Measurement condition

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

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 208B is the maximum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 208 MHz without any tolerance or limit. The values of relative attenuation a_{rel} 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	2,2 -	dB	1,5 …3,5 -		dB
Nominal frequency	f_N	-		208		MHz
Bandwidth	BW					
1 dB		4,9	MHz	800		kHz
Relative attenuation	a_{rel}					
f_N - 400 kHz … f_N + 400 kHz		0,15	dB	max.	1	dB
f_N - 207 MHz f_N - 28 MHz		57	dB	min.	38	dB
f_N - 28 MHz f_N - 14 MHz		48	dB	min.	30	dB
f_N + 14 MHz f_N + 28 MHz		37	dB	min.	5	dB
f_N + 28 MHz f_N + 242 MHz		45	dB	min.	12	dB
Absolute group delay						
f_N - 400 kHz … f_N + 400 kHz		180	ns	max.	300	ns
Group delay ripple	*)					
f_N - 400 kHz … f_N + 400 kHz		8	ns	max.	30	ns
VSWR						
f_N - 400 kHz … f_N + 400 kHz		1,3 : 1		max.	2 : 1	
Intermodulation	**)					
IP3				min.	45	dB
Input power level				max.	10	dBm
Operating temperature range	OTR	-		- 10 °C ... + 85°C		
Storage temperature range		-		- 40 °C ... + 125°C		
Temperature coefficient of frequency	TC_f ***)	- 36	ppm/K			

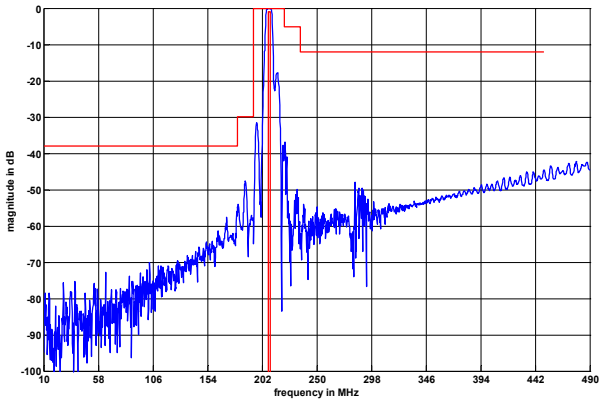
*) measured with smoothing; smoothing aperture ≤ 50 kHz
**) modulation signals: f_N and f_N + 14 MHz, each of 10 dBm; measured signal: f_N - 14 MHz
***) $\Delta f(Hz) = TC_f(ppm/K) \times (\Delta T) \times f_{T_O}(MHz)$

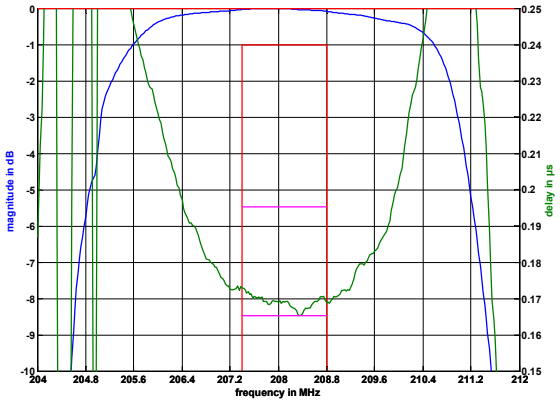
Generated:

Checked / Approved:

Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

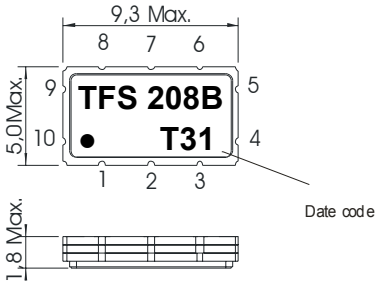
Filter characteristic



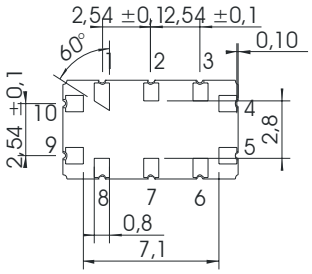


Construction and pin connection

(All dimensions in mm)

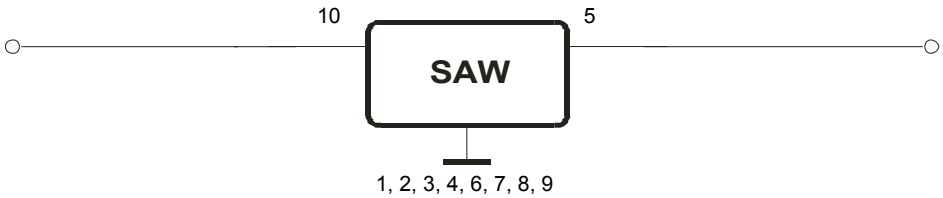


1	Ground
2	Ground
3	Ground
4	Ground
5	Output
6	Ground
7	Ground
8	Ground
9	Ground
10	Input



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

50 Ω Test circuit



Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

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;

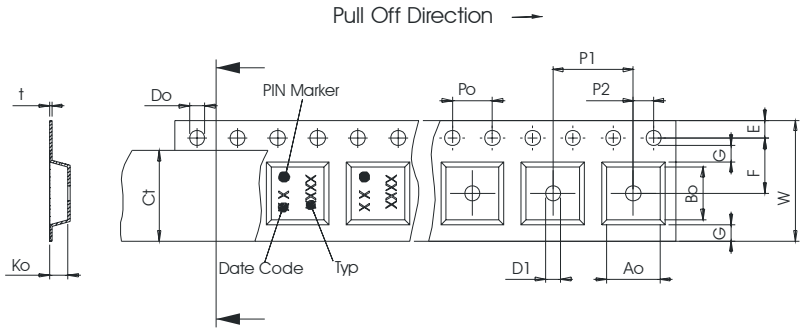
Packing

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

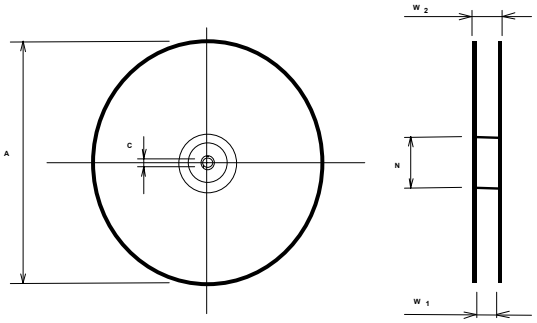
Tape (all dimensions in mm)

W	:	16,00	+0,3/-0,1
Po	:	4,00	± 0,1
Do	:	1,50	+0,1/-0
E	:	1,75	± 0,1
F	:	7,50	± 0,1
G(min)	:	0,60	
P2	:	2,00	± 0,1
P1	:	8,00	± 0,1
D1(min)	:	1,50	
Ao	:	5,30	± 0,1
Bo	:	9,70	± 0,1
Ct	:	13,5	± 0,1



Reel (all dimensions in mm)

A	:	330	
W1	:	16,4	+2/-0
W2(max)	:	22,4	
N(min)	:	50	
C	:	13,0	+0,5/-0,2



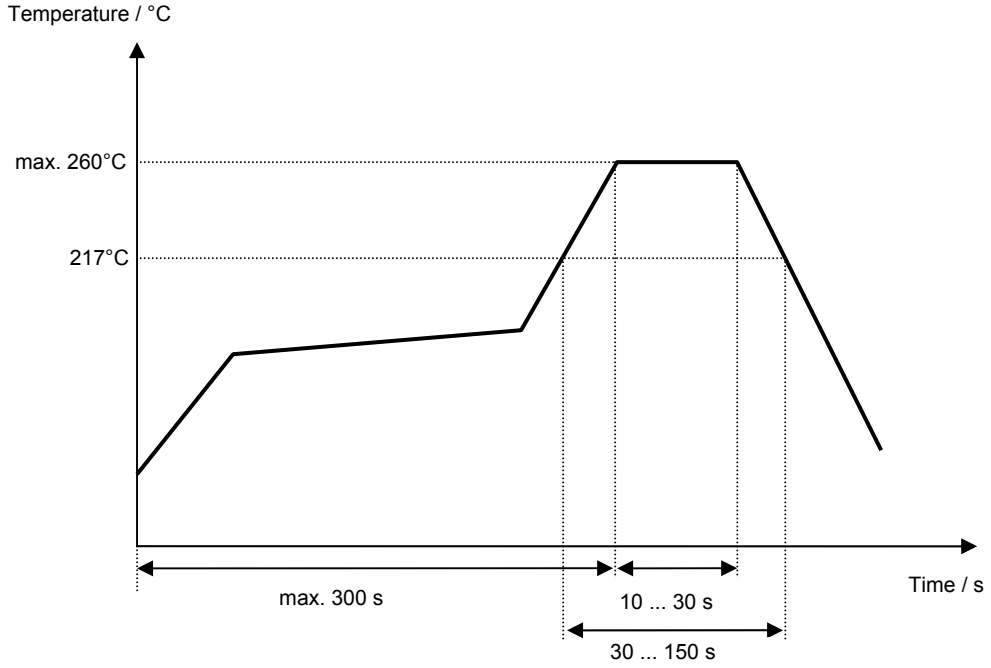
The minimum bending radius is 45 mm.

Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

Air reflow temperature conditions

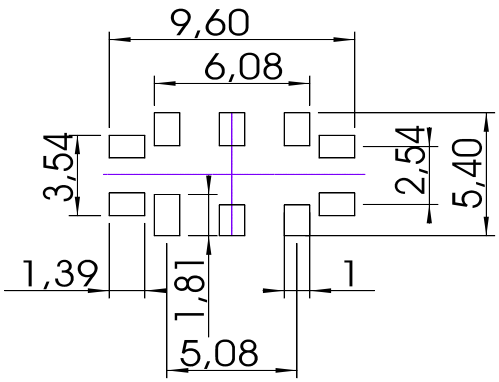
Conditions	Exposure
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak 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



Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

Recommended land dimensions



History

Version	Reason of Changes	Name	Date
1.0	- generate according to customer requirement specification	Dr. Sabah	22.11.2000
1.1	- stopband attenuation corrected	Steiner	23.11.2000
1.2	- change the high frequency side transition band edge frequency f0+13,5MHZ➔f0+14MHz	Steiner	30.11.2000
1.3	- change the specification to customer updated specification version 1.0.0 (16-05-2001)	Dr. Sabah	30.05.2001
1.4	- change trailer to 300mm	Dr. Sabah	04.07.2001
1.5	- change packing and mark pin1 of pin connection - correct recommended land dimensions	Strehl	05.08.2005

Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com