Specification for monolithic crystal filter  **MQF 40.048-2000/02V1**

1. General
1.1. Package:

1.2. Type name: MQF 40.048-2000/02V1
1.3. Number of poles: 6
1.4. Operable temperature range: -40°C to +85°C
1.5. Operating temperature range: -20°C to +70°C
1.6. Storage temperature range: -55°C to +90°C

2. Electric values
2.1. Nominal centre frequency fo: 40.048 MHz

2.2. Pass band
2.2.1. Bandwidth between 3 dB - frequencies: \( \geq f_0 \pm 10 \text{ kHz} \)
2.2.2. Ripple at \( f_0 \pm 4.0 \text{ kHz} \): \( \leq 1.5 \text{ dB at 25°C} \)
2.2.3. Change of group delay between different samples of the same type: \( \leq 300 \mu s ( \text{ at } f_0 \pm 4 \text{ kHz} ) \)
2.2.4. Insertion loss: \( \leq 4.0 \text{ dB at 25°C} \)
( measured on smallest attenuation in pass band )

2.3. Stop band
2.3.1. \( f_0 \pm 76 \text{ kHz} \): \( \geq 60 \text{ dB} \)
2.3.2. 39.932 MHz........39.972 MHz \( \geq 70 \text{ dB} \)
2.3.3. \( f_0 +76 \text{ kHz}........+250 \text{ MHz} \): \( \geq 60 \text{ dB} \)
2.3.4. Spurious responses: \( \geq 40 \text{ dB} \)

2.4. Terminating impedance (input and output): 50 Ω//0 pF
2.5. Intermodulation

2.5.1. Out band - intermodulation
frequency 1: \( f_0 \pm 30 \text{ kHz} \)
frequency 2: \( f_0 \pm 60 \text{ kHz} \)
input power level at pin 1 (input): \(-6 \text{ dBm}\)
IM: \( \geq 75 \text{ dB (in relation to pin 3)} \)

2.5.2. In band - intermodulation
frequency 1: \( f_0 + 1 \text{ kHz} \)
frequency 2: \( f_0 -1 \text{ kHz} \)
input power level at pin 3 (output): \(0 \text{ dBm}\)
IM: \( \geq 50 \text{ dB (in relation to pin 1)} \)

2.6. Maximum input power level: \(0 \text{ dBm}\)

2.7. Maximum input power level: \(20 \text{ dBm (without damage)}\)

2.8. It is possible to tune the filter after removing the label from the side of the filter:
Input: with square-headed screwdriver 1.15 x 1.15 mm
Output: with screwdriver 1.0 x 1.5 mm
The consequence of this is that guarantee become void for points 2.1 to 2.5 as well as 3.3 and 3.5.

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): \(10 \text{ Hz - 55 Hz}\)
- acceleration: \(49.05 \text{ m/s}^2\)
- duration: \(0.5 \text{ hours}\)

3.2. Shock according to IEC 68-2-27, test Ea
- number of directions: \(3\)
- peak acceleration: \(490.5 \text{ m/s}^2\)
- duration of the nominal pulse: \(11 \text{ ms}\)
- number of shocks: \(3\)

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

3.4. Aging:
- 1000 hours at \(70^\circ \text{C \pm 3°C}\)

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

4. Others

4.1. Design: case soldered
4.2. Weight: \(\leq 35 \text{ g}\)

5. Marking: manufacturer, date code
- MQF 40.048-2000/02V1

Edited by: date: __________________________ name: __________________________