

VI TELEFILTER

Filter specification

TFS 45C

1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	1410 Ω -25,7 pF	
Output:	1660 Ω -22,4 pF	

Characteristics

Remark:

The nominal frequency f_N is fixed at 45,0 MHz. The insertion loss a_e is defined as loss value determined at f_N . Reference level for the relative attenuation a_{rel} of the TFS 45C is the insertion loss a_e . The centre frequency f_C is the arithmetic mean value of the upper and lower frequencies at the 20 dB filter attenuation level relative to the insertion loss a_e . All specified data are met within the operating temperature range.

D a t a		typ. value		tolerance / limit	
Insertion loss (reference level)	a_e	5,2	dB	max.	7,0 dB
Nominal frequency	f_N	-			45,00 MHz
Centre frequency	f_C	45,00	MHz	max. ±	20,0 kHz
Passband		-		f_C ±	100,0 kHz
Pass band ripple		0,1	dB	max.	1,5 dB
Bandwidth	BW				
3 dB		-		min.	340 kHz
20 dB		761	kHz	max.	950 kHz
Relative attenuation	a_{rel}				
f_C ± 100 kHz ... f_C ± 100 kHz		0,5	dB	max.	1,5 dB
f_C ± 170 kHz		1,5	dB	max.	3 dB
f_C ± 475 kHz ... f_C ± 1 MHz		27	dB	min.	20 dB
f_C ± 3 MHz		44	dB	min.	30 dB
f_C ± 10 MHz		49	dB	min.	35 dB
f_C ± 25 MHz		80	dB	min.	44 dB
Group delay	mean value in PB	2	µs	max.	2,7 µs
Group delay ripple within PB		150	ns	max.	300 ns
Operating temperature range	OTR	-			- 30 °C ... + 85°C
Storage temperature range		-			- 45 °C ... + 95°C
Frequency inversion temperature		30	°C		-
Temperature coefficient of frequency	TC_f **	-0,04	ppm/K ²		-

*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

***) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0)^2 \times f_{T0}(\text{MHz})$

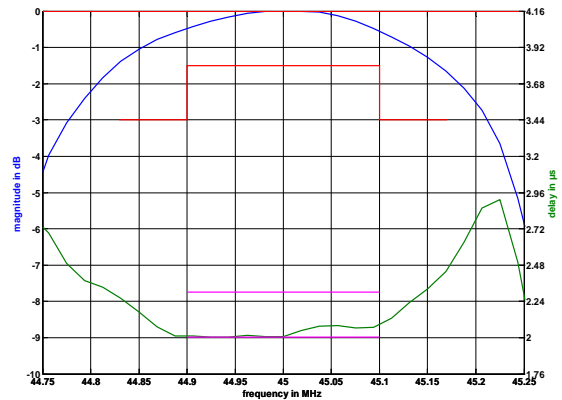
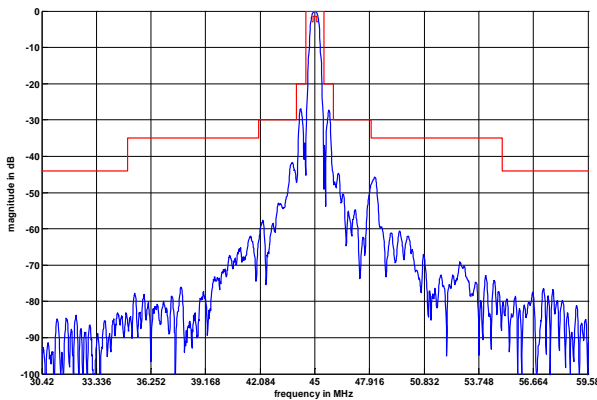
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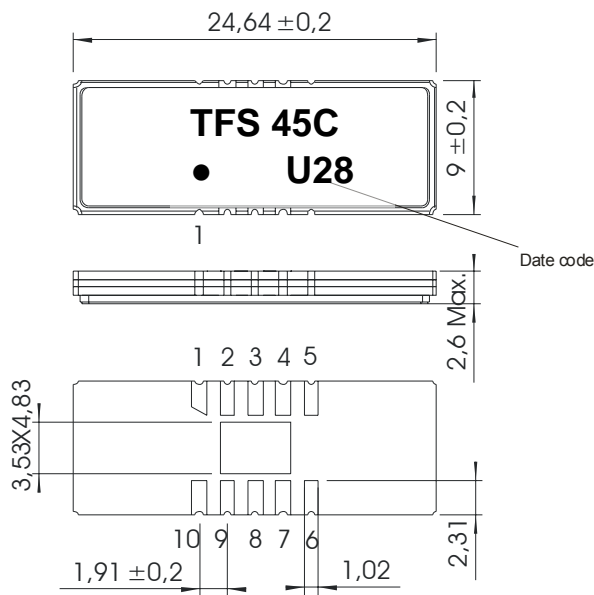
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Filter characteristic



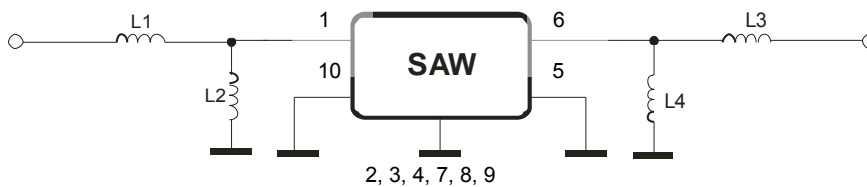
(All dimensions in mm)



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

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

50 Ohm Test circuit



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Stability characteristics

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

1. Shock: 500g, 18 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;

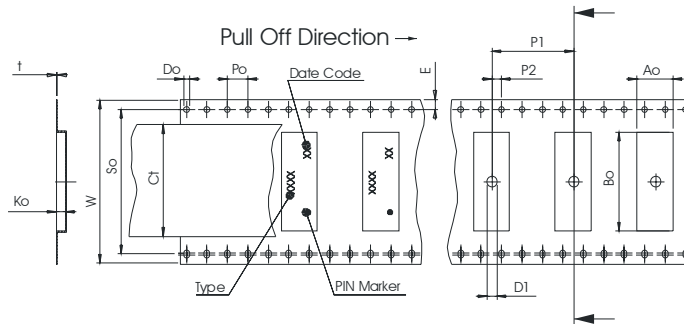
Packing

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:	1000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

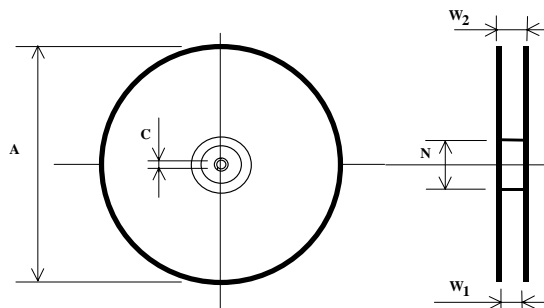
Tape (all dimensions in mm)

- W : 44,00 ± 0,3
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,1
- F : 20,20 ± 0,15
- P2 : 2,00 ± 0,15
- P1 : 16,00 ± 0,1
- D1(min) : 2,00
- Ao : 9,30 ± 0,1
- Bo : 24,90 ± 0,1
- So : 40,40 ± 0,1
- Ct : 38,0 ± 0,1



Reel (all dimensions in mm)

- A : 330
- W1 : 44,4 +2/-0
- W2(max) : 50,4
- N(min) : 100
- C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

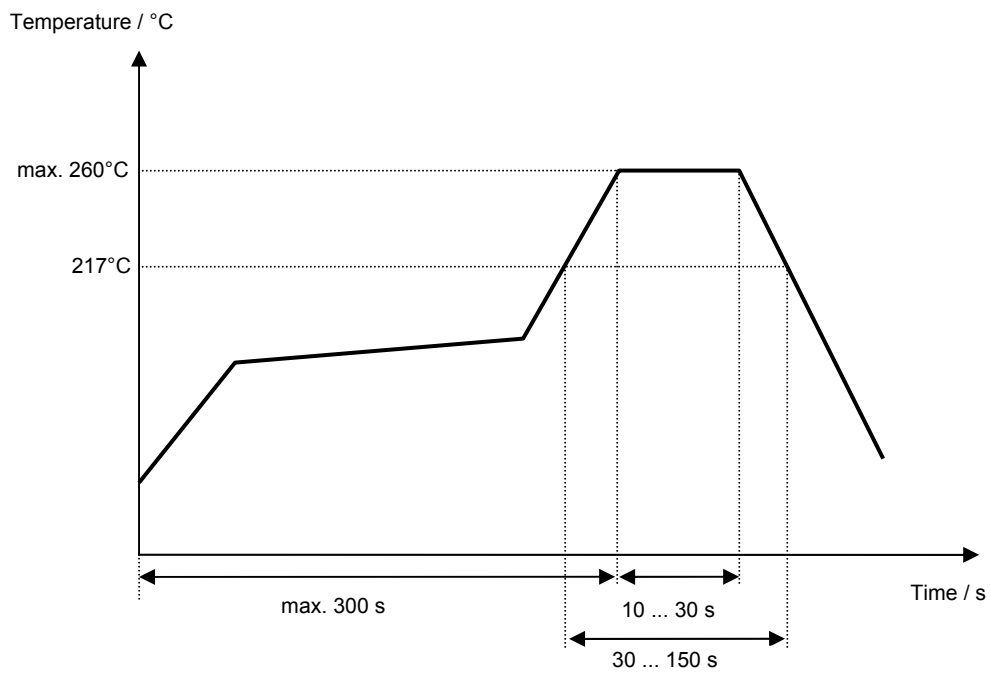
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Air reflow temperature conditions

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 45C****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Strehl	22.05.2006
1.1	- terminating impedance, typical values, filter characteristic and matching configuration added	Pfeiffer	13.07.2006

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