

**DIP QUARTZ CRYSTAL RESONATOR**



**DIP Cylindrical Crystal MHz  $\phi$  3×8 mm**

- 3 x 8 mm cylinder type
- Small size
- ±20 ppm Standard
- With Insulation Sleeve Available



RoHS compliant

**★ PARAMETERS**

PARAMETERS	SPECIFICATION
Frequency Range	6.000~50.000MHz
Loading Capacitance	20pF Std. 7pF~33pF available
Drive Level	10 $\mu$ W (300 $\mu$ W Max)
Frequency Tolerance	$\pm$ 10ppm / $\pm$ 20ppm (at 25°C)
Equivalent Resistance	See Below
Frequency Stability	$\pm$ 10ppm~ $\pm$ 30ppm
Operating Temp. Range:	0~+50°C to -40~+85°C
Storage Temp. Range:	-40~+85°C
Aging (25°C, First Year)	$\pm$ 5ppm max

⊙ All specification subject change without notice.

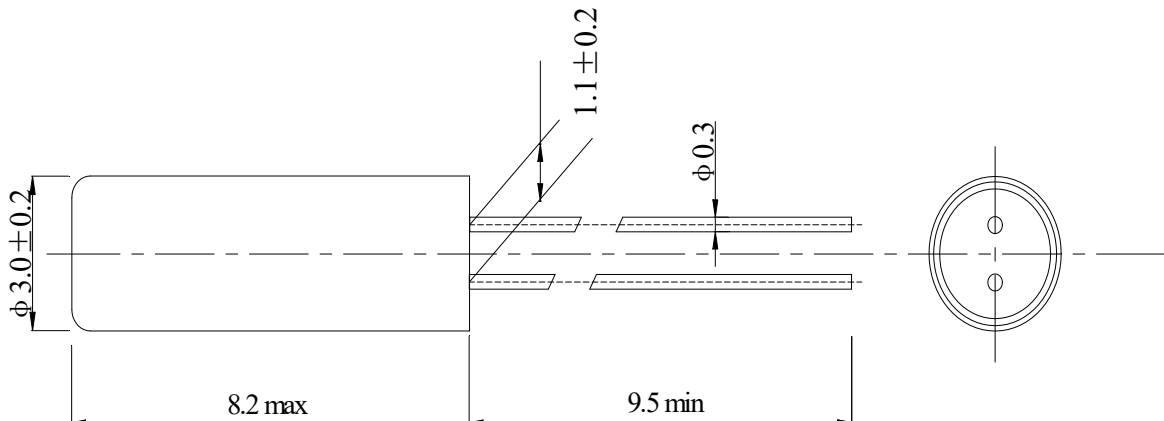
**★ FREQUENCY STABILITY VS. TEMPERATURE      ★ ESR (SERIES RESISTANCE RS)**

Operation Temperature Range	Frequency Stability			
	$\pm$ 10ppm	$\pm$ 20ppm	$\pm$ 30ppm	$\pm$ 50ppm
0°C~+50°C	○	●	○	○
-10°C~+60°C	○	●	○	○
-20°C~+70°C	○	○	●	○
-40°C~+85°C	○	○	○	●

Frequency	Vibration Mode	ESR
6.000-7.999MHz	AT CUT/FUND.	100 $\Omega$ (MAX)
8.000-9.999MHz	AT CUT/FUND.	80 $\Omega$ (MAX)
10.000-11.999MHz	AT CUT/FUND.	60 $\Omega$ (MAX)
12.000-15.999MHz	AT CUT/FUND.	50 $\Omega$ (MAX)
16.000-19.999MHz	AT CUT/FUND.	40 $\Omega$ (MAX)
20.000-33.000MHz	AT CUT/FUND.	30 $\Omega$ (MAX)
30.000-50.000MHz	AT 3rd /OT	100 $\Omega$ (MAX)

● standard ○ available

**★ DIMENSIONS& LAND PATTERN LAYOUT (Unit: mm)**



● Mounting of cylinder type products:

Soldering the body of the cylinder type crystal units with PCB must be avoided due to deteriorate the characteristics or damage the products. Rubber adhesive is recommended.

● Soldering

Lead wires should be soldered within 3 seconds with the soldering iron heated to a temperature no higher than 300°C

★ PART NUMBER GUIDE *e.g. FTX20.000M20A8-20/30B (\*A8=AT 3.0×8.0mm)*

Logo	Quartz Crystal Resonator	Frequency Hz	Load Capacitance pF	Package	Frequency Tolerance ppm	Frequency Stability ppm	Operating Temp. Range
FT	X	20.000M	20	A8	20	30	B

Definition	Description
Operating Temperature Range	A: -10~+60°C
	B: -20~+70°C
	C: -30~+80°C
	D: -40~+85°C
	E: Customer specified

★ WAVE SOLDERING PROFILE

