

ECS's UM-1, UM-5, and UM-4 quartz crystals are ideal for use in compact communication equipment.

[Request a Sample](#)



- Low Profile
- Excellent Aging
- RoHS Compliant
- Wide Frequency Range

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS		UM-1	UM-5	UM-4
Frequency Range	Fundamental	10.000 ~ 30.000 MHz		
	3 rd Overtone	25.000 ~ 90.000 MHz	30.000 ~ 90.000 MHz	
Frequency Tolerance*		See Table 1		
Frequency Temperature Tolerance*		See Table 2		
Operating Temperature Range T _{OPR}		See Table 2		
Storage Temperature Range T _{STG}		-40 ~ +90°C		
Load Capacitance (C _L)		10pF – Series (Customer Specified)		
Shunt Capacitance (C ₀)		7pF maximum		
Drive Level (D _L)		500 μW maximum		
Crystal Cut		AT-Cut		

TABLE 1 FREQUENCY TOLERANCE (@ +25°C)

Tolerance (x 10 ⁻⁶)				
±10	±15	±20	±30	±50
●	●	○	○	○

● recommended

○ available

TABLE 2 FREQUENCY-TEMPERATURE TOLERANCE (@+25°C)

FREQUENCY	Tolerance (x 10 ⁻⁶)						
	±3.0	±5.0	±7.5	±10	±15	±20	±30
0 ~ +50°C	○	○	○	○			
-10 ~ +60°C		○	○	●	○		
-20 ~ +70°C			○	○	○	○	
-30 ~ +75°C					○	○	○
-30 ~ +80°C					○	○	●
-35 ~ +80°C						○	○
-40 ~ +85°C						○	○

DIMENSIONS (mm) Continued on Page 2

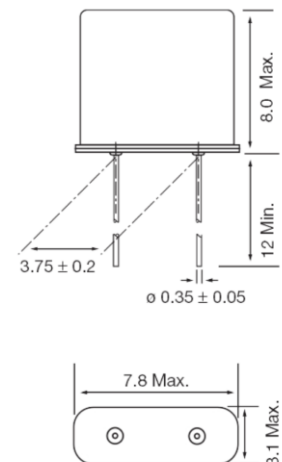


Figure 1) UM-1 Crystal Unit Side and Bottom view

TABLE 3 EQUIVALENT SERIES RESISTANCE/MODE OF OSCILLATION

NORMAL FREQUENCY (MHz)	MODE	ESR (Ω)	
		UM-1	UM-5, UM-4
10 ~ 15	FUNDAMENTAL	40 max.	50 max.
15 ~ 30	FUNDAMENTAL	25 max.	30 max.
25 ~ 30	3 rd	50 max.	60 max.
30 ~ 90	3 rd	45 max.	60 max.

DIMENSIONS (mm)

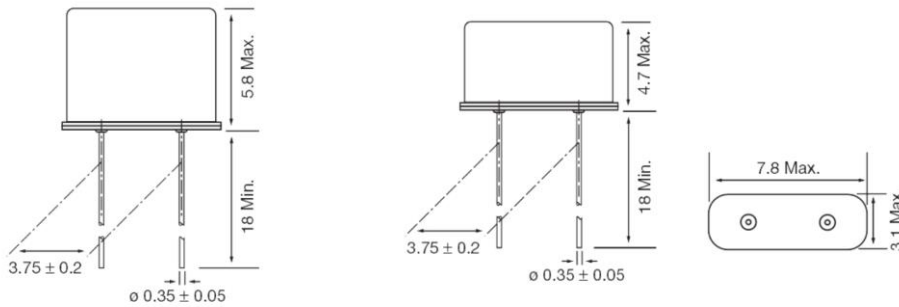


Figure 3) UM-4 Crystal Unit
Side and Bottom view

Figure 2) UM-5 Crystal Unit
Side and Bottom view

PART NUMBERING GUIDE: Example ECS-160-20-22

ECS	-	FREQUENCY ABBREVIATION	-	LOAD CAPACITANCE	-	PACKAGE
ECS		160 = 16.000 MHz		20 = 20 pF S = Series		22 = UM-1 21 = UM-5 25 = UM-4