

VI TELEFILTER**Filter specification****TFS 245B****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance *)		
for input:	955 Ω //	-5,8 pF
for output:	900 Ω //	-6,3 pF

Characteristics

Remark:

The nominal frequency f_N is fixed at 245,952. 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 245B is the insertion loss a_e . The centre frequency f_C is the arithmetic mean value of the upper and lower frequencies at the 3 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	a_e	5,6	dB	max.	8	dB
Nominal frequency	f_N	-			245,952	MHz
Passband		-		$f_N \pm$	250	kHz
Pass band ripple		0,4	dB	max.	1	dB
Bandwidth	BW					
3 dB		850	kHz			
Absolute attenuation	a_{abs}					
$f_N \pm 0,95$ MHz ... $f_N \pm 2,50$ MHz		30	dB	min.	27	dB
$f_N \pm 2,50$ MHz ... $f_N \pm 12,50$ MHz		40	dB	min.	32	dB
$f_N \pm 12,50$ MHz ... $f_N \pm 50,00$ MHz		56	dB	min.	50	dB
Group delay ripple within PB		170	ns	max.	300	ns
Return loss within PB		16	dB	min.	12	dB
Operating temperature range	OTR	-		- 25 °C ... + 75 °C		
Storage temperature range		-		- 40 °C ... + 85 °C		
Turn over temperature		22	°C		-	
Temperature coefficient of frequency	TC_f^{**}	-0,04	ppm/K ²		-	

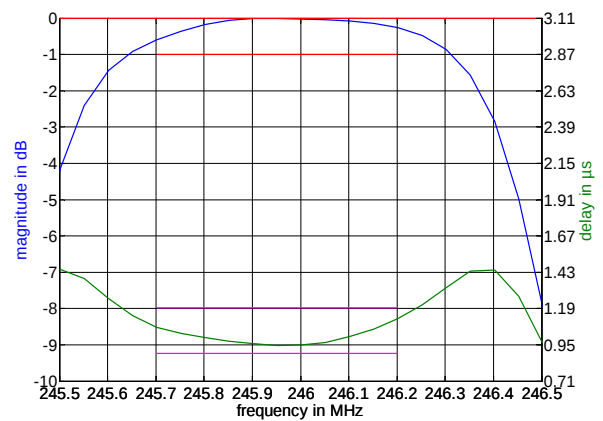
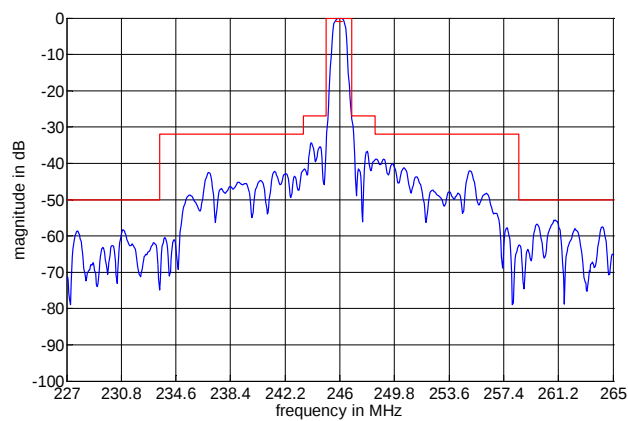
*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

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

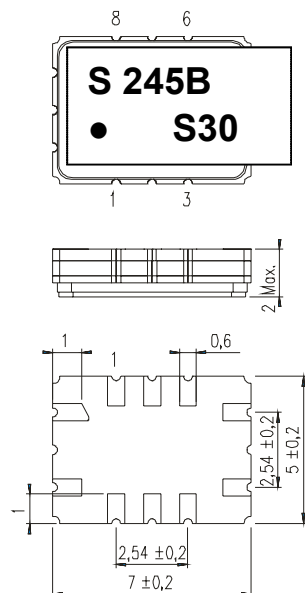
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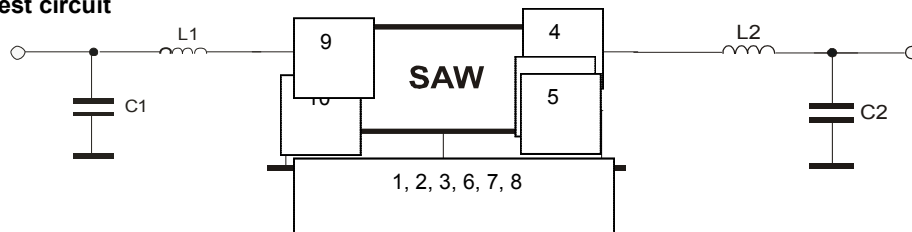
VI TELEFILTER**Filter specification****TFS 245B****2/5****Filter characteristic****Construction and pin connection**

(All dimensions in mm)



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

Date code: Year + week
 S 2004
 T 2005
 U 2006
 ...

50 Ohm Test circuit

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VI TELEFILTER**Filter specification****TFS 245B****3/5****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;

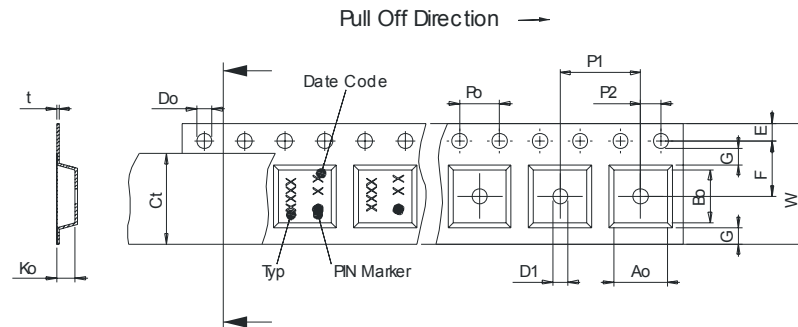
Packing

Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

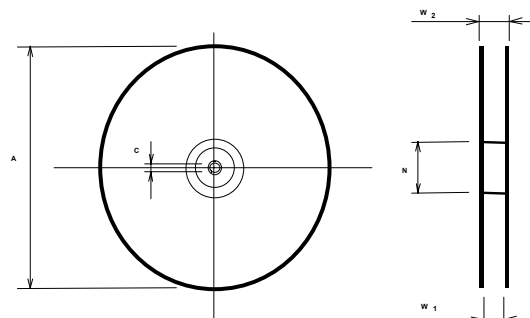
max. pieces of filters peer reel:	3000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 16,00 ± 0,3
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	: 5,50 ± 0,1
Bo	: 7,50 ± 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.

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VI TELEFILTER**Filter specification****TFS 245B****4/5****Air reflow temperature conditions**

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

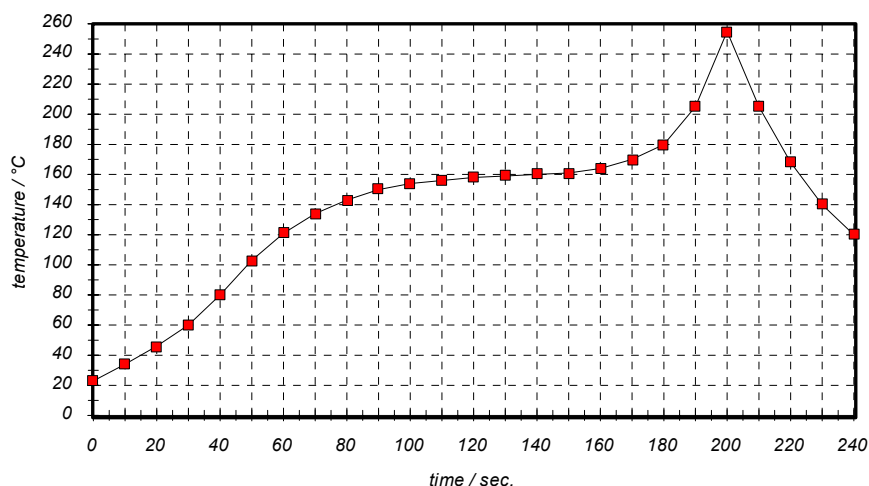
Chip-mount air reflow profile

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160
10	34	150	161
20	46	160	164
30	60	170	170
40	80	180	180
50	103	190	205
60	121	195	230
70	134	200	255
80	143	205	230
90	150	210	205
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120

VI TELEFILTER**Filter specification****TFS 245B****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	M.Springfeldt	01.06.2004
1.1	- Change 3 dB bandwidth from limit value to typical value	Dr. Wall	11.06.2004
1.2	- terminating impedance, matching configuration, filter characteristic and typical values added - limit of group delay ripple changed to 300nm	Pfeiffer	16.07.2004
1.3	- Change frequency for absolute attenuation from ± 0.9 MHz to ± 0.95 MHz	Springfeldt	21.07.2004