

CMKT5078  
CMKT5087  
CMKT5088

ULTRAmi™  
SURFACE MOUNT  
SILICON TRANSISTORS

ULTRAmi™



SOT-363 CASE

**Central™**  
**Semiconductor Corp.**

#### DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMKT5078 , CMKT5087, and CMKT5088, are Silicon transistors in an ULTRAmi™ surface mount package, designed for applications requiring high gain and low noise.

The following configurations are available:

|          |                     |                   |
|----------|---------------------|-------------------|
| CMKT5078 | Dual, Complementary | Marking Code: K78 |
| CMKT5087 | Dual, PNP           | Marking Code: K87 |
| CMKT5088 | Dual, NPN           | Marking Code: K88 |

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

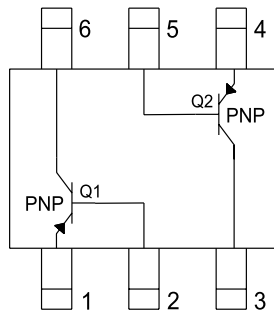
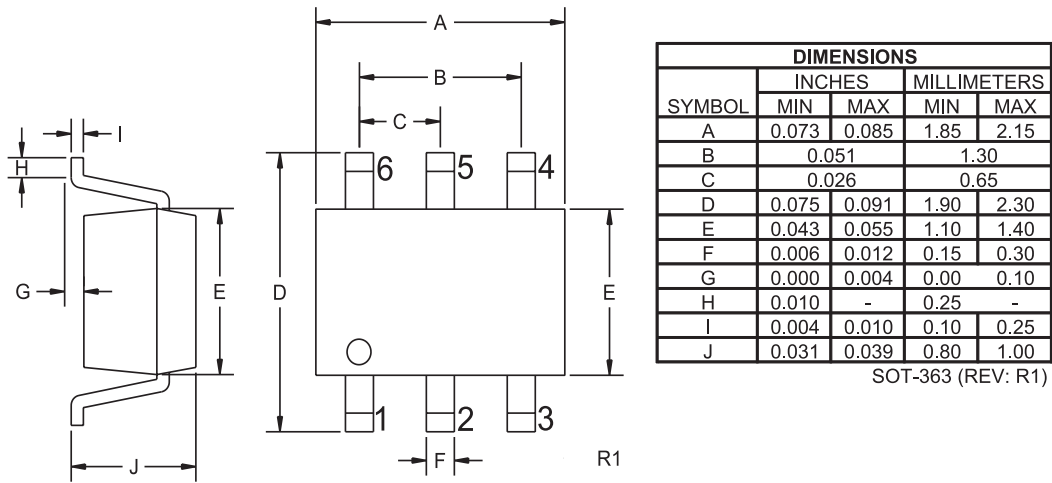
|                           | SYMBOL         | NPN         | PNP | UNITS                |
|---------------------------|----------------|-------------|-----|----------------------|
| Collector-Base Voltage    | $V_{CBO}$      | 35          | 50  | V                    |
| Collector-Emitter Voltage | $V_{CEO}$      | 30          | 50  | V                    |
| Emitter-Base Voltage      | $V_{EBO}$      | 4.5         | 3.0 | V                    |
| Collector Current         | $I_C$          | 50          |     | mA                   |
| Power Dissipation         | $P_D$          | 350         |     | mW                   |
| Operating and Storage     |                |             |     |                      |
| Junction Temperature      | $T_J, T_{stg}$ | -65 to +150 |     | $^{\circ}\text{C}$   |
| Thermal Resistance        | $\Theta_{JA}$  | 357         |     | $^{\circ}\text{C/W}$ |

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

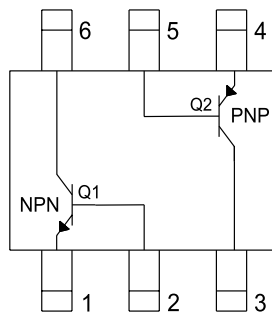
| SYMBOL        | TEST CONDITIONS                                                                                      | NPN |      | PNP |      | UNITS |
|---------------|------------------------------------------------------------------------------------------------------|-----|------|-----|------|-------|
|               |                                                                                                      | MIN | MAX  | MIN | MAX  |       |
| $I_{CBO}$     | $V_{CB}=10\text{V}$                                                                                  |     |      |     | 10   | nA    |
| $I_{CBO}$     | $V_{CB}=35\text{V}$                                                                                  |     |      |     | 50   | nA    |
| $I_{CBO}$     | $V_{CB}=20\text{V}$                                                                                  |     | 50   |     |      | nA    |
| $I_{EBO}$     | $V_{EB}=3.0\text{V}$                                                                                 |     | 50   |     |      | nA    |
| $BV_{CBO}$    | $I_C=100\mu\text{A}$                                                                                 | 35  |      | 50  |      | V     |
| $BV_{CEO}$    | $I_C=1.0\text{mA}$                                                                                   | 30  |      | 50  |      | V     |
| $BV_{EBO}$    | $I_E=100\mu\text{A}$                                                                                 | 4.5 |      | 3.0 |      | V     |
| $V_{CE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                                                                  |     | 0.50 |     | 0.30 | V     |
| $V_{BE(SAT)}$ | $I_C=10\text{mA}, I_B=1.0\text{mA}$                                                                  |     | 0.80 |     | 0.85 | V     |
| $h_{FE}$      | $V_{CE}=5.0\text{V}, I_C=0.1\text{mA}$                                                               | 300 | 900  | 250 | 800  |       |
| $h_{FE}$      | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$                                                               | 350 |      | 250 |      |       |
| $h_{FE}$      | $V_{CE}=5.0\text{V}, I_C=10\text{mA}$                                                                | 300 |      | 250 |      |       |
| $f_T$         | $V_{CE}=5.0\text{V}, I_C=500\mu\text{A}, f=20\text{MHz}$                                             | 50  |      | 40  |      | MHz   |
| $C_{ob}$      | $V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$                                                         |     | 4.0  |     | 4.0  | pF    |
| $C_{ib}$      | $V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$                                                         |     | 15   |     |      | pF    |
| $h_{fe}$      | $V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$                                              | 350 | 1400 | 250 | 900  |       |
| NF            | $V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=10\text{k}\Omega$<br>$f=10\text{Hz to } 15.7\text{kHz}$ |     | 3.0  |     | 2.0  | dB    |
| NF            | $V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=10\text{k}\Omega$<br>$f=1.0\text{kHz}$                  |     |      |     | 2.0  | dB    |

R1 ( 21-February 2002)

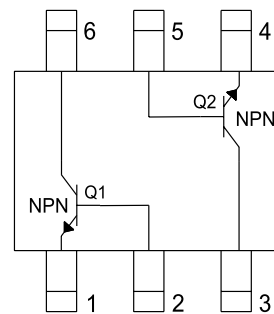
**SOT-363 CASE - MECHANICAL OUTLINE**



**CMKT5087**  
Marking Code: K87



**CMKT5078**  
Marking Code: K78



**CMKT5088**  
Marking Code: K88

LEAD CODE (for all devices above):

- 1) Emitter Q1
- 2) Base Q1
- 3) Collector Q2
- 4) Emitter Q2
- 5) Base Q2
- 6) Collector Q1