

Microchip**Filter specification****TFS 1575T****1/5****Measurement condition**

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

Characteristics

Remark:

The minimum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 1575,42 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 (reference level)	a_e	1,3	dB	max.	3,0	dB
Nominal frequency	f_N	-			1575,42	MHz
Passband	PB	-		f_N	$\pm$ 15,0	MHz
Pass band ripple		0,5	dB	max.	2,0	dB
Pass band variation		1,7	dB	max.	3,0	dB
Absolute attenuation	a_{abs}					
0,3 MHz ... 1520,0 MHz		43	dB	min.	40	dB
1630,0 MHz ... 2000,0 MHz		45	dB	min.	40	dB
Group delay ripple within PB	p-p	50	ns	max.	100	ns
Phase ripple within PB	p-p	50	°	max.	100	°
Return loss		15	dB	min.	10	dB
Input power level		-		max.	20 *	dBm
Operating temperature range	OTR	-		- 54 °C ... + 85 °C		
Storage temperature range		-		- 54 °C ... + 85 °C		
Temperature coefficient of frequency	TC_f **	-46	ppm/K		-	

*) This power level is only allowed for short term operation (cycle time 1:1000), the max. input power for continuous operation is max.10dBm only

**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$, f_{T0} : frequency at room temperature

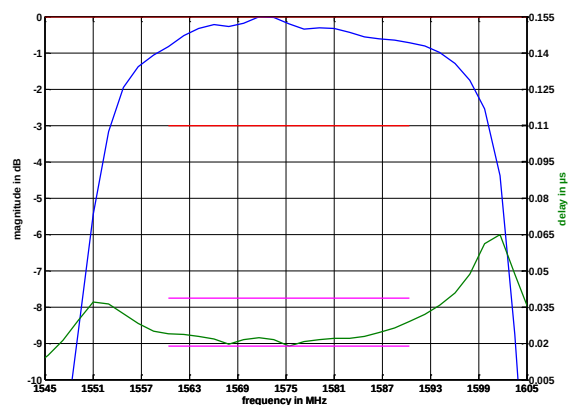
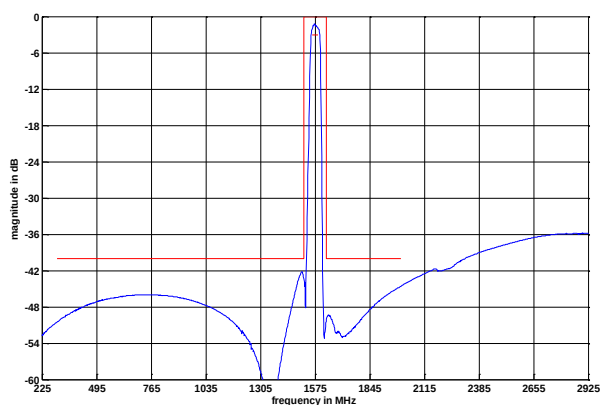
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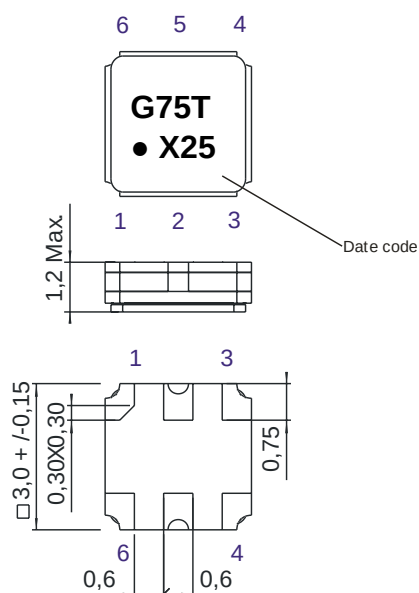
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Filter characteristic



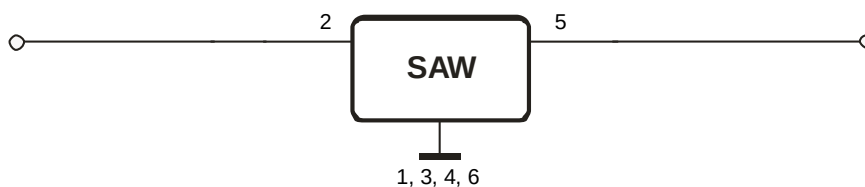
Construction and pin connection

(All dimensions in mm)



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

Date code: Year + week
 X 2008
 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 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 ANSI/ESD S20.20-1999, class 1A for HBM

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

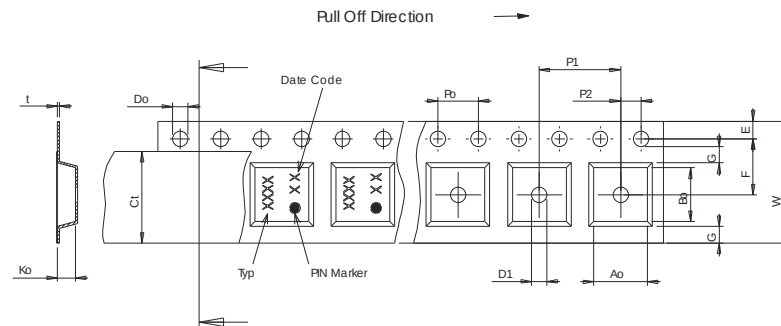
Packing

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;

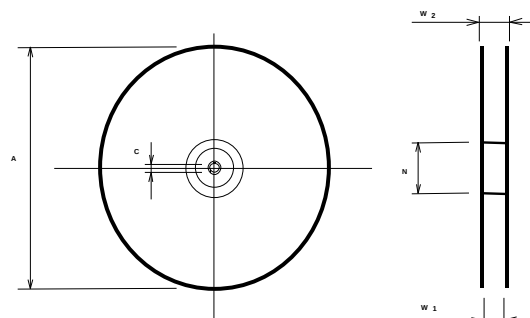
max. pieces of filters per reel:	9000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 8,00 ± 0,3
Po	: 4,00 ± 0,1
Do	: 1,50 +0,1/-0
E	: 1,75 ± 0,1
F	: 3,50 ± 0,05
G(min)	: 0,75
P2	: 2,00 ± 0,05
P1	: 4,00 ± 0,1
D1(min)	: 1,50
Ao	: 3,25 ± 0,1
Bo	: 3,25 ± 0,1
Ct	: 5,5 ± 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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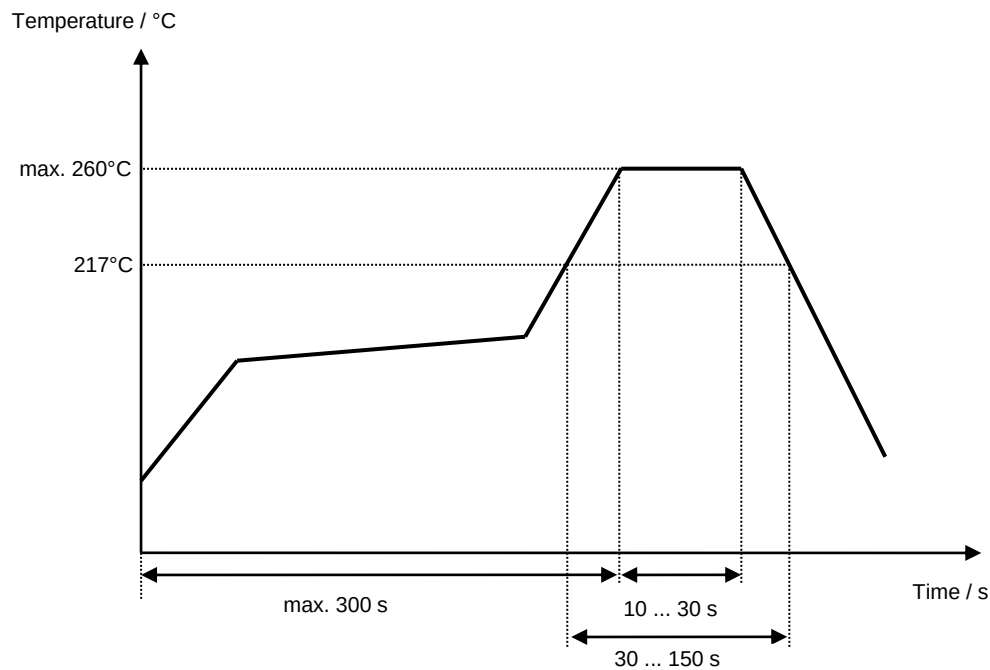
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Air reflow temperature conditions

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

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Microchip**Filter specification****TFS 1575T****5/5****History**

Version	Reason of changes	Name	Date
1.0	- Generation of development specification	Strehl	07.02.2008
1.1	- add of typical values and filter characteristics	Pfeiffer	10.10.2008
2.0	- f_{T0} defined - group delay ripple and phase ripple added	Pfeiffer	15.06.2009

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