

SMD QUARTZ CRYSTAL RESONATOR



4 Pad Version 10.4×4.1 mm

- Tuning fork crystal in standard package
- 32.768 KHz standard
- ±10 ppm available
- Excellent Reliability Performance
- Reflow soldering temperature: 260°C max



RoHS compliant

★ **PARAMETERS**

| PARAMETERS | SPECIFICATION 规格 |
|-----------------------------|---|
| Frequency Range | 32.768KHz standard, 20.000~165.000KHz |
| Loading Capacitance | 12.5pF Std. 6 to 20pF Series available |
| Drive Level | 1.0 μ W Max |
| Frequency Tolerance | ±10ppm ~ ±30ppm (at 25°C) |
| Equivalent Resistance | 50KΩ Max |
| Temperature coefficient | -0.04×10 ⁻⁶ /°C ² Max |
| Operating Temp. Range: | -20 ~ +70°C / -40 ~ +85°C |
| Storage Temp. Range: | -40 ~ +85°C |
| Aging (25°C , First Year) | ±3ppm Max |

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

★ **FREQUENCY STABILITY VS. TEMP.**

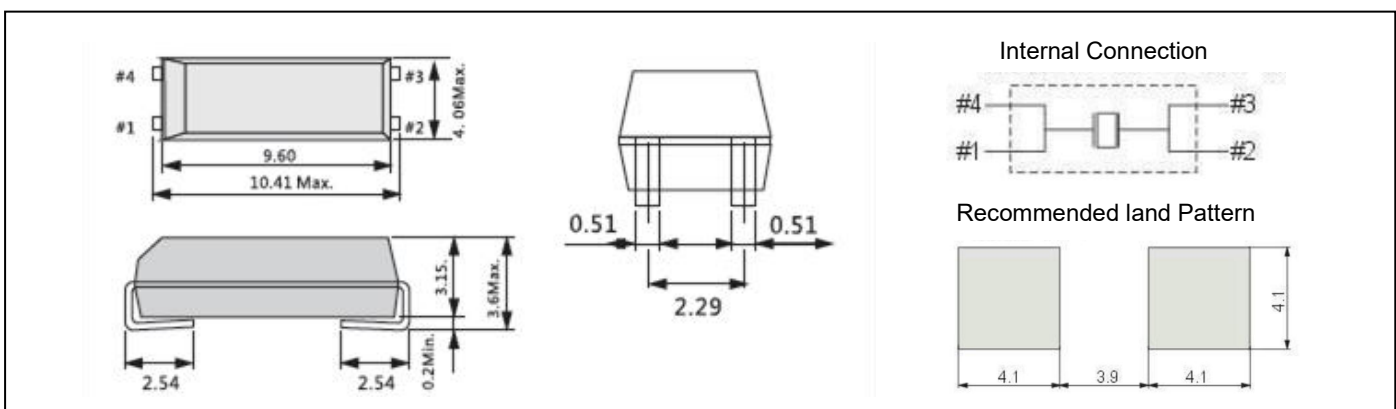
| Operation Temperature Range | Frequency Stability | |
|-----------------------------|---------------------|---------|
| | -80ppm | -160ppm |
| -20°C~+70°C | ● | |
| -40°C~+85°C | | ● |

● standard ○ available

★ **ESR (SERIES RESISTANCE RS)**

| Frequency | 20-30KHz | 30-40KHz | 40-70KHz | 70-165KHz |
|-----------|----------|----------|----------|-----------|
| ESR | 50KΩ Max | 45KΩ Max | 20KΩ Max | 12KΩ Max |

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



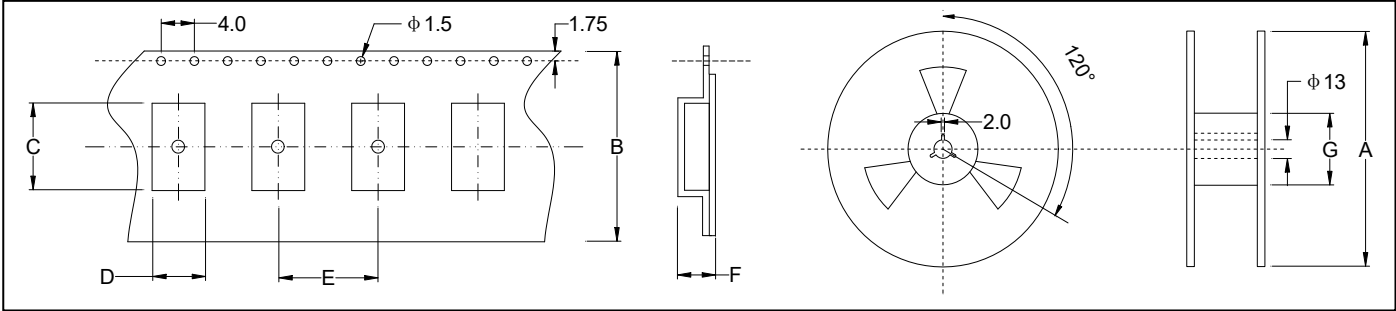
★ **PART NUMBER GUIDE**

e.g. FTX32.768K12.5SM10A-20D (*SM10A=10.4×4.1 405Type)

| | Quartz Crystal Resonator | Frequency Hz | Load Capacitance pF | Package | Frequency Tolerance ppm | Operating Temp. Range |
|----|--------------------------|--------------|---------------------|---------|-------------------------|-----------------------|
| FT | X | 32.768KHz | 12.5 | SM10A | 20 | D |

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

★ TAPING SPECIFICATION (Unit: mm)



| | A | B | C | D | E | F | G |
|-------------------|---------|----------|----------|---------|------|---------|---------|
| SMD10.4×4.1 | 330±2.0 | 24.0±0.3 | 12.8±0.2 | 4.8±0.2 | 12.0 | 3.9±0.1 | 100±1.0 |
| 2000 pcs per reel | | | | | | | |

★ REFLOW SOLDERING PROFILE

