

FTF4884

Monolithic Crystal Filter

Part number: 4884 | Revision: A1 | Date: 20 January 2023



1.0 Main parameters

N°	Characteristics	Symbol	Value	Unit	Note
1.1	Nominal centre frequency	fc	109.650	MHz	3 rd overtone

2.0 Inseccion lose

N°	Characteristics	Symbol	Min.	Nom.	Max.	Unit	Note
2.1	Insertion Loss	IL			5.0	dB	

3.0 Passband

N°	Characteristics	Symbol	Nom.	Unit	-Δ F _{min}	+Δ F _{max}	Unit	Note
3.1	Bandwidth between 3dB frequencies		3	dB	-15.0	+15.0	kHz	

4.0 Ripple over

N°	Characteristics	Symbol	Nom.	Unit	-Δ F _{min}	+Δ F _{max}	Unit	Note
4.1	Ripple over		≤1.0	dB	-12.0	+12.0	kHz	Referred to f _c

5.0 Stopband

N°	Characteristics	Symbol	Nom.	Unit	-Δ F _{min}	+Δ F _{max}	Unit	Note
5.1	StopBand 1		≥40	dB	-80	+80	kHz	Referred to f _c
5.2	StopBand 2		≥60	dB	-120	+120	kHz	Referred to f _c /except spurious
5.3	StopBand 3		≥65	dB	-910	+910	kHz	Referred to f _c /except spurious
5.4	Spurious responses		≥20	dB				

6.0 Matching

N°	Characteristics	Symbol	Resistance	Unit	Capacitance	Unit	Note
6.1	Input and output		50	Ω	0	pF	

7.0 Input level

N°	Characteristics	Symbol	Value	Unit	Note
7.1	Operating		-10	dBm	
7.2	Before destruction		+10	dBm	

8.0 Temperature range

N°	Characteristics	Symbol	Min.	Nom.	Max.	Unit	Note
8.1	Operating	OTR	-40		85	°C	
8.2	Storage	STR	-55		85	°C	

9.0 Intermodulation

N°	Characteristics	Conditions	Max.	Unit	Note
9.1	Out band IM 1	f ₁ =f _c ±100kHz, f ₂ =f _c ±200kHz, P ₀ =-10dBm	-70	dBc	
9.2	Out band IM 2	f ₁ =f _c ±50kHz, f ₂ =f _c ±100kHz, P ₀ =-10dBm	-65	dBc	
9.3	In band IM	f _c ±1kHz, P ₀ =-10dBm	-50	dBc	

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10.0 Package and marking

N°	Characteristics	Specifications	Model outline drawing
10.1	Package type	KF13 (25.1 x 14.1 mm)	
10.2	Package height	10.0 mm max.	
10.3	Pin length	4.0 mm min.	
10.4	Marking	Line 1: RAKON YYWW Line 2: FTF4884/109.650MHz	

11.0 Test circuit

N°	Test circuit diagram
11.1	

12.0 Reflow

N°	Soldering												
12.1	<p>The package of this filter is welded with lead free solder type SA387 (Sn95.5, Ag3.8,Cu0.7). We recommend hand soldering. The recommended hand soldering parameters are the following:</p> <p>Hand Soldering Parameters Starting Point:</p> <table border="1"> <thead> <tr> <th>Process</th> <th>Max Solder Iron Tip Temperature</th> <th>Max Contact Time with Component Lead</th> <th>Number of Heat Cycles</th> </tr> </thead> <tbody> <tr> <td>Pb-based</td> <td>300 °C</td> <td>20 s</td> <td>3</td> </tr> <tr> <td>Pb-free</td> <td>350 °C</td> <td>20 s</td> <td>3</td> </tr> </tbody> </table> <p>Recovery time : 2.5h ±0.5h. Only leads of component must be soldered. Please avoid solder another part of component. It is recommended that the current version of IPC-A-610 be consulted for solder-joint formation requirement.</p>	Process	Max Solder Iron Tip Temperature	Max Contact Time with Component Lead	Number of Heat Cycles	Pb-based	300 °C	20 s	3	Pb-free	350 °C	20 s	3
Process	Max Solder Iron Tip Temperature	Max Contact Time with Component Lead	Number of Heat Cycles										
Pb-based	300 °C	20 s	3										
Pb-free	350 °C	20 s	3										

13.0 Frequency Characteristics

N°	Diagram 1	Diagram 2
13.1		

14.0 Reliability Specifications

N°	Test Item	Test Conditions	Reference
14.1	Vibration	Condition D Frequency range: 110Hz – 2000Hz Acceleration: 220g Axis: 3 Duration: 12 cycles of 220mn each	MIL-STD-2022 Method 204D
14.2	Shock	Condition C Number of directions: 6 Peak acceleration: 500g Duration of the nominal pulse: 0.5ms Number of shocks 3	MIL-STD-883G Method 2002
14.3	Shock	Condition C Number of directions: 6 Peak acceleration: 90g Duration of the nominal pulse: 1.0ms Number of shocks 3	MIL-STD-2022 Method 213B
14.4	Humidity	Condition C Temperature: 25°C to 65°C Humidity: 90 to 95% Duration: 10 cycles of 24 hours each	MIL-STD-202 Method 106G
14.5	Ageing	1000 hours at 85°C±3°C	

15.0 Specification History

Revision	Change notes	Date
W0	Preliminary Datasheet creation	Feb, 26 th 2018
W1	Operating temperature range modification (-40 to +85°C)	Mar, 05 th 2018
W2	Maximum input power level added RoHS compliance added Termination material and soldering instructions added Reliability specifications added	Jul, 12 th 2019
W3	Attenuation at ±910kHz : 65dB min Spurious responses: 20dB min	Sep, 09 th 2019
W4	§9.2 modification (f1= fc±50kHz f2= fc±100kHz)	Feb, 06 th 2020
A0	Validation of all environment conditions (following MIL – standard) Approved data sheet in production	Feb, 21 st 2020
A1	Re-branding Rakon to RakonXpress	Jan, 20 th 2023