

VI TELEFILTER**Resonator Specification****TFR 390 - 1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedances
 for input: 50 Ω || 0 pF
 for output: 50 Ω || 0 pF

Characteristics**Remark:**

The minimum of the pass band attenuation a_{\min} is defined as the insertion loss a_e . The centre frequency f_R is the frequency of the minimum of the passband attenuation a_{\min} . The temperature coefficient of frequency T_{RF} is valid both for the resonant frequency f_R and the frequency response of the resonator in the operating temperature range. The frequency shift of the resonator in the operating temperature range is not included in the production tolerance scheme.

D a t a		typ. value	tolerance/limit
Insertion Loss (Reference level)	$a_e = a_{\min}$	1,6 dB	max. 2,5 dB
Resonant Frequency	f_R	390,000 MHz	± 100 kHz
Ageing of Resonant Frequency		10 ppm	max. 10 ppm/year
Unloaded Quality Factor			min. 6000
Parallel Capacitance	C_0	3,6 pF	
Motional Resistance	R_1	14,0 Ω	
Motional Inductance	L_1	70,5 μH	
Motional Capacitance	C_1	2,37 fF	
Operating Temperature Range			- 40..... + 85 °C
Storage Temperature Range			- 40..... + 85 °C
Turnover Temperature		25 °C	
Temperature Coefficient of frequency (T_{RF})		-0,032 ppm/K ²	
Frequency Deviation of f_R over temperature T		$\Delta f_C(\text{Hz}) = T_{RF}(\text{ppm/K}^2) \times (T - T_A)^2 \times f_{CAT}(\text{MHz})$	
Input Power Level			max. 0 dBm

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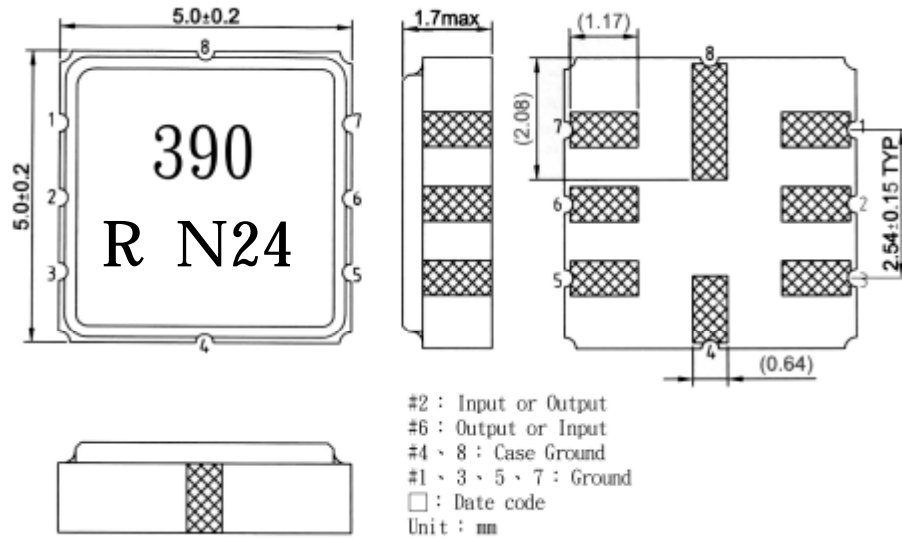
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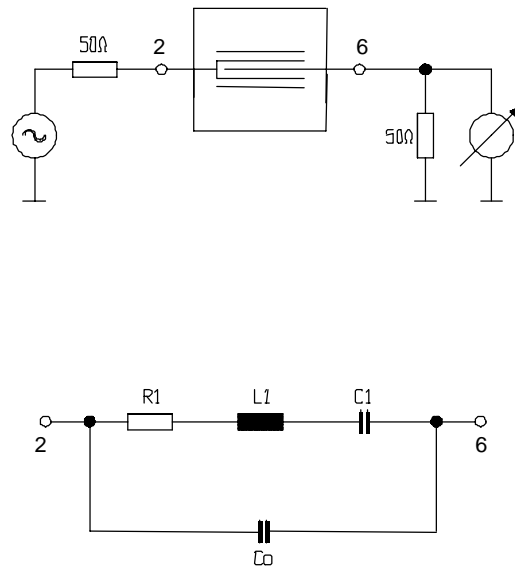
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Construction, pin configuration and 50 Ω - matching network

(All dimensions in mm)



50 Ohm test circuit 1



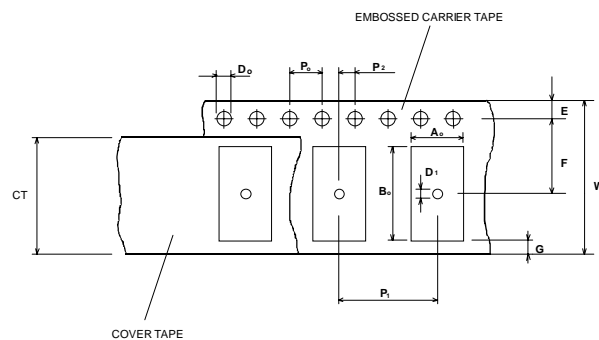
Stability characteristics

After the following tests the filter shall meet the whole specification:

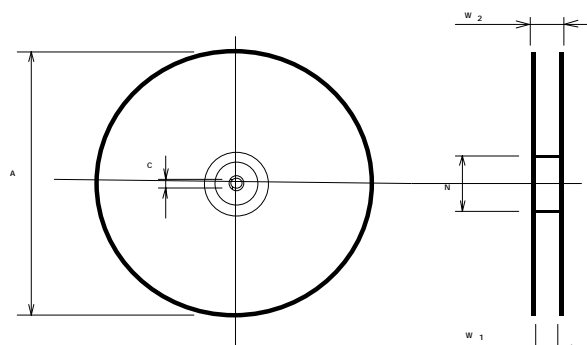
Shock:	random free drops 3 times from height of 1.0 meter onto concrete floor.			
Vibration:	Total peak amplitude:	1.5 mm		
	Vibration frequency :	10 to 55 Hz		
	Sweep period :	1.0 minute		
	Vibration directions :	3 mutually perpendicular		
	Duration :	2 hr / direc.		
Solderability: (solder heat)	immersed pad in soldering bath at $245 \pm 5^\circ\text{C}$ for 5 ± 0.5 seconds.			
	→75% or more of the immersed surface shall be covered with solder			
Temperature Characteristics: Dry heat: (Aging test)	Specimens shall be measured within -10°C to $+50^\circ\text{C}$ temperature range			
	Temperature :	$125 \pm 2^\circ\text{C}$		
	Duration :	250 hours		
Cold resistance:	Temperature :	$-40 \pm 3^\circ\text{C}$		
	Duration :	96 hours		
Thermal Shock:	Heat cycle conditions			
	-55 C	25 C	85 C	
	(30 min)	(5 min)	(30 min)	
	Cycle time :		5 times	

Packing**Tape (all dimensions in mm)**

W	: 12 ± 0,3
Po	: 4 ± 0,1
Do	: 1,5 + 0,1
E	: 1,75 ± 0,1
F	: 5,5 ± 0,05
G (min)	: 0,75
P2	: 2 ± 0,05
P1	: 8 ± 0,10
D1(min)	: 1,5
Ao	: 5,30 ± 0,1
Bo	: 5,30 ± 0,1
CT	: 9,5 ± 0,2

**Reel (all dimensions in mm):**

A	: 330
W1	: 12,4 + 2,0
W2 (max)	: 18,4
N (min)	: 50
C	: 13 ± 0.2



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Air reflow temperature conditions

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

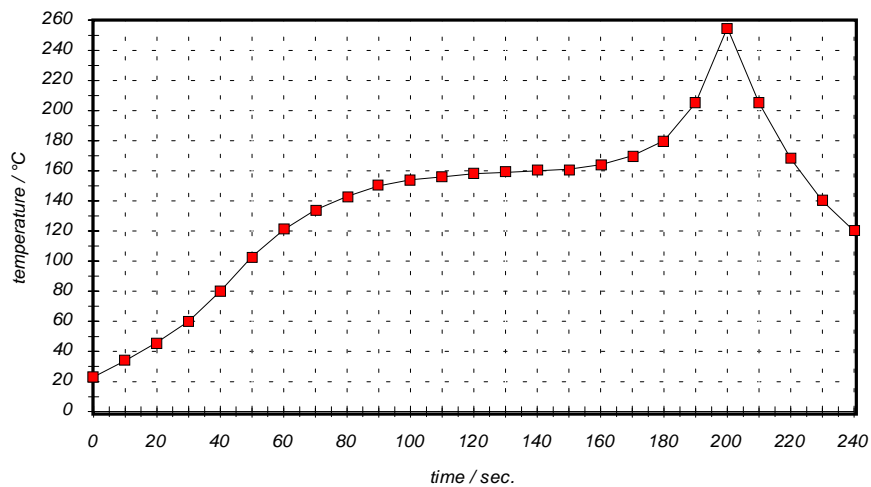
Chip-mount air reflow profile

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160
10	34	150	161
20	46	160	164
30	60	170	170
40	80	180	180
50	103	190	205
60	121	195	230
70	134	200	255
80	143	205	230
90	150	210	205
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120

History

version	reason of changes	name	date
1.0	generate specification	Pfeiffer	13.06.2001