

DATENBLATT / DATASHEET



Specification: QTC-HC52U3 Crystal unit: HC-52/U3

Date: 11.03.2009  
ROHS compliance



TABLE 1

| ENCLOSURE | H/mm | CODE |                      |
|-----------|------|------|----------------------|
| HC-52/U3  | 8,6  | 05   |                      |
|           | 7,8  | 06   | starting with 10 MHz |
|           | 5,9  | 07   | starting with 15 MHz |

Scale 1:1

Metal housing: Resistance weld  
Inert gas N<sub>2</sub>/H<sub>2</sub>  
Laser engraving

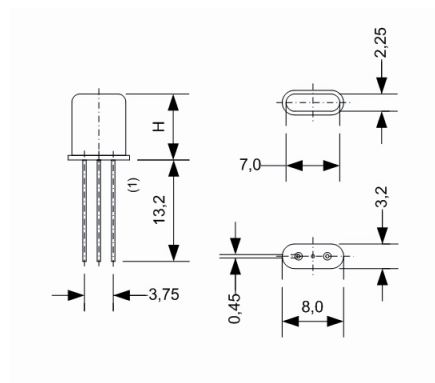


TABLE 2

| 5,0 ... 250 MHz                      |   | UNIT | CONDITION  |
|--------------------------------------|---|------|--|
| Frequency range                      | 5 - 250   | MHz  |  |
| Crystal cut                          | AT  |      |  |
| Enclosure                            | HC-52/U3  |      |  |
| Mode                                 | 1. 5 – 40 MHz<br>3. 20 – 100 MHz<br>5. 50 – 160 MHz<br>7. 100 – 210 MHz<br>9. 140 – 250 MHz |      | Fundamental mode<br>3 <sup>rd</sup> overtone<br>5 <sup>th</sup> overtone<br>7 <sup>th</sup> overtone<br>9 <sup>th</sup> overtone |
| Load capacitance                     | 10 – 60 pF or Series  | pF   |  |
| Shunt capacitance                    | 5 – 10 MHz: < 2,5 pF<br>10 – 15 MHz: < 3,0 pF<br>15 – 250 MHz: < 4,0 pF                     | pF   |  |
| Motional capacitance                 |   |      |  |
| Resistance R <sub>r</sub>            |   |      | see table 5  |
| Frequency adjustment                 |   |      | see table 3  |
| Frequency stability over temperature |   |      | see table 4  |
| Aging 1 <sup>st</sup> year           | < 2,0 – 3,0   | ppm  |  |
| Shock                                | 100g / 6ms  |      |  |
| Vibration                            | 10 g <sub>SS</sub> / 1,5 mm <sub>SS</sub><br>50 – 500 Hz                                    |      |  |
| Δf / f                               | < 5   | ppm  |  |
| ΔR/R                                 | < 20%   |      |  |



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TABLE 3

| FREQUENCY ADJUSTMENT AT +25°C ± 2 °C | FREQUENCY / MHz |          |          |           |           | CODE |
|--------------------------------------|-----------------|----------|----------|-----------|-----------|------|
|                                      | 5 ~ 40          | 20 ~ 100 | 50 ~ 160 | 100 ~ 210 | 140 ~ 250 |      |
| Mode                                 | 1               | 3        | 5        | 7         | 9         |      |
| Frequency adjustment / ppm           | ± 3             | ± 3      | ± 3      |           |           | C1   |
|                                      | ± 5             | ± 5      | ± 5      | ± 5       | ± 5       | E1   |
|                                      | ± 10            | ± 10     | ± 10     | ± 10      | ± 10      | J1   |
|                                      | ± 20            | ± 20     | ± 20     | ± 20      | ± 20      | B2   |
|                                      | ± 50            | ± 50     | ± 50     | ± 50      | ± 50      | H2   |

TABLE 4

| FREQUENCY STABILITY OVER TEMPERATURE RELATED TO +25 °C |      | FREQUENCY DEVIATION / ppm |     |     |      |      |      |      |      |
|--|------|---------------------------|-----|-----|------|------|------|------|------|
|  |      | ± 3                       | ± 5 | ± 7 | ± 10 | ± 20 | ± 25 | ± 30 | ± 50 |
| 5,0 ... 10 MHz: x                                      |      |                           |     |     |      |      |      |      |      |
| 10 ... 250 MHz: o                                      |      |                           |     |     |      |      |      |      |      |
| Temperature range                                      | Code | 03                        | 05  | 07  | 10   | 12   | 13   | 14   | 20   |
| 0 ... + 50°C   | B    | o                         | xo  | xo  | xo   | xo   | xo   | xo   | xo   |
| -10 ... + 60°C   | H    | o                         | xo  | xo  | xo   | xo   | xo   | xo   | xo   |
| -20 ... + 70°C   | M    |                           | o   | xo  | xo   | xo   | xo   | xo   | xo   |
| -30 ... + 80°C   | R    |                           |     | o   | xo   | xo   | xo   | xo   | xo   |
| -40 ... + 90°C   | U    |                           |     |     | o    | xo   | xo   | xo   | xo   |
| -55 ... + 105°C  | W    |                           |     |     |      |      | o    | xo   | xo   |
| -55 ... + 125°C  | X    |                           |     |     |      |      |      | o    | xo   |

TABLE 5

| MAX. RESISTANCE R <sub>R</sub> | MODE      | FREQUENCY / MHz | R <sub>MAX</sub> / Ohm |
|--------------------------------|-----------|-----------------|------------------------|
|                                | 1         | 5 – 7,5         | 80                     |
|                                |           | 7,5 – 9         | 60                     |
|                                |           | 9 – 12          | 30                     |
|                                |           | 12 – 16         | 16                     |
|                                |           | 16 – 40         | 12                     |
|                                | 3         | 20 – 30         | 42                     |
| 30 – 50                        |           | 30              |                        |
| 50 – 100                       |           | 22              |                        |
| 5                              | 100 – 160 | 70              |                        |
|                                | 7         | 100 – 210       | 160                    |
| 9                              |           | 140 – 250       | 200                    |

| ORDERING CODE <sup>(1)</sup> | FREQUENCY [MHz] | ENCLOSURE CODE: TABLE 1 | MODE: 1: FUND. 3,5,7,9: OT TABLE 2 | LOAD CAP. : 00: SERIES 32: 32 pF TABLE 2 | ADJ. TOLERANCE CODE: TABLE 3 | TEMP. RANGE CODE: TABLE 4 | FREQ. STAB. OVER TEMP. CODE: TABLE 4 | SHUNT CAPACITANCE 35: 3,5 pF TABLE 2 |
|------------------------------|-----------------|-------------------------|------------------------------------|--|------------------------------|---------------------------|--------------------------------------|--------------------------------------|
|                              | 12,800          | 05                      | 1                                  | 32                                       | J1                           | M                         | 10                                   | 35                                   |

<sup>(1)</sup> Other specification on request