

actual size

# Quartz Crystal • MG3A

## Surface Mount Quartz Crystal

### Features

- package height 5.0 mm
- extended temperature ranges

### General Data

| type                         | MG3A                    |                    |
|------------------------------|-------------------------|--------------------|
| frequency range              | 3.579545 ~ 40.0 MHz     | ( fund. AT-cut )   |
|                              | 30.0 ~ 90.0 MHz         | ( 3rd OT. AT-cut ) |
|                              |                         |                    |
| frequency tolerance at 25 °C | ± 20 ppm ~ ± 50 ppm     |                    |
| load capacitance $C_L$       | 12 pF ~ 32 pF or series |                    |
| shunt capacitance $C_0$      | < 5 pF                  |                    |
| storage temperature          | -40 °C ~ +125 °C        |                    |
| drive level max.             | 100 µW                  |                    |
| aging                        | < ±5 ppm first year     |                    |

### ESR (series resistance $R_s$ )

| frequency<br>in MHz | vibration<br>mode | ESR max.<br>in $\Omega$ | ESR typ.<br>in $\Omega$ |
|---------------------|-------------------|-------------------------|-------------------------|
| 3.57 ~ 3.6999       | fund.- AT         | 180                     | 70-100                  |
| 3.70 ~ 4.0999       | fund.- AT         | 150                     | 50-80                   |
| 4.10 ~ 5.9999       | fund.- AT         | 120                     | 40-60                   |
| 6.00 ~ 9.9999       | fund.- AT         | 80                      | 20-40                   |
| 10.0 ~ 13.999       | fund.- AT         | 50                      | 15-35                   |
| 14.0 ~ 19.999       | fund.- AT         | 35                      | 10-15                   |
| 20.0 ~ 40.000       | fund.- AT         | 20                      | 10-15                   |
| 30.0 ~ 90.000       | 3rd OT - AT       | 100                     | 80                      |

### Frequency Stability vs. Temperature

|                  |      | ± 30 ppm | ± 50 ppm | ± 100 ppm | ± 150 ppm |  |
|------------------|------|----------|----------|-----------|-----------|--|
| -20 °C ~ +70 °C  | STD. | ○        | ●        |           |           |  |
| -40 °C ~ +85 °C  | T1   |          | ○        | ●         |           |  |
| -40 °C ~ +105 °C | T2   |          |          | ○         | ○         |  |
| -40 °C ~ +125 °C | T3   |          |          | ○         | ○         |  |

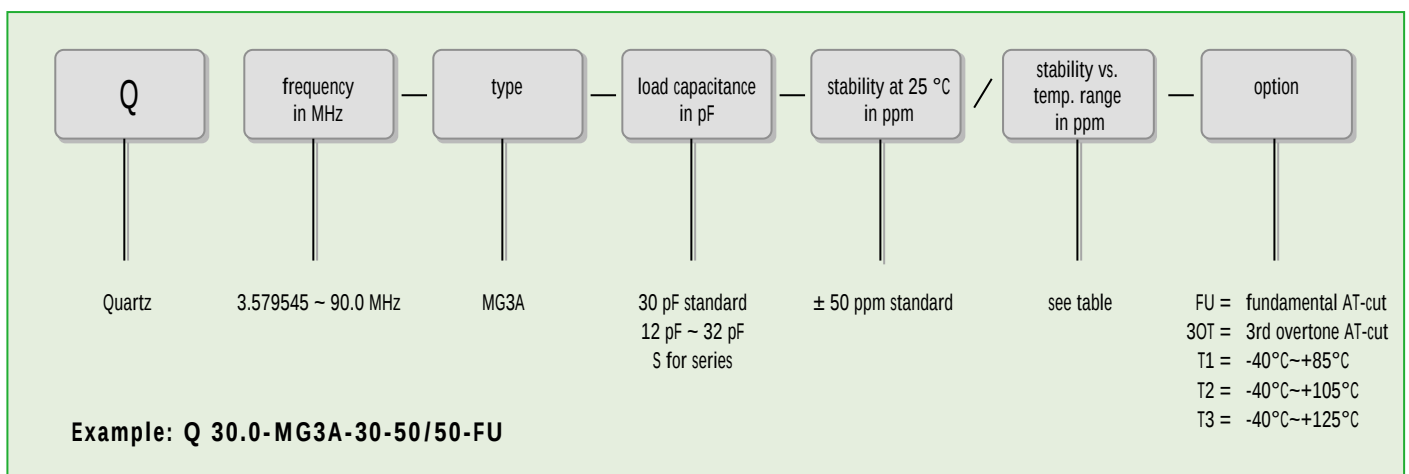
● standard  
 ○ on request

### Marking

frequency with load capacitance code  
company code / date code / internal code

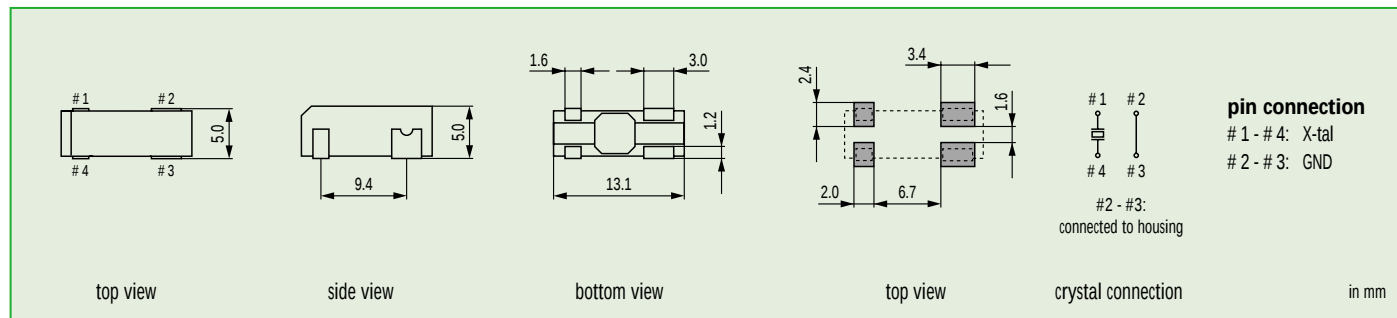
|      | Jan. | Febr. | Mar. | Apr. | May | June | July | Aug. | Sept. | Okt. | Nov. | Dec. |
|------|------|-------|------|------|-----|------|------|------|-------|------|------|------|
| 2000 | n    | p     | q    | r    | s   | t    | u    | v    | w     | x    | y    | z    |
| 2001 | A    | B     | C    | D    | E   | F    | G    | H    | J     | K    | L    | M    |
| 2002 | N    | P     | Q    | R    | S   | T    | U    | V    | W     | X    | Y    | Z    |
| 2003 | a    | b     | c    | d    | e   | f    | g    | h    | j     | k    | l    | m    |

### Order Information

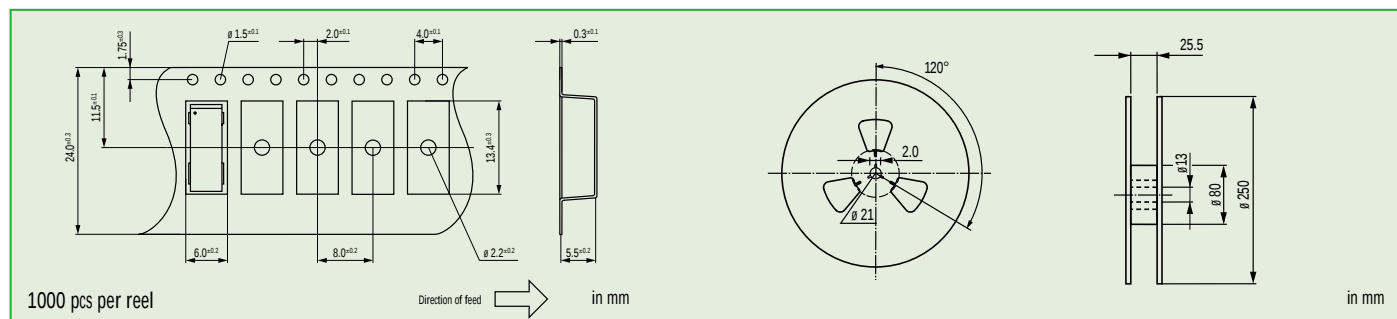


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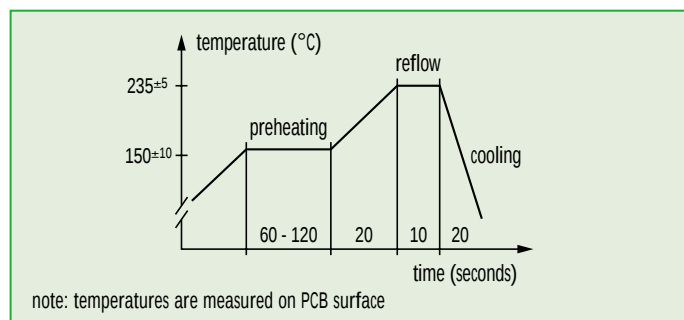
## Dimensions



## Taping Specification



## Reflow Soldering Profile



## Load Capacitance Codes

|          |          |          |           |
|----------|----------|----------|-----------|
| 7 pF: m  | 13 pF: v | 18 pF: f | 27 pF: w  |
| 8 pF: k  | 14 pF: x | 20 pF: c | 30 pF: .  |
| 9 pF: n  | 15 pF: j | 22 pF: g | 32 pF: e  |
| 11 pF: i | 16 pF: b | 24 pF: d | series: s |
| 12 pF: a | 17 pF: t | 25 pF: r | T: 3rd OT |

example 4.0 MHz / 12 pF: 4a000