Specification for monolithic crystal filter

MQF 42.2-0800/03

1. General
1.1. Package:

1.2. Type name: MQF 42.2-0800/03
1.3. Number of poles: 6
1.4. Operating temperature range: -25°C to +70°C
1.5. Storage temperature range: -40°C to +85°C

2. Electric values

2.1. Nominal centre frequency \( f_0 \): 42.20 MHz

2.2. Pass band

2.2.1. Bandwidth between 1 dB - frequencies: \( \geq f_0 \pm 4.0 \text{ kHz} \)
2.2.2. Ripple: \( \leq 1.0 \text{ dB at } f_0 \pm 4.0 \text{ kHz} \)
2.2.3. Group delay distortion: \( \leq 50 \mu \text{s ( at } f_0 \pm 4 \text{ kHz }) \)
2.2.4. Group delay variation (absolute value at minimum): \( \leq 50 \mu \text{s (between different samples of production)} \)
2.2.5. Insertion loss: \( \leq 4.0 \text{ dB (measured on smallest attenuation in pass band)} \)

2.3. Stop band

2.3.1. \( f_0 \pm 25 \text{ kHz} \): \( \geq 60 \text{ dB} \)
2.3.2. \( f_0 - 40 \text{ kHz} \ldots \ldots \ldots \ldots \ldots - 60 \text{ kHz} \): \( \geq 80 \text{ dB} \)
2.3.3. \( f_0 - 60 \text{ kHz} \ldots \ldots \ldots \ldots \ldots - 42.2 \text{ MHz} \): \( \geq 60 \text{ dB} \)
2.3.4. \( f_0 + 25 \text{ kHz} \ldots \ldots \ldots \ldots \ldots + 250 \text{ kHz} \): \( \geq 60 \text{ dB} \)
2.3.5. Spurious responses \( f_0 + 25 \text{ kHz} \ldots \ldots \ldots + 35 \text{ MHz} \): \( \geq 45 \text{ dB} \)

2.4. Terminating impedance (input and output): \( 50 \Omega \pm 5\% / 0 \text{ pF} \)
2.5. **Intermodulation**

2.5.1. **Input pin: 1**

- frequency 1: \( f_0 + 30 \) kHz
- frequency 2: \( f_0 + 60 \) kHz
- input power level at pin 1: -6 dBm
- IM: \( \geq 75 \) dB at \( f_0 \)

2.5.2. **Input pin 3**

- frequency 1: \( f_0 +1 \) kHz
- frequency 2: \( f_0 -1 \) kHz
- input power level at pin 3: 0 dBm
- IM: \( \geq 50 \) dB

2.6. **Maximum input power level:** +20 dBm without damage

2.7. **Compression point:** +15 dBm input for inband signals

3. **Environment conditions**

3.1. **Vibration according to IEC 68-2-6 test FC** (filter case shall be fastened to the vibration table)
- frequency range (with total amplitude 0.7 mm): 5 g, 10 Hz - 55 Hz
- acceleration: 1.9 g, 4 Hz - 90 Hz
- duration: 0.5 hours

3.2. **Shock according to IEC 68-2-27, test Ea**
- number of directions: 3
- peak acceleration: 25 g 1/2 sine
- duration of the nominal pulse: 20 ms
- number of shocks: 3

3.3. **Humidity test Db 40 according to IEC 68-2-30**
- 21 cycles

3.4. **Aging:**
- 1000 hours at 70°C ± 3°C

3.5. **Change of temperature according to IEC 68-2-14**
- temperatures: \(-25°C / 70°C\)
- exposure time: 30 minutes
- cycles: 10

3.6. **Solder heat test:**
- terminals dipped in for 6 seconds at 250°C

3.7. **Long term stability:**
- min 5 years for frequency and attenuation

4. **Others**

4.1. **Design:**
- case soldered

4.2. **Weight:**
- \( \leq 35 \) g

5. **Marking:**
- manufacturer, date code
- MQF 42.2-0800/03

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Edited by: 

date: ____________________________

name: ____________________________