Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance:
Input: 50 Ω
Output: 2000 Ω || 3 pF

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the TFS 44N is the insertion loss. The insertion loss a_e is defined as the insertion loss at the nominal frequency f_N . The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 1 dB filter attenuation level relative to the insertion loss a_e. The temperature coefficient of frequency Tc_f is valid for both the reference frequency f_c and the frequency response of the filter in operating temperature.

D a t a		typ. value		tolerance / limit		
Insertion loss	a_e	23	dB	max.	25	dB
Nominal frequency	f_N	-			44	MHz
Centre frequency	f_C	44	MHz		-	
Passband	PB	-		f_C	± 7	MHz
Pass band ripple (within 80% of PB)		0,5	dB	max.	0,7	dB
1 dB Bandwidth	BW_{1dB}	14,8	MHz	min.	14	MHz
40 dB Bandwidth	BW_{40dB}	20	MHz	max.	24	MHz
Relative attenuation	a_{rel}					
f_N ± 11 MHz … f_N ± 17 MHz		35	dB	min.	32	dB
f_N - 25 MHz … f_N - 17 MHz		31	dB	min.	28	dB
f_N + 17 MHz … f_N + 25 MHz		33	dB	min.	30	dB
f_N ± 25 MHz … f_N ± 33 MHz		35	dB	min.	32	dB
Group delay ripple within PB		45	ns	max.	60	ns
Operating temperature range	OTR	-		- 33 °C ... + 55		°C
Storage temperature range		-		- 40 °C ... + 85		°C
Temperature coefficient of frequency	TC_f **	-72	ppm/K		-	

**) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_A) \times f_{CTA}$ (MHz)

Generated:

Checked / Approved:

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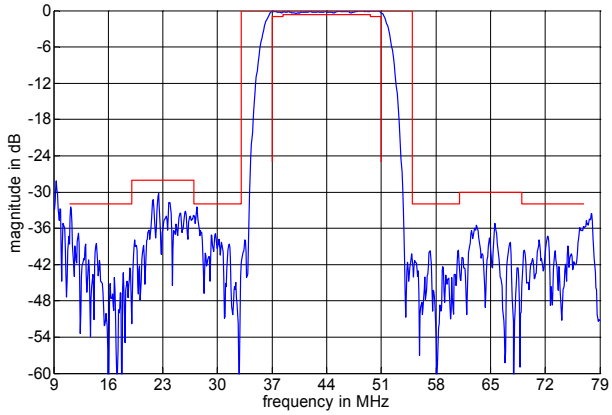
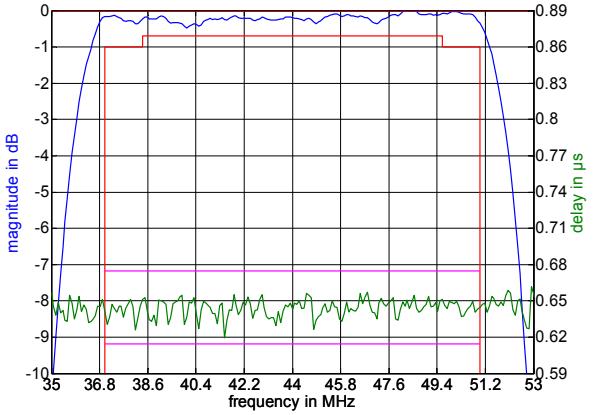
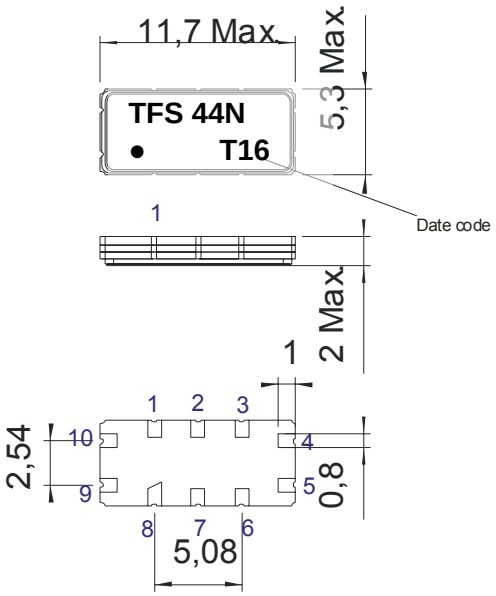
Filter characteristic





Construction and pin connection

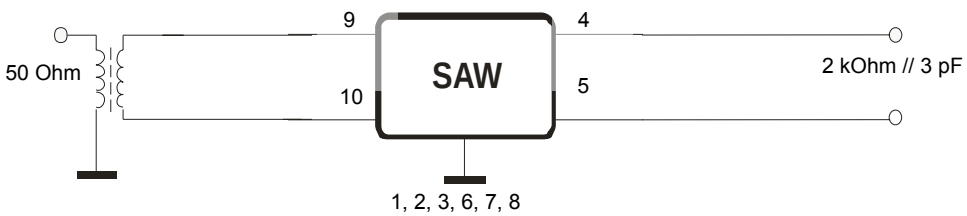
(All dimensions in mm)



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

Date code:	Year + week
T	2005
U	2006
V	2007
...	

Test circuit



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Stability characteristics

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;

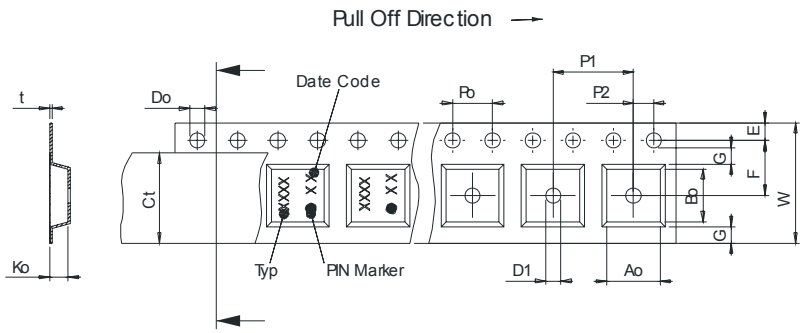
Packing

Tape & Reel: IEC 286 – 3, with exeption 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 peer 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

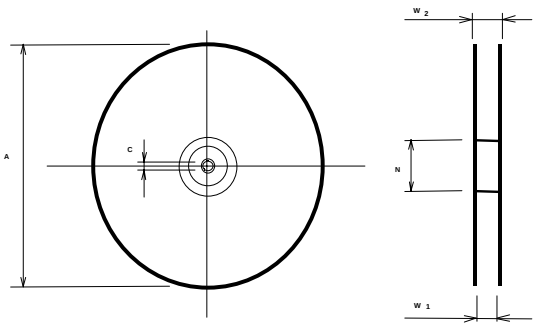
Tape (all dimensions in mm)

W	:	24,00 ± 0,3
Po	:	4,00 ± 0,1
Do	:	1,50 +0,1/-0
E	:	1,75 ± 0,1
F	:	11,50 ± 0,1
G(min)	:	0,60
P2	:	2,00 ± 0,1
P1	:	8,00 ± 0,1
D1(min)	:	1,50
Ao	:	5,60 ± 0,1
Bo	:	11,80 ± 0,1
Ct	:	21,5 ± 0,1



Reel (all dimensions in mm)

A	:	330
W1	:	24,4 +2/-0
W2(max)	:	30,4
N(min)	:	60
C	:	13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

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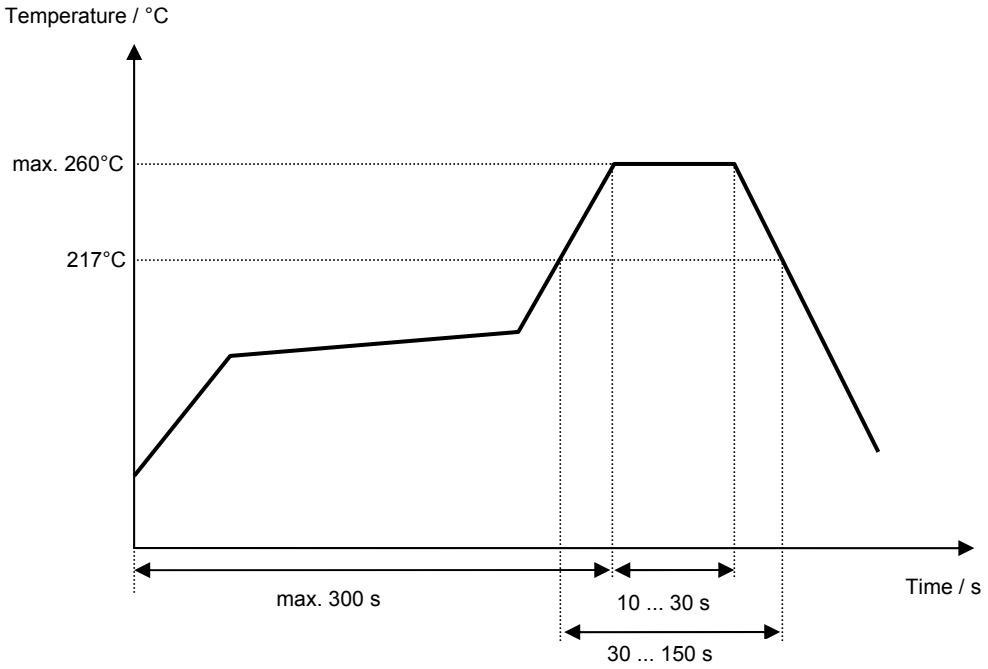
Air reflow temperature conditions

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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History

Version	Reason of Changes	Name	Date
1.0	- specification generated	Pfeiffer	12.04.2005
1.1	- matching configuration (input balanced driven) changed - relative attenuation, typical values and filter characteristic modified	Pfeiffer	15.04.2005
1.2	- 'remarks' and temperature coefficient corrected	Pfeiffer	22.04.2005

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