

CMUT5179

ULTRAmi™
SURFACE MOUNT
NPN SILICON
RF TRANSISTOR

ULTRAmi™



SOT-523 CASE

Central™
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMUT5179 type is an NPN silicon RF transistor manufactured by the epitaxial planar process, epoxy molded in an ULTRAmi™ surface mount package, designed for low noise, high frequency amplifier and high output oscillator applications. **Marking code is HC7.**

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

| | SYMBOL | | UNITS |
|---|----------------|-------------|--------------------|
| Collector-Base Voltage | V_{CBO} | 20 | V |
| Collector-Emitter Voltage | V_{CEO} | 15 | V |
| Emitter-Base Voltage | V_{EBO} | 2.5 | V |
| Collector Current | I_C | 50 | mA |
| Power Dissipation | P_D | 250 | mW |
| Operating and Storage Junction Temperature | T_J, T_{stg} | -65 to +150 | $^\circ\text{C}$ |
| Thermal Resistance | Θ_{JA} | 500 | $^\circ\text{C/W}$ |

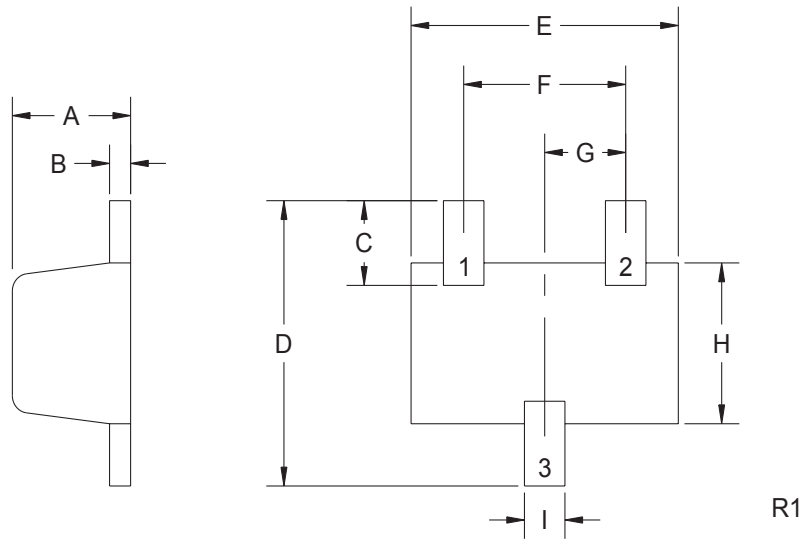
ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---------------|---|------------|------------|------------|--------------|
| I_{CBO} | $V_{CB}=15\text{V}$ | | | 20 | nA |
| BV_{CBO} | $I_C=10\mu\text{A}$ | 20 | | | V |
| BV_{CEO} | $I_C=3.0\text{mA}$ | 15 | | | V |
| BV_{EBO} | $I_E=10\mu\text{A}$ | 2.5 | | | V |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$ | | | 0.4 | V |
| $V_{BE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$ | | | 1.0 | V |
| h_{FE} | $V_{CE}=1.0\text{V}, I_C=3.0\text{mA}$ | 25 | | | |
| f_T | $V_{CE}=6.0\text{V}, I_C=5.0\text{mA}, f=100\text{MHz}$ | 900 | 1450 | | MHz |
| C_{cb} | $V_{CB}=10\text{V}, I_E=0, f=0.1$ to 1.0MHz | | | 1.0 | pF |
| h_{fe} | $V_{CE}=6.0\text{V}, I_C=2.0, f=1.0\text{kHz}$ | 25 | | | |
| G_{pe} | $V_{CE}=6.0\text{V}, I_C=5.0\text{mA}, f=200\text{MHz}$ | | 15 | | dB |
| NF | $V_{CE}=6.0\text{V}, I_C=1.5\text{mA}, R_S=50\Omega, f=200\text{MHz}$ | | 4.5 | | dB |

R0 (15-August 2001)

SOT-523 CASE - MECHANICAL OUTLINE

BOTTOM VIEW



LEAD CODE:

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

MARKING CODE: HC7

| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.025 | 0.029 | 0.63 | 0.73 |
| B | 0.004 | 0.005 | 0.10 | 0.13 |
| C | 0.015 | 0.019 | 0.39 | 0.49 |
| D | 0.061 | 0.065 | 1.55 | 1.65 |
| E | 0.061 | 0.065 | 1.55 | 1.65 |
| F | 0.039 | 0.040 | 0.98 | 1.02 |
| G | 0.019 | 0.020 | 0.48 | 0.52 |
| H | 0.033 | 0.037 | 0.83 | 0.93 |
| I | 0.009 | 0.010 | 0.23 | 0.25 |

SOT-523 (REV: R1)

R0 (15-August 2001)