

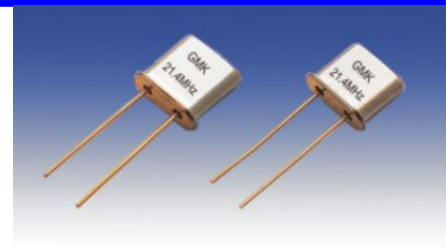
Quartz Crystal

Resistance Welded UM-1, UM-5 Package



FEATURE

- Excellent frequency temperature characteristics extending across a wide temperature range
- Excellent aging characteristics
- Uniform frequency tuning range and modulation sensitivity
- Excellent shock resistance



ELECTRICAL SPECIFICATIONS

Frequency range	4.000MHz ~ 200.00MHz
Oscillation mode	Fundamental / 3 rd Overtone 5 th Overtone / 7 th Overtone
Operating temperature range	-20℃--70℃ (Typical), -10℃--60℃, -40℃--85℃, or specify
Storage temperature range	-40℃--85℃
Frequency tolerance	±10PPM ~ ±50PPM
Frequency stability	±10PPM ~ ±50PPM
Load capacitance	Series, 16pF, 20PF, 30pF, or specify
Equivalent series resistance	See below table
Parallel capacitance(Co)	4.5pF ~ 7PF Max
Drive level	100 μW
Aging	±5ppm/year
Insulation resistance	More than 500MΩ AT DC100V

EQUIVALENT SERIES RESISTANCE (ESR) AND OSCILLATION MODE

Frequency MHz	E.S.R (Ω)	Mode	Frequency MHz	E.S.R (Ω)	Mode
4.000~4.999	100Max	Fundamental	14.000~19.999	40Max	Fundamental
5.000~5.999	90Max	Fundamental	20.000~23.999	30Max	Third Overtone
6.000~6.999	80Max	Fundamental	24.000~34.999	40Max	Third Overtone
7.000~9.999	60Max	Fundamental	35.000~99.999	80Max	Third Overtone
10.000~13.999	50Max	Fundamental	100.000~200.000	100Max	5 th /7 th Overtone

MECHANICAL CHARACTERISTICS

Resistance to shock:	±3PPM Max ±3Ω Max, Naturally drop it 3 times on a hard wood plate from 100cm height
Resistance to vibration	±3PPM Max ±3Ω Max

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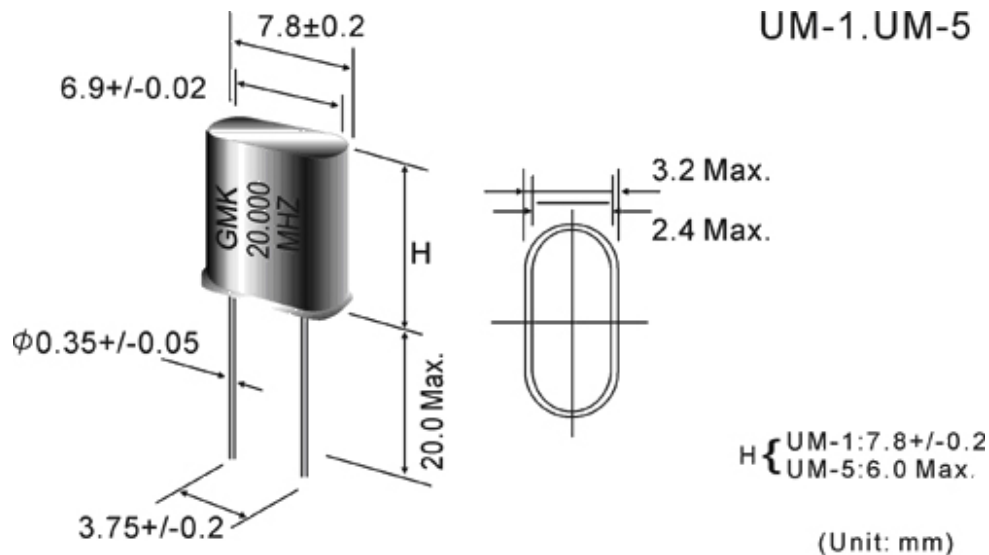
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RELIABILITY

Aging	±3PPM Max/Year
Air tightness	
(1) Gross leak	should be immersed in hot water(90±5℃) for 5 minutes
(2) Fine leak	should be less than 5x10 ⁻⁸ atmcc/sec by helium leak detector
Low drive characteristics	Measured Δ1,C1,3 point at 1.0,,10,100μW

DIMENSION



PART NUMBER

GMK-UM-1-	20.945	10	20	40	B
GMK-UM-5-	Frequency 20.945 MHz	Frequency tolerance ±10ppm	Load capacitance 20pF 00: series	E.S.R.max e.g. 40Ωmax	operating temperature range A: -10-60℃ B: -20-70℃ C: -40-85℃