

VI TELEFILTER

Filter specification

TFS 430C

1/5

Measurement condition

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

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 430,0 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 (reference level)		a_e	1,3 dB	max.	4,0 dB
Nominal frequency		f_N	-		430,0 MHz
Passband		PB	-	$f_N \pm$	12,5 kHz
Pass band ripple		p-p	0,3 dB	max.	0,4 dB
Bandwidth					
1 dB			3,0 MHz		-
3 dB			4,0 MHz		-
Relative attenuation					
		a_{rel}			
f_N	... $f_N \pm$	12,5 kHz	0,3 dB	max.	0,4 dB
Absolute attenuation					
		a_{abs}			
$f_N - 429,7$	MHz ... $f_N - 130$	MHz	36 dB	min.	40 dB
$f_N - 130$	MHz ... $f_N - 45$	MHz	38 dB	min.	33 dB
$f_N - 45$	MHz ... $f_N - 5$	MHz	18 dB	min.	10 dB
$f_N + 5$	MHz ... $f_N + 45$	MHz	18 dB	min.	10 dB
$f_N + 45$	MHz ... $f_N + 270$	MHz	46 dB	min.	40 dB
$f_N + 270$	MHz ... $f_N + 320$	MHz	38 dB	min.	30 dB
$f_N + 320$	MHz ... $f_N + 570$	MHz	48 dB	min.	40 dB
$f_N + 570$	MHz ... $f_N + 1470$	MHz	22 dB	min.	15 dB
Group delay		at f_N	0,22 μs	max.	0,7 μs
Group delay		at f_N at ambient temperature	0,2 μs	max.	0,6 μs
Group delay variation in PB (in any 25 kHz increment within the PB)		p-p	20 ns	max.	30 ns
Intermodulation *			-	min.	30 dBm
Input power level			-	max.	17 dBm
Operating temperature range		OTR	-		-40 °C..... +85 °C
Storage temperature range			-		-55 °C..... +85 °C
Temperature coefficient of frequency		TC_f^{**}	-33 ppm/K		-

*) f_{in1} = 429,98 MHz; f_{in2} = 429,99 MHz; P_{in} = 0 dBm $f_{measurement}$ = 430,0 MHz

**) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_o) \times f_{T_o}(\text{MHz})$.

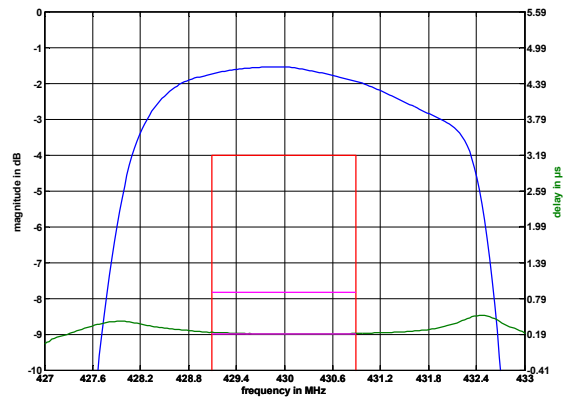
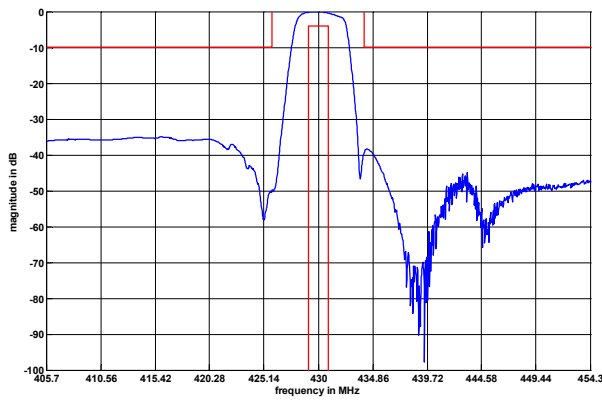
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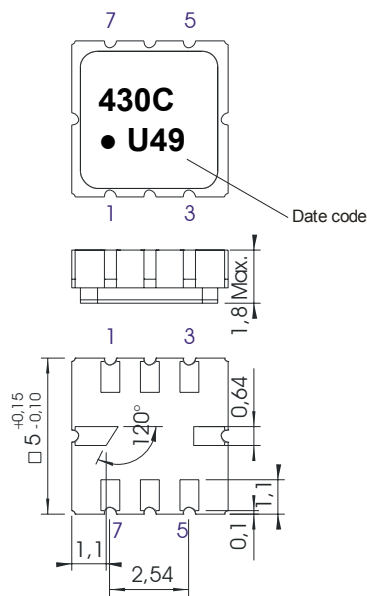
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Filter characteristic



Construction and pin connection

(All dimensions in mm)

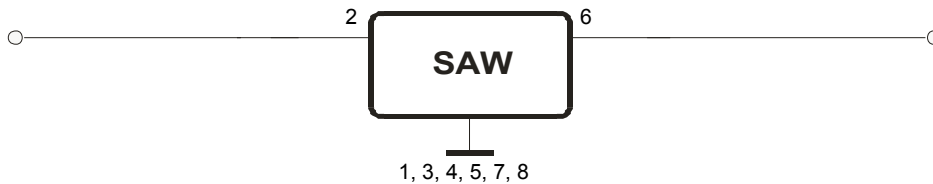


1	Ground
2	Input
3	Ground
4	Ground
5	Ground
6	Output
7	Ground
8	Ground

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

Terminations plating: Ni>2µm, Au>0,75µm

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)

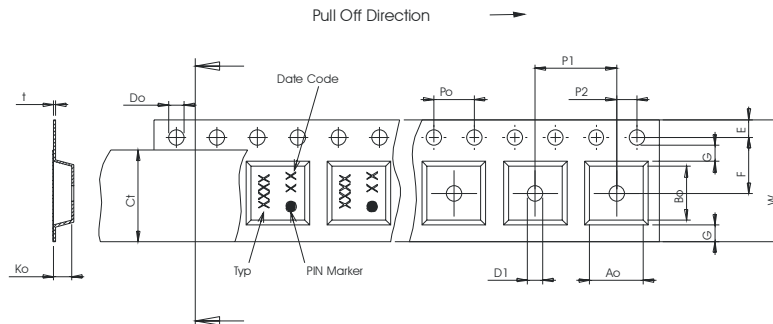
Packing

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

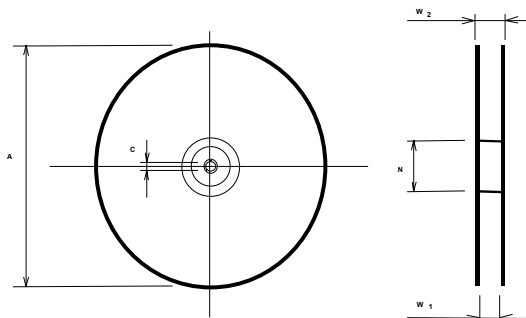
Tape (all dimensions in mm)

- 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 : 5,30 ± 0,1
- Bo : 5,30 ± 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.

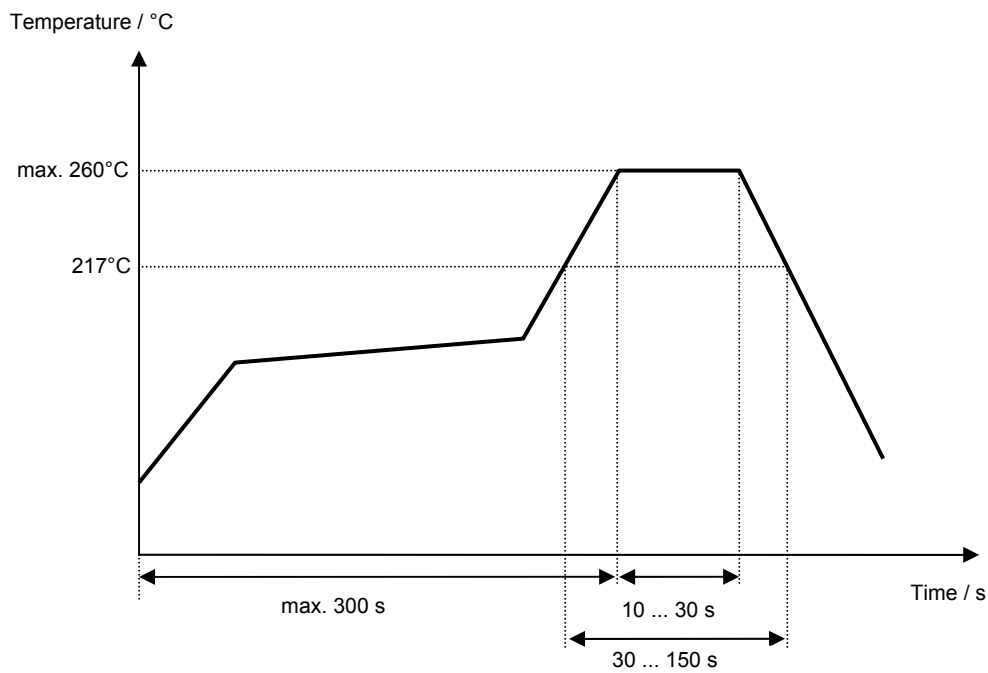
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Air reflow temperature conditions

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



VI TELEFILTER**Filter specification****TFS 430C****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of development specification	Strehl	12.05.2006
1.1	Generation of development specification	Strehl	17.05.2006
1.2	Change Pass band ripple, change attenuation Change Bandwidth, change group delay and variation Add filter characteristic, generation of filter specification	Channaa	05.09.2006
1.3	Change stopband attenuation Change temperature coefficient	Martens	21.11.2006
1.4	Change construction	Strehl	08.12.2006

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