



# DIP QUARTZ CRYSTAL RESONATOR

# 石英晶体谐振器



## DIP Cylindrical Crystal MHz $\phi$ 3×9 mm

- 3 x 9 mm cylinder type
- Small size
- $\pm 20$  ppm Standard
- With Insulation Sleeve Available



RoHS compliant

### ★ PARAMETERS 技术参数

PARAMETERS	参数	SPECIFICATION 规格
Frequency Range	频率范围	4.000~50.000MHz
Loading Capacitance	负载电容	20pF Std. 7pF~33pF available
Drive Level	激励电平	10 $\mu$ W (300 $\mu$ W Max)
Frequency Tolerance	频率偏差	$\pm 10$ ppm / $\pm 20$ ppm (at 25°C)
Equivalent Resistance	谐振电阻	See Below
Frequency Stability	频率稳定性	$\pm 10$ ppm~ $\pm 30$ ppm
Operating Temp. Range:	工作温度范围	0~+50°C to -40~+85°C
Storage Temp. Range:	储存温度范围	-40~+85°C
Aging (25°C, First Year)	老化率	$\pm 5$ ppm max

⊙ All specification subject change without notice. 规格变化, 恕不另行通知。

### ★ FREQUENCY STABILITY VS. TEMPERATURE 频率温度特性

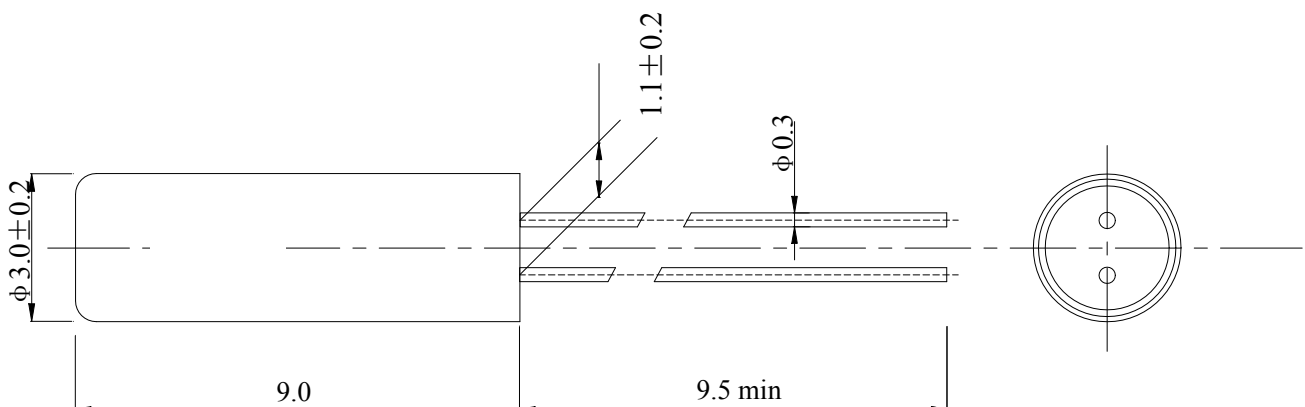
Operation Temperature Range	Frequency Stability			
	$\pm 10$ ppm	$\pm 20$ ppm	$\pm 30$ ppm	$\pm 50$ ppm
0°C~+50°C	○	●	○	○
-10°C~+60°C	○	●	○	○
-20°C~+70°C	○	○	●	○
-40°C~+85°C	○	○	○	●

● standard ○ available

### ★ ESR (SERIES RESISTANCE RS)

Frequency	Vibration Mode	ESR
4.000-5.999MHz	AT CUT/FUND.	120 $\Omega$ (MAX)
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)

### ★ DIMENSIONS & LAND PATTERN LAYOUT (Unit: mm) 外形尺寸



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● 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 部件号示例 e.g.HLX20.000M20A9-20/30B (\*A9=AT 3.0×9.0mm)

Logo	Quartz Crystal Resonator 石英晶体谐振器	Frequency 频率 Hz	Load Capacitance 负载电容 pF	Package 盒型	Frequency Tolerance 常温频差 ppm	Frequency Stability 温度频差 ppm	Operating Temp. Range 工作温度
HL	X	20.000M	20	A9	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 波峰焊特性

