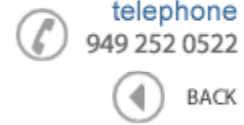




**Data Sheet**



Product Category: SMD Quartz Crystal

|               |                |                    |               |
|---------------|----------------|--------------------|---------------|
| Series Number | Package        | Description        | Last Modified |
| 201           | UM-1 Gull Wing | SMD Quartz Crystal | Jan. 01 2002  |

**FEATURES**

- 7 MHz to 200 MHz frequency range
- Space saving footprint
- Resistance welded
- Low profile
- Tape and Reel



**OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS**

| PARAMETERS            |                            | CHARACTERISTICS    | UNITS |
|-----------------------|----------------------------|--------------------|-------|
| Frequency Range       | $f_o$                      | 7.00 ~ 200.000     | MHz   |
| Frequency Tolerance   | Ref @ +25°C                | ±10 ~ ±50          | PPM   |
| Frequency Stability   | Ref @ +25°C                | ±10 ~ ±50          | PPM   |
| Operating Temperature | $T_{OPR}$                  | -10 ~ +60 (STD)    | °C    |
| Storage Temperature   | $T_{STG}$                  | -40 ~ +85 (STD)    | °C    |
| Shunt Capacitance     | $C_o$                      | 7.0 max.           | pF    |
| Load Capacitance      | $C_L$ (Customer Specified) | 16, 20, 30, Series | pF    |
| Drive Level           | $D_L$                      | 10.0 ~ 1000.0      | µW    |
| Overtone Order        | Fundamental                | 7 ~ 50             | MHz   |
|                       | 3rd Overtone               | 30 ~ 150           |       |
|                       | 5th Overtone               | 80 ~ 200           |       |

**MODE OF OSCILLATION AND EQUIVALENT SERIES RESISTANCE**

| FREQUENCY RANGE (MHz) | MODE        | MAX ESR Ohm | FREQUENCY RANGE (MHz) | MODE         | MAX ESR Ohm |
|-----------------------|-------------|-------------|-----------------------|--------------|-------------|
| 7.0 ~ 9.9             | Fundamental | 80          | 30.0 ~ 150.0          | 3rd Overtone | 80          |
| 10.0 ~ 15.9           | Fundamental | 80          | 80.0 ~ 200.0          | 5th Overtone | 100         |
| 16.0 ~ 50.0           | Fundamental | 30          |                       |              |             |

**PACKAGE DIMENSIONS (mm)**

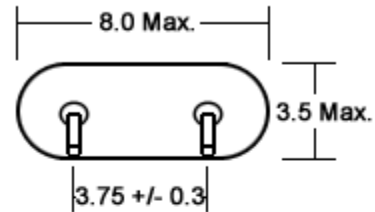
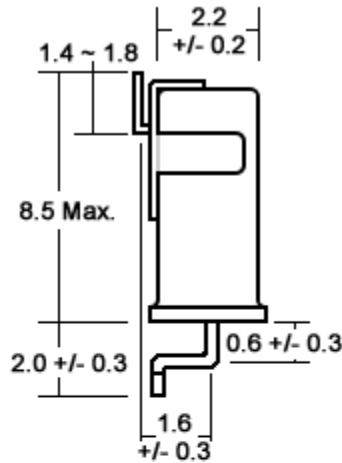
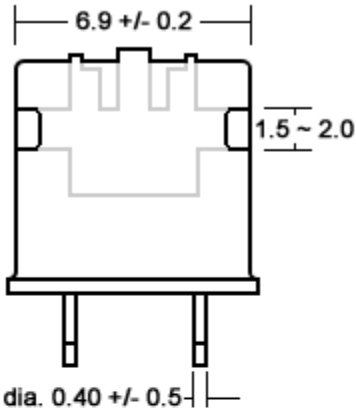


Figure 1) UM-1

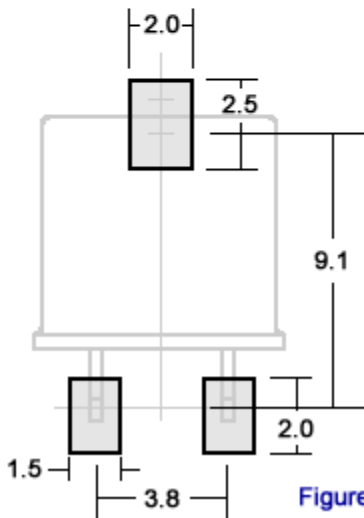
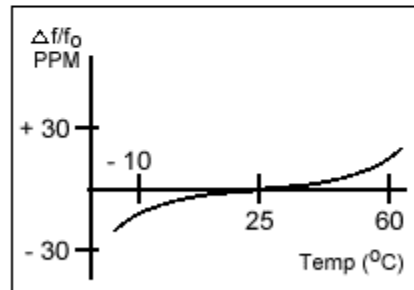


Figure 2) UM-1 Land Pattern - Top View

**FREQUENCY VS TEMPERATURE CURVE**



**PART NUMBER GUIDE**

| Series Number                       | Frequency  | Load Capacitance  | Tolerance @ +25oC   | Tolerance Over Temp (oC )   | Operating Temp ( oC )   |
|-------------------------------------|--|---|---|---|---|
| 201                                 | -11.228M   | -SR   | - 20  | G   | W   |
| Oscilent UM-1 Surface Mount Crystal | Enter desired frequency e.g. 12.0M for 12.000 MHz. See table below for standard frequencies. | See table below for standard load capacitances and enter your required load capacitance. e.g. 20 = 20pF Enter SR for Series | Blank * = ±30 PPM<br>50 = ±50 PPM<br>20 = ±20 PPM<br>15 = ±15 PPM<br>10 = ±10 PPM | Blank* = ±50 PPM<br>G = ±30 PPM<br>H= ±20 PPM<br>K = ±15 PPM<br>L = ±10 PPM | Blank* = -10~+60<br>S = -20~+70<br>T = -30~+80<br>W = -40~+85 |

**NOTE:** - Deviations on all parameters available. Please consult Oscilent for details.

**DEFINITIONS:** - Click on the characteristic names above for definitions of that particular characteristic.

**\*STANDARDS:** - "Blank" part number selections indicate standard variables for that particular characteristic.

**\*\*PACKAGING:** - Add -TR for Tape/Reel. Click [here](#) for tape/reel specifications

**STANDARD FREQUENCIES / LOAD CAPACITANCE - FOR GUIDE ONLY / OTHER FREQ/LOADS AVAILABLE**

| FREQUENCY (MHz) | LOAD (pF) |    |    |    |    |    |      |    |
|-----------------|-----------|----|----|----|----|----|------|----|
|                 | Series    | 12 | 13 | 16 | 17 | 18 | 20   | 30 |
| 7.3728          | Std.      | -  | -  | -  | -  | -  | Std. | -  |
| 7.680           | -         | -  | -  | -  | -  | -  | Std. | -  |

|                                      |                  |           |           |           |           |           |           |           |
|--------------------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 8.000                                | Std.             | -         | -         | -         | -         | -         | Std.      | Std.      |
| 8.192                                | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 9.216                                | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 9.8304                               | -Std.            | -         | -         | -         | -         | -         | Std.      | -         |
| 10.000                               | -Std.            | -         | -         | -         | -         | -         | -         | -         |
| 10.738635                            | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 11.000                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 11.046                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 11.0592                              | Std.             | -         | -         | -         | -         | -         | Std.      | Std.      |
| 11.228                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 11.520                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 11.98135                             | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 12.000                               | Std.             | -         | -         | -         | -         | -         | Std.      | Std.      |
| 12.000393                            | -                | -         | -         | -         | -         | -         | -         | -         |
| 12.096                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 12.288                               | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 13.5168                              | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 14.31818                             | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 14.690                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 14.7456                              | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 15.000                               | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 16.000                               | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 16.000312                            | -                | -         | -         | -         | -         | -         | -         | -         |
| 18.000                               | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 18.432                               | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 19.6608                              | Std.             | -         | -         | -         | -         | -         | -Std.     | -         |
| 20.000                               | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 22.1184                              | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 24.000(F)                            | Std.             | -         | -         | -         | -         | -         | Std.      | -         |
| 24.00014 (F)                         | -                | -         | -         | -         | -         | -         | -         | -         |
| 35.2512 (OT)                         | -                | -         | -         | -         | -         | -         | -         | -         |
| 38.00053 (OT)                        | -                | -         | -         | -         | -         | -         | -         | -         |
| 40.32 (OT)                           | -                | -         | -         | -         | -         | -         | -         | -         |
| 48.00 (OT)                           | Std.             | -         | -         | -         | -         | -         | -         | -         |
| 49.86 (OT)                           | -                | -         | -         | -         | -         | -         | Std.      | -         |
| <b>FREQUENCY<br/>(MHz)</b>           | <b>Series</b>    | <b>12</b> | <b>13</b> | <b>16</b> | <b>17</b> | <b>18</b> | <b>20</b> | <b>30</b> |
|                                      | <b>LOAD (pF)</b> |           |           |           |           |           |           |           |
| <b>F = Fundamental   OT = 3RD OT</b> |                  |           |           |           |           |           |           |           |

**NOTE: Other frequencies and load capacitance available. PLEASE SPECIFY IN PART NUMBER GUIDE**

**Oscilent Corporation** - CALL **949.252.0522**

**Series No.:** 201

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