D$ | 350 | mW |
| Operating and Storage Junction Temperature | $T_J$, $T_{stg}$ | -65 to +150 | °C |
| Thermal Resistance | $\Theta_{JA}$ | 357 | °C/W |

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

| **SYMBOL** | **TEST CONDITIONS** | **MIN** | **MAX** | **UNITS** |
|---|---|---|---|---|
| $I_{CBO}$ | $V_{CB}$=60V | | 100 | nA |
| $I_{EBO}$ | $V_{EB}$=4.0V | | 100 | nA |
| $BV_{CBO}$ | $I_C$=100μA | 80 | | V |
| $BV_{CEO}$ | $I_C$=10mA | 60 | | V |
| $BV_{EBO}$ | $I_E$=100μA | 5.0 | | V |
| ♦ **$V_{CE(SAT)}$** | **$I_C$=500mA, $I_B$=50mA** | | **0.20** | **V** |
| ♦ **$V_{CE(SAT)}$** | **$I_C$=1.0A, $I_B$=100mA** | | **0.40** | **V** |
| ♦ **$V_{BE(SAT)}$** | **$I_C$=1.0A, $I_B$=100mA** | | **1.1** | **V** |
| $V_{BE(ON)}$ | $V_{CE}$=5.0V, $I_C$=1.0A | | 1.0 | V |
| ♦ **$h_{FE}$** | **$V_{CE}$=5.0V, $I_C$=1.0mA** | **200** | | |
| ♦ **$h_{FE}$** | **$V_{CE}$=5.0V, $I_C$=500mA** | **200** | **600** | |
| $h_{FE}$ | $V_{CE}$=5.0V, $I_C$=1.0A | 50 | | |
| $h_{FE}$ | $V_{CE}$=5.0V, $I_C$=2.0A | 15 | | |
| $f_T$ | $V_{CE}$=10V, $I_C$=50mA, f=100MHz | 150 | | MHz |
| $C_{ob}$ | $V_{CB}$=10V, $I_E$=0, f=1.0MHz | | 10 | pF |

♦ Enhanced specification

R3 (27-January 2010)

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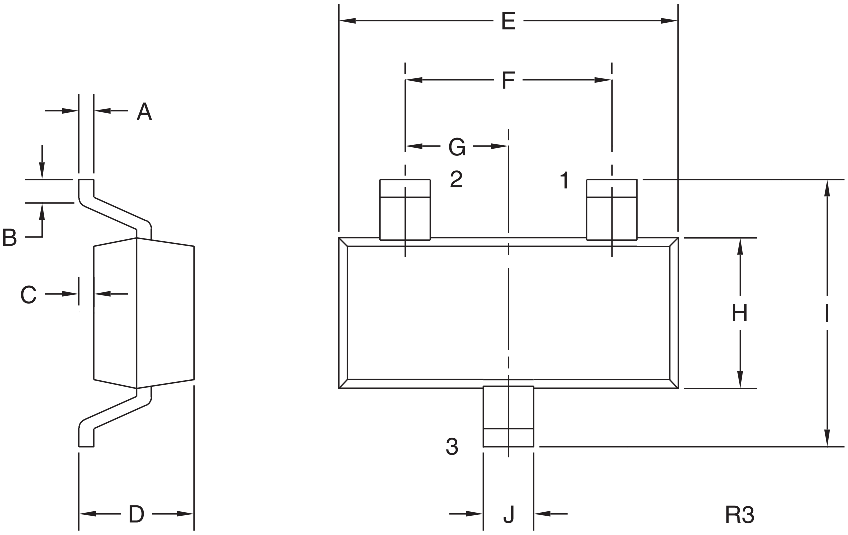
### SOT-23 CASE - MECHANICAL OUTLINE



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

**MARKING CODE: C59**

| DIMENSIONS | | | | |
|---|---|---|---|---|
| | INCHES | | MILLIMETERS | |
| SYMBOL | 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)

R3 (27-January 2010)