

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	175	Ω
Output:	175	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 403,5 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	-	max.	1,5	dB
Nominal frequency	f_N	-		403,5	MHz
Passband	PB	-	f_N	± 1,5	MHz
Pass band ripple			max.	0,5	dB
Bandwidth 0,4 dB	BW	-	min.	3,0	MHz
Absolute attenuation	a_{abs}				
0,3 MHz ... 359,0 MHz		-	min	30	dB
359,0 MHz ... 391,0 MHz		-	min	20	dB
391,0 MHz ... 397,0 MHz		-	min	3	dB
411,0 MHz ... 415,0 MHz		-	min	6	dB
415,0 MHz ... 423,0 MHz		-	min	15	dB
423,0 MHz ... 448,0 MHz		-	min	20	dB
448,0 MHz ... 500,0 MHz		-	min	30	dB
VSWR within PB		-	max.	2 : 1	
Input power level		-	max.	17	dBm
Operating temperature range	OTR	-		+ 10 °C ... + 55°C	
Storage temperature range		-		- 35 °C ... + 85°C	
Temperature coefficient of frequency	TC_f *	t.b.d.		ppm/K	-

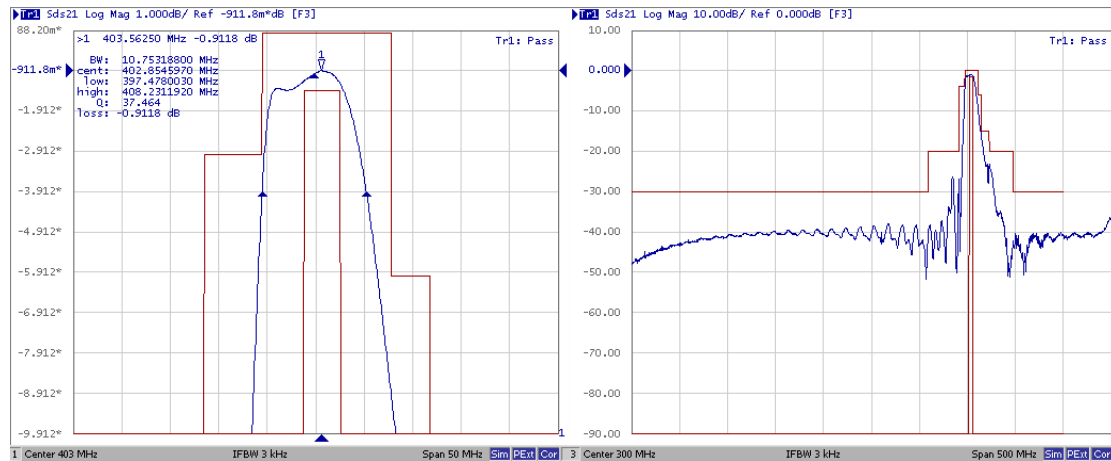
*) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T_0}(\text{MHz})$.

Generated:**Checked / Approved:**

Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

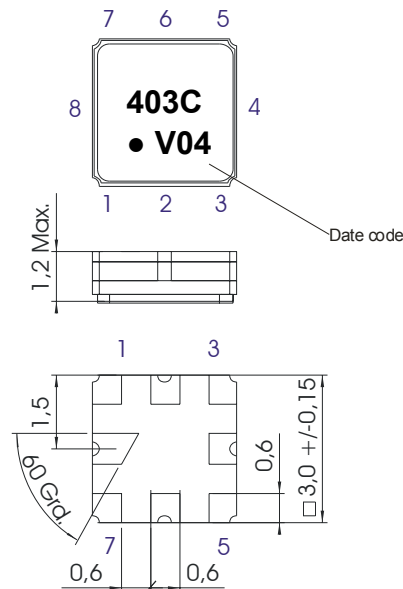
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Filter characteristic



Construction and pin connection

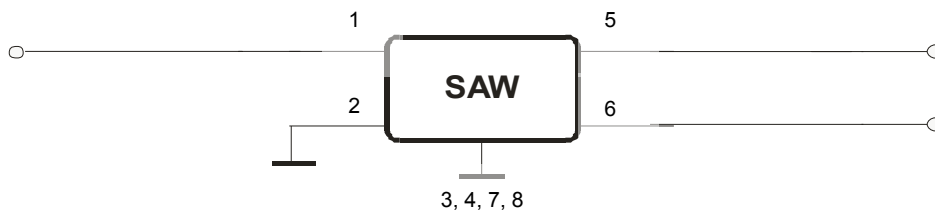
(All dimensions in mm)



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

Date code: Year + week
 V 2007
 W 2008
 X 2009
 ...

200 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: twice 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)

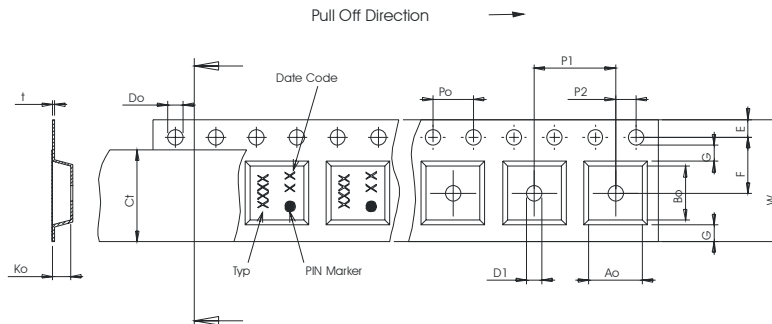
Packing

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:	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

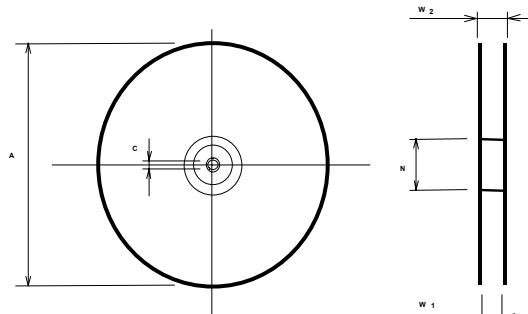
Tape (all dimensions in mm)

- 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.

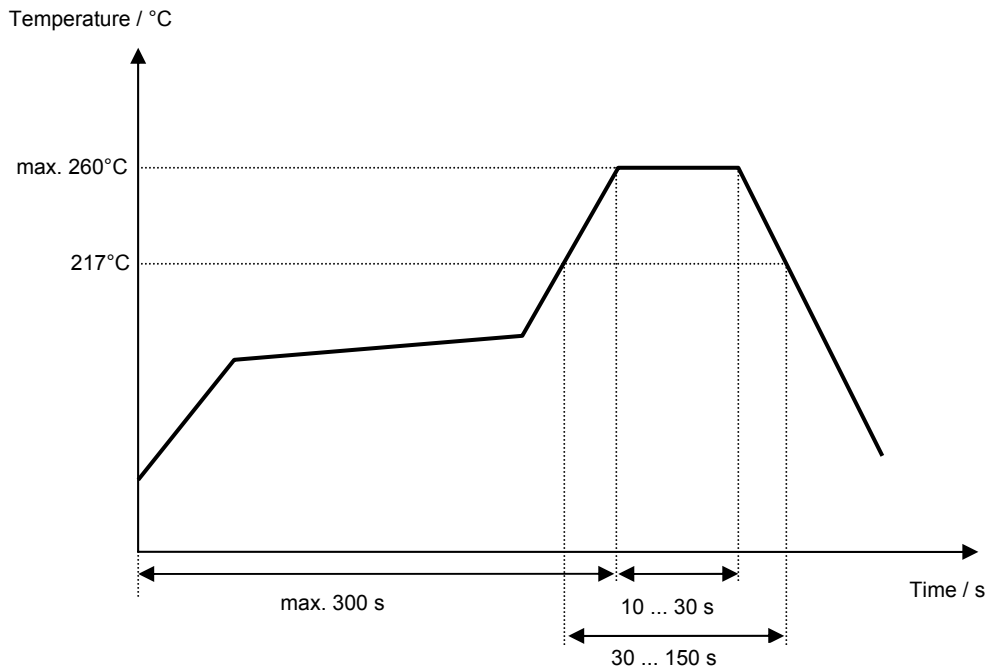
Vectron International GmbH & Co. KG
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D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

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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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History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Strehl	07.02.2006
1.1	- Update of development specification	Strehl	18.08.2006
1.2	- Change construction	Strehl	23.01.2007
1.3	- Change impedances, insertion loss and first left rejection - change passband ripple	S.Boillat	25.01.2007
1.4	header and footer update	Noaxk	16.10.2009