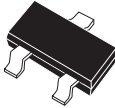


### CMPT3646

#### NPN SILICON TRANSISTOR



SOT-23 CASE

#### DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPT3646 type is an NPN Silicon Transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for high current, ultra high speed switching applications.

**Marking code is C2R.**

#### MAXIMUM RATINGS (T<sub>A</sub>=25°C)

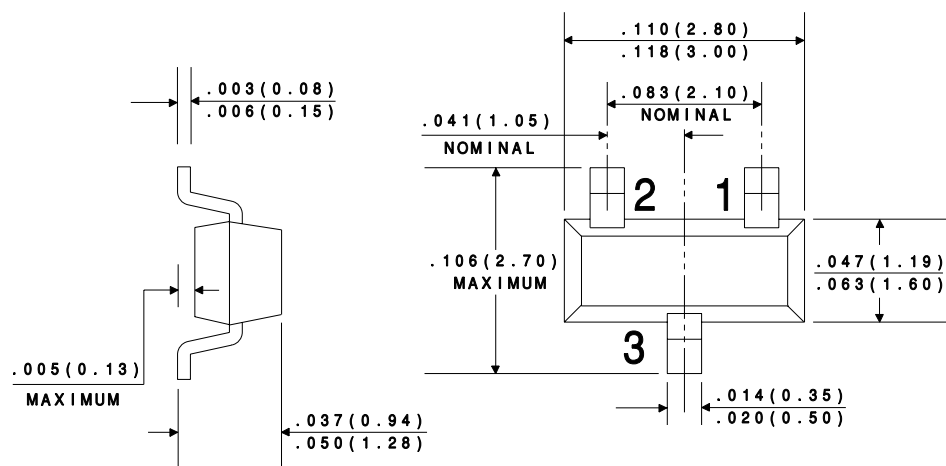
|                           | SYMBOL                            |             | UNITS |
|---------------------------|-----------------------------------|-------------|-------|
| Collector-Base Voltage    | V <sub>CBO</sub>                  | 40          | V     |
| Collector-Emitter Voltage | V <sub>CES</sub>                  | 40          | V     |
| Collector-Emitter Voltage | V <sub>CEO</sub>                  | 15          | V     |
| Emitter-Base Voltage      | V <sub>EBO</sub>                  | 5.0         | V     |
| Collector Current         | I <sub>C</sub>                    | 200         | mA    |
| Power Dissipation         | P <sub>D</sub>                    | 350         | mW    |
| Operating and Storage     |                                   |             |       |
| Junction Temperature      | T <sub>J</sub> , T <sub>stg</sub> | -65 to +150 | °C    |
| Thermal Resistance        | θ <sub>JA</sub>                   | 357         | °C/W  |

#### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

| SYMBOL               | TEST CONDITIONS                                                   | MIN  | MAX  | UNITS |
|----------------------|-------------------------------------------------------------------|------|------|-------|
| I <sub>CES</sub>     | V <sub>CE</sub> =20V                                              |      | 0.5  | μA    |
| I <sub>CES</sub>     | V <sub>CE</sub> =20V, T <sub>A</sub> =65°C                        |      | 3.0  | μA    |
| BV <sub>CBO</sub>    | I <sub>C</sub> =100μA                                             | 40   |      | V     |
| BV <sub>CES</sub>    | I <sub>C</sub> =10μA                                              | 40   |      | V     |
| BV <sub>CEO</sub>    | I <sub>C</sub> =10mA                                              | 15   |      | V     |
| BV <sub>EBO</sub>    | I <sub>E</sub> =100μA                                             | 5.0  |      | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =30mA, I <sub>B</sub> =3.0mA                       |      | 0.20 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =30mA, I <sub>B</sub> =3.0mA, T <sub>A</sub> =65°C |      | 0.30 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =100mA, I <sub>B</sub> =10mA                       |      | 0.28 | V     |
| V <sub>CE(SAT)</sub> | I <sub>C</sub> =300mA, I <sub>B</sub> =30mA                       |      | 0.50 | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> =30mA, I <sub>B</sub> =3.0mA                       | 0.75 | 0.95 | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> =100mA, I <sub>B</sub> =10mA                       |      | 1.20 | V     |
| V <sub>BE(SAT)</sub> | I <sub>C</sub> =300mA, I <sub>B</sub> =30mA                       |      | 1.70 | V     |
| h <sub>FE</sub>      | V <sub>CE</sub> =0.4V, I <sub>C</sub> =30mA                       | 30   | 120  |       |
| h <sub>FE</sub>      | V <sub>CE</sub> =0.5V, I <sub>C</sub> =100mA                      | 25   |      |       |

| SYMBOL    | TEST CONDITIONS                             | MIN | MAX | UNITS |
|-----------|---------------------------------------------|-----|-----|-------|
| $h_{FE}$  | $V_{CE}=1.0V, I_C=300mA$                    | 15  |     |       |
| $f_T$     | $V_{CE}=10V, I_C=30mA, f=100MHz$            | 350 |     | MHz   |
| $C_{ob}$  | $V_{CB}=5.0V, I_E=0, f=1.0MHz$              |     | 5.0 | pF    |
| $C_{ib}$  | $V_{BE}=0.5V, I_C=0, f=1.0MHz$              |     | 8.0 | pF    |
| $t_{on}$  | $V_{CC}=10V, I_C=300mA, I_{B1}=30mA$        |     | 18  | ns    |
| $t_{off}$ | $V_{CC}=10V, I_C=300mA, I_{B1}=I_{B2}=30mA$ |     | 28  | ns    |
| $t_S$     | $V_{CC}=10V, I_C=I_{B1}=I_{B2}=10mA$        |     | 18  | ns    |

All dimensions in inches (mm).



LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR