

Microchip**Filter specification****TFS 748****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50 Ω	
Output:	50 Ω	

Characteristics**Remark:**

The maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 748,0 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} are guaranteed for the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

D a t a					typ. value		tolerance / limit				
Insertion loss					a _e	3,0	dB	max.	4,0	dB	
Nominal frequency					f _N				748,0	MHz	
Passband					PB			f _N	±	20,0	MHz
Pass band variation						1,3	dB	max.	2,0	dB	
Absolute attenuation					a _{abs}						
100	MHz	...	658	MHz		57	dB	min.	32	dB	
658	MHz	...	703	MHz		22	dB	min.	17	dB	
793	MHz	...	838	MHz		20	dB	min.	17	dB	
838	MHz	...	2000	MHz		42	dB	min.	32	dB	
Group delay ripple within PB						15	ns	max.	50	ns	
Phase linearity within PB **						0,2	°	max.	2	°rms	
Return loss within PB						16	dB	min.	10	dB	
Input power level						-		max.	0	dBm	
Operating temperature range					OTR	-		- 40 °C ... + 85 °C			
Storage temperature range						-		- 40 °C ... + 85 °C			
Temperature coefficient of frequency					TC _f *	-73	ppm/K		-		

*) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

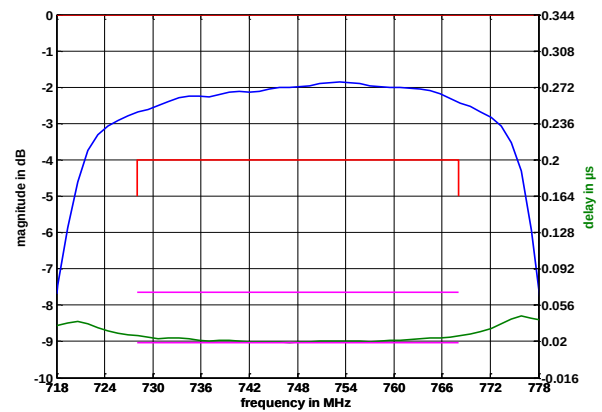
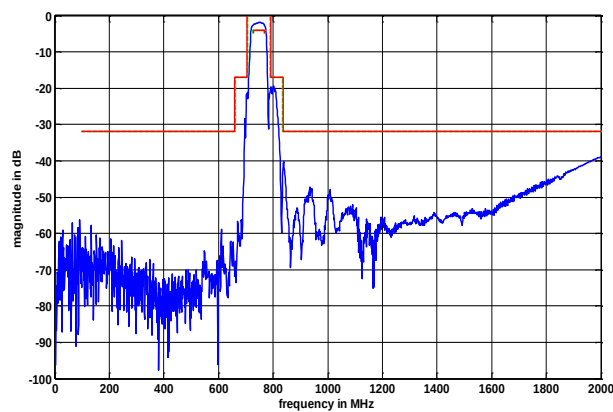
**) over any 1,25 MHz continuous bandwidth within passband

Generated:**Checked / Approved:**

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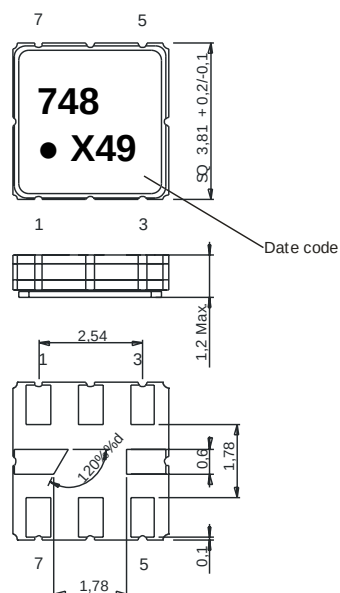
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Filter characteristic



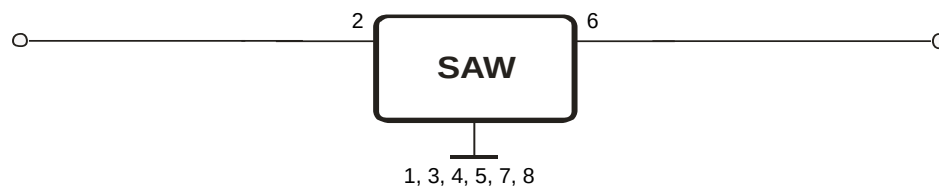
Construction and pin connection

(All dimensions in mm)



1	Ground
2	Input
3	Ground
4	Ground
5	Ground
6	Output
7	Ground
8	Ground

Date code: Year + week
 X 2009
 A 2010
 B 2011
 ...

50 Ω Test circuit

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Stability characteristics, reliability

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

1. Shock: 500g, 1 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5 g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125°C / 30 min. each / 10 cycles
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: three times max.;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;
5. ESD MIL-STD-883E using coupling network of ISO 10605 and EN 6100-4-2
HBM:250V; CDM:V;

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

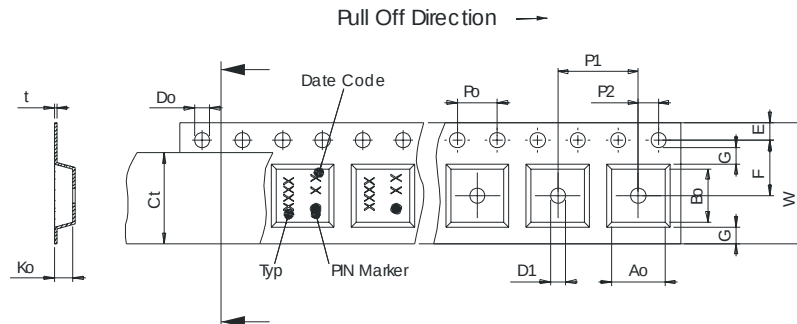
Packing

Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

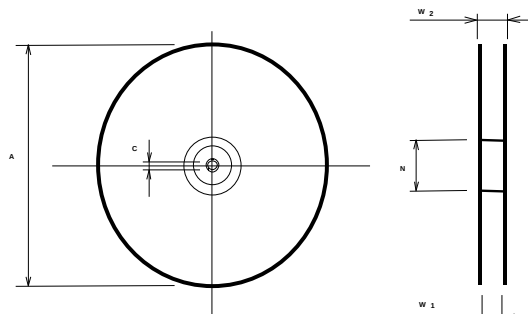
max. pieces of filters per reel:	9000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 12,00 ± 0,3
Po	: 4,00 ± 0,1
Do	: 1,50 +0,1/-0
E	: 1,75 ± 0,1
F	: 5,50 ± 0,05
G(min)	: 0,75
P2	: 2,00 ± 0,05
P1	: 8,00 ± 0,1
D1(min)	: 1,50
Ao	: 4,30 ± 0,1
Bo	: 4,30 ± 0,1
Ct	: 9,5 ± 0,1

**Reel (all dimensions in mm)**

A	: 330
W1	: 8,4 +1,5/-0
W2(max)	: 14,4
N(min)	: 50
C	: 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

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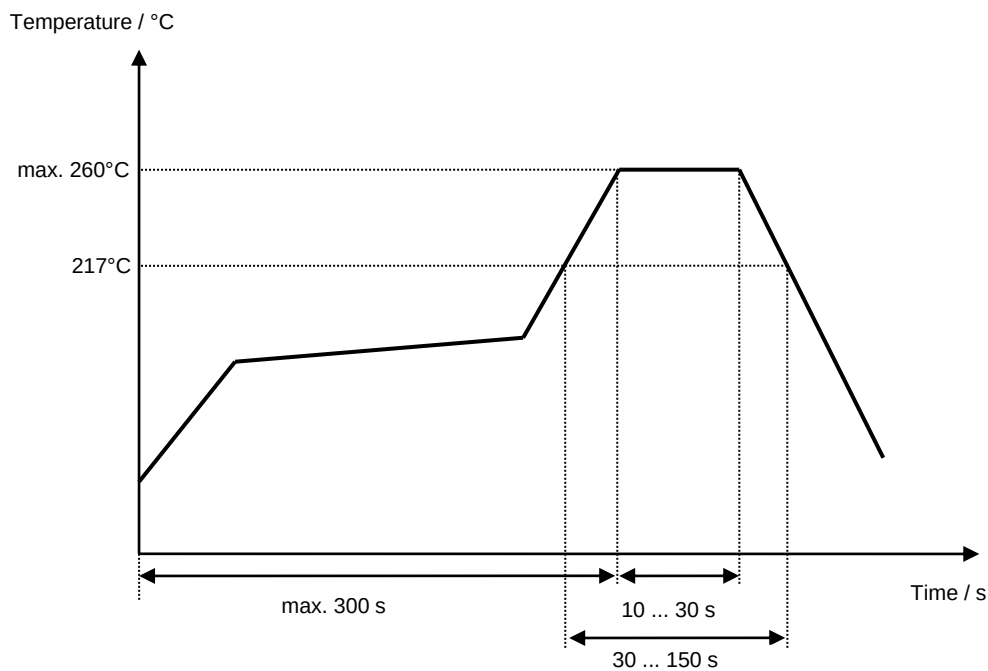
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Air reflow temperature conditions

Conditions	Exposure
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50°C)	less than 6°C/second
Time from 30°C to Peak temperature	no greater than 300 seconds

Chip-mount air reflow profile

Microchip**Filter specification****TFS 748****5/5****History**

Version	Reason of changes	Name	Date
1.0	- Generation of development specification	Noack	14.08.2009
1.1	- Generation of filter specification - add typical values and filter characteristic	Noack	30.11.2009
1.2	- Change packing (tape and reel)	Noack	16.02.2010

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