

VI TELEFILTER

Filter specification

TFS 506

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 506 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 within PB	a_e	2,1 dB	max.	3,0 dB
Nominal frequency	f_N	-		506 MHz
Passband	PB			24 MHz
Absolute attenuation	a_{abs}			
$f_N \pm 80$ MHz ... $f_N \pm 149$ MHz		49 dB	min.	33,5 dB
$f_N + 149$ MHz ... $f_N + 300$ MHz		50 dB	min.	45,0 dB
1 MHz ... 200 MHz		53 dB	min.	50,0 dB
200 MHz ... $f_N - 149$ MHz		61 dB	min.	55,0 dB
Group delay ripple within PB	p-p	11 ns	max.	0,2 μs
IIP3	*	-	min.	36 dBm
Input power level		-	max.	10 dBm
Operating temperature range	OTR	-	- 10 °C ... + 75 °C	
Storage temperature range		-	- 40 °C ... + 85 °C	
Temperature coefficient of frequency	TC_f **	-76 ppm/K		-

*) $f_{in1} = f_c - 14$ MHz; $f_{in2} = f_c - 14,4$ MHz; $P_{in} = 0$ dBm; $f_{measurement1} = f_c - 13,6$ MHz; $f_{measurement2} = f_c - 14,8$ MHz; The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the insertion loss a_e .

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

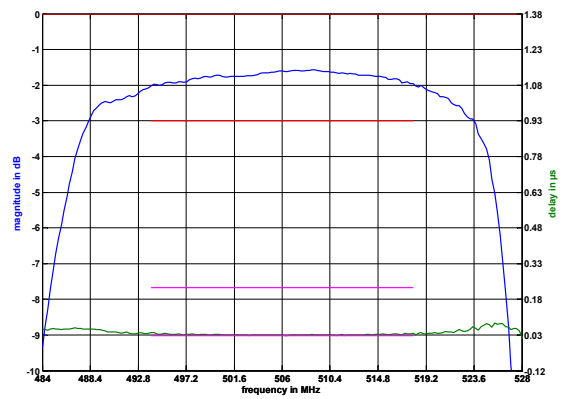
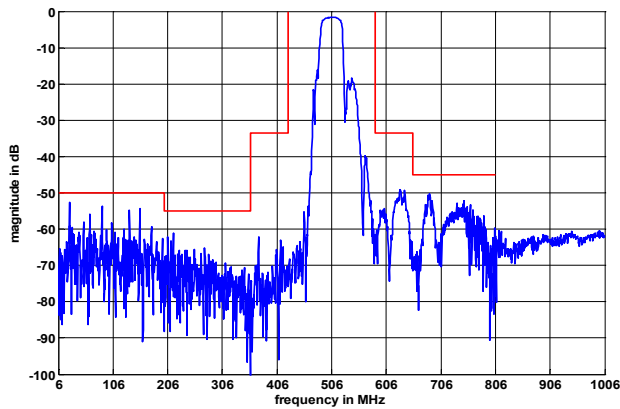
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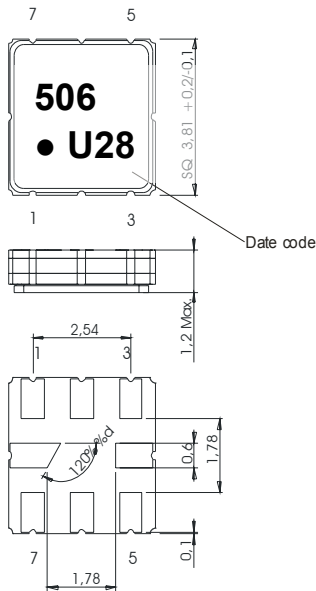
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Filter characteristic



Construction and pin connection

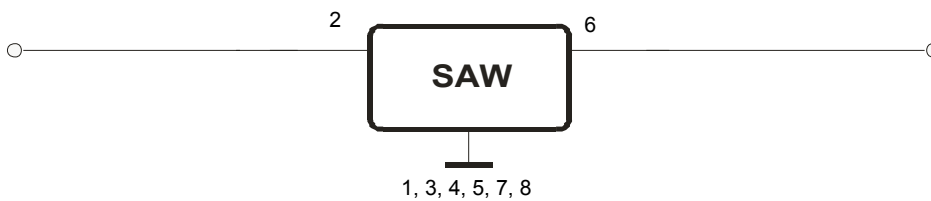
(All dimensions in mm)



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

Date code: Year + week
 U 2006
 V 2007
 W 2008
 ...

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;

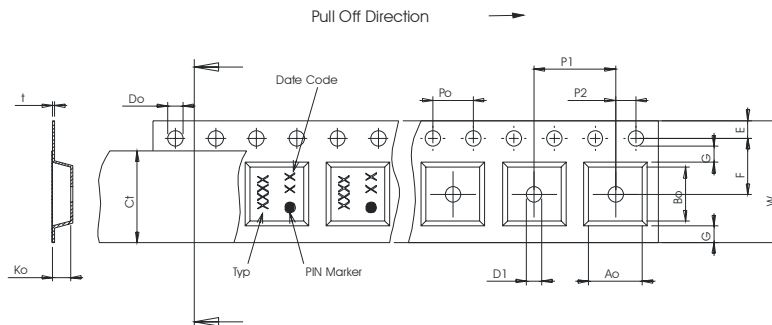
This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

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: | 3000 |
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

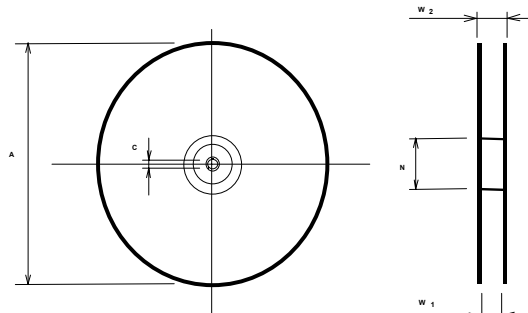
Tape (all dimensions in mm)

- 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 : 12,4 +2/-0
- W2(max) : 18,4
- N(min) : 50
- C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

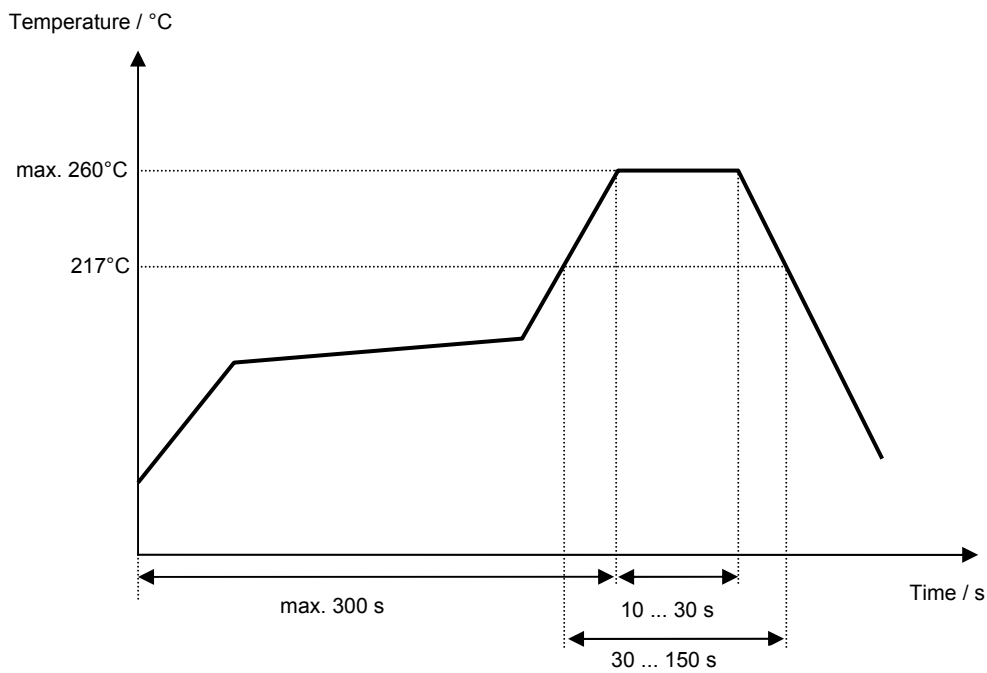
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Air reflow temperature conditions

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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VI TELEFILTER**Filter specification****TFS 506****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of development specification	Springfeldt	14.04.2004
1.1	Change of absolute attenuation $f_N + 149 \dots 300\text{MHz}$ Change insertion loss	Strehl	20.01.2005
1.2	Change stability characteristics Add typical values and filter characteristic Generation of filter specification	Strehl	09.05.2005
1.3	Add IIP3 and change stability characteristics	Strehl	11.07.2006

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