

# AT-CUT CRYSTAL RESONATORS

## THHF-UM1 / THHF-UM5



### FEATURES

- AT-cut crystal performance
- Tight tolerance
- Excellent frequency-temperature stability
- Excellent for wireless telecom application



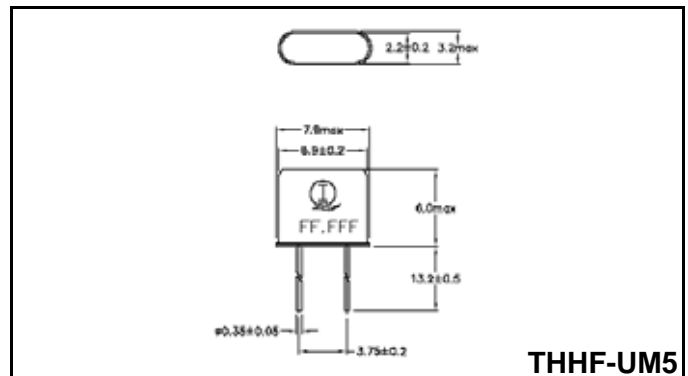
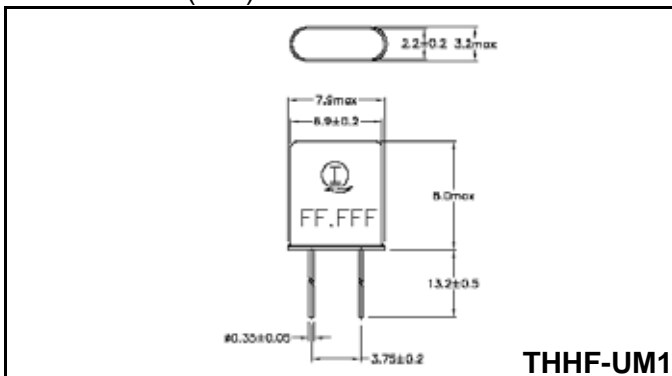
Item		Specifications
Nominal Frequency Range	$f_0$	3.5MHz ~ 40.0MHz (Fundamental)
		30.0MHz ~ 80.0MHz (3rd Overtone)
Frequency Tolerance, $T_a=25^\circ\text{C} \pm 3^\circ\text{C}$	$\Delta f/f$	$\pm 30\text{ppm}$
Load Capacitance	$C_L$	18pF, or customer specify
Frequency Tolerance over Operating Temperature Range	$\Delta f/f$	$\pm 30\text{ppm}$
Operating Temperature Range	$T_{\text{OPR}}$	$-10^\circ\text{C}$ to $70^\circ\text{C}$
Storage Temperature Range	$T_{\text{STG}}$	$-40^\circ\text{C}$ to $85^\circ\text{C}$
Drive Level	DL	0.1mW (1mW Max.)
Shunt Capacitance	$C_0$	7pF Max.
Insulation Resistance	IR	500M $\Omega$ Min.
Aging	$\Delta f_A$	$\pm 5\text{ppm/Year}$ Max.

SERIES RESISTANCE (ESR)							
Frequency Range	6.4< $f_0$ 7.0	7.0< $f_0$ 10.0	10.0< $f_0$ 15.0	15.0< $f_0$ 20.0	20.0< $f_0$ 30.0	30.0< $f_0$ 55.0	
ESR	70 $\Omega$ Max.	50 $\Omega$ Max.	40 $\Omega$ Max.	30 $\Omega$ Max.	25 $\Omega$ Max.	$\Omega$ Max.	

Frequency Range	30.0< $f_0$ 50.0 (3.O.T)	50.0< $f_0$ 60.0 (3.O.T)	60.0< $f_0$ 70.0 (3.O.T)	70.0< $f_0$ 80.0 (3.O.T)
ESR	50 $\Omega$ Max.	40 $\Omega$ Max.	35 $\Omega$ Max.	30 $\Omega$ Max.

Please consult our sales representatives for other specifications.

### DIMENSION (mm)



All specifications are subject to change without notice.