## Monolithic Crystal Filters

Features

- Ultra thin (1.0mm Height)
- Small SMD cramic package.
- High resolution frequency tolerance obtained.
- SMT and reflow compatible.


Unit : mm

| Specification |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | \#of pole | Frequency <br> (MHz) | PassBand width |  | StopBand width |  | Ripple dB max. | Insertion Loss dB max. | Guaranteed Attenuation |  | Terminating Impedance ohms//pF | Holder |
|  |  |  | dB | $\pm \mathrm{kHz}$ | dB | $\pm \mathrm{kHz}$ |  |  | dB | fokHz- |  |  |
| 21408A | 2 | 21.400 | 3 | 3.75 | 15 | 12.5 | 1.0 | 2.0 | 70 | -910 | 850//6.0 | SF-2113 |
| 21808A | 2 | 21.800 | 3 | 3.75 | 15 | 12.5 | 1.0 | 2.0 | 70 | -910 | 850//6.0 | SF-2113 |
| 21415A | 2 | 21.400 | 3 | 7.5 | 18 | 28 | 1.0 | 2.0 | 70 | -910 | 1500//2.0 | SF-2113 |
| 21715A | 2 | 21.700 | 3 | 7.5 | 18 | 28 | 1.0 | 2.0 | 70 | -910 | 1500/2.0 | SF-2113 |
| 22011B | 4 | 22.050 | 3 | 5.5 | 30 | 20 | 1.0 | 3.0 | 80 | -910 | 1600/2.0 | SF-2113X2 |


| Machanical Performance |  |  |
| :---: | :---: | :---: |
| Test items | Test Condition |  |
| Shock(Random drop) | Dumy:100g <br> Height:120cm <br> Dropped cycle: 3 cycle <br> Drop it onto a hard wooden board(Thickness:30mm) for 6 directions ( $X^{\prime} Y^{\prime} Y^{\prime} Z Z^{\prime}$ ). This should be 1 cycle. | The malfunction and are not in the outward appearance. <br> It must satisfy all electrical characteristic. |
| Vibaration | Frequency: $10 \sim 55 \mathrm{~Hz}$ <br> Amplitude: 1.5 mm <br> Period:About 1 min <br> Test Time: XYZ each direction 2 h | The malfunction and are not in the outward appearance. <br> It must satisfy all electrical characteristic. |
| Solderability | Solder:JIS Z 3282(H60A) <br> Flux :JIS K 5902 <br> Temp.of : $230 \pm 5$ (DEG C) Solder bath Dipping time: $5 \pm 0.5 \mathrm{~S}$ | The dipping surface of the lead shell be at least $95 \%$ covered with a continuons new solder coating. |
| Leakage | Air leak test <br> Helium leak test | Leak rate $1 \times 10^{-4} \mathrm{~atm} \mathrm{cc} / \mathrm{sec}$ max. Leak rate $1 \times 10^{-8} \mathrm{~atm} \mathrm{cc} / \mathrm{sec}$ max. |
| Damp heat | Temp:+40 $\pm 2$ (DEG C) <br> Humidity:90~95\% <br> Time: $240 \pm 8 \mathrm{Hr}$ <br> Test after 2 hours | The malfunction and are not in the outward appearance. <br> It must satisfy all electrical characteristic. |
| Cold | Temp:-25 $\pm 3$ (DEG C) <br> Time: $\mathbf{1 0 0 0 H} \pm 24 \mathrm{Hr}$ <br> Test after 2 hours | The malfunction and are not in the outward appearance. <br> It must satisfy all electrical characteristic. |
| Dry heat | Temp:+70 $\pm 2$ (DEG C) <br> Time: $1000 \mathrm{H} \pm 24 \mathrm{Hr}$ <br> Test after 2 hours | The malfunction and are not in the outward appearance. <br> It must satisfy all electrical characteristic. |
| Solvency | Oganic liquid cleaning |  |

