

**VI TELEFILTER****Preliminary Specification****TFS 43 A****1/5****Description**

IF filter for digital cable TV

**Measurement condition**Ambient temperature  $T_A$ : 25 °C

Input power level: 0 dBm

Terminating impedance: source: 50  $\Omega$   
load: 2 k $\Omega$  || 3 pF**Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the TFS 43A 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 3 dB filter attenuation level relative to the insertion loss  $a_e$ .

<b>D a t a</b>		<b>typ. Value</b>		<b>Limit</b>	
<b>Insertion loss</b> (Reference Level)		15,2	dB	14,8 dB	$\pm$ 1,5 dB
<b>Nominal frequency</b>	$f_N$	-		43,75 MHz	
<b>Centre frequency</b>	$f_C$ at ambient temperature $T_A$	-		43,75 MHz $\pm$ 0,07 MHz	
<b>Bandwidth</b>	3 dB	6,0	MHz	-	
	30 dB	7,6	MHz	-	
<b>Group delay ripple</b>	p-p in $f_C \pm 3$ MHz	35	ns	-	
<b>Relative attenuation</b>	$a_{rel}$				
	@ 41,22 MHz	0,4	dB	-	
	@ 46,28 MHz	0,15	dB	0,2	$\pm$ 1 dB
	@ 40,75 MHz	3,0	dB	2,7	$\pm$ 1,2 dB
	@ 46,75 MHz	3,0	dB	2,7	$\pm$ 1,2 dB
	@ 39,75 MHz	44	dB	min.	38 dB
	@ 47,75 MHz	41,5	dB	min.	37 dB
$f_N -$	8,75 MHz ... $f_N -$ 4,75 MHz	46	dB	min.	42 dB
$f_N -$	4,75 MHz ... $f_N -$ 4,00 MHz	48	dB	min.	37 dB
$f_N +$	4,00 MHz ... $f_N +$ 4,25 MHz	38	dB	min.	36 dB
$f_N +$	4,25 MHz ... $f_N +$ 5,00 MHz	36,5	dB	min.	34 dB
$f_N +$	5,00 MHz ... $f_N +$ 6,25 MHz	46	dB	min.	36 dB
$f_N +$	6,25 MHz ... $f_N +$ 11,25 MHz	44	dB	min.	42 dB
<b>Reflected wave signal suppression</b> 1,2 $\mu$ s...6,0 $\mu$ s after main pulse		58	dB	min.	42 dB
<b>Feedthrough signal suppression</b>		52	dB	min.	50 dB
<b>Operable temperature range</b>		-		-25 °C ..... 65 °C	
<b>Storage temperature range</b>		-		-40 °C ..... 85 °C	
<b>Temperature coefficient of frequency <math>TC_f^*</math></b>		-72	ppm / K	-	
<b>DC voltage</b>	$V_{DC}$	-		max.	12 V
<b>AC voltage</b>	$V_{PP}$	-		max.	10 V

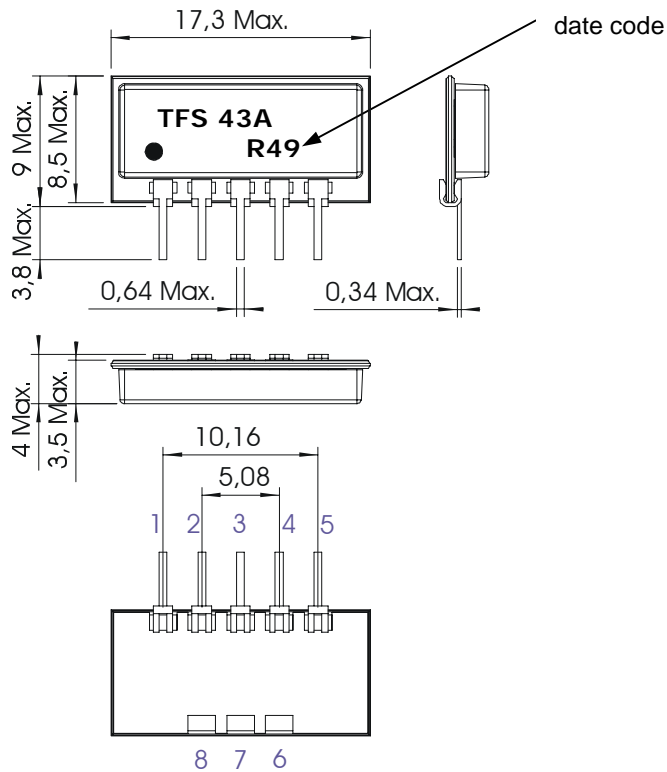
\*)  $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{CAT}(\text{MHz})$ **generated:** \_\_\_\_\_**checked / approved:** \_\_\_\_\_

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**Construction and pin connection**

(All dimensions in mm)



1	input
2	input - ground
3	chip carrier - ground
4	output
5	output
6,7,8	internally connected to pin 3

date code:	year + week
N	2001
P	2002
R	2003
...	

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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 5g 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, please refer to the attached "Air reflow temperature conditions" on page 4;

**Packing**

Tape & Reel: DIN 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:	1700
reel of empty components at start:	min 300 mm
reel of empty components at start including leader:	min 500 mm
trailer	min 300 mm

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**VI TELEFILTER****Preliminary Specification****TFS 43 A****4/5****Air reflow temperature conditions**1<sup>st</sup> and 2<sup>nd</sup> 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.	

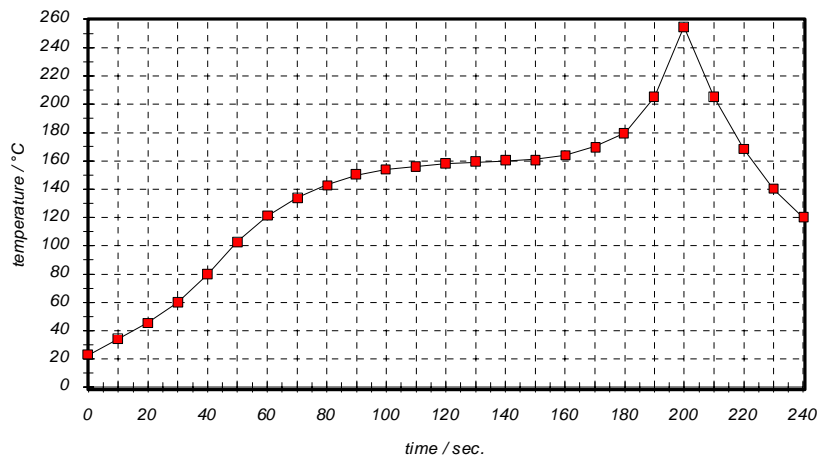
**Chip-mount air reflow profile**

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

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**VI TELEFILTER****Preliminary Specification****TFS 43 A****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	generate specification	Pfeiffer	01.08.02
1.1	change package	Pfeiffer	28.11.02
1.2	add typical values	Pfeiffer	29.01.03
1.3	add description	Pfeiffer	07.02.03
1.4	typical values and limits in upper stop band changed	Pfeiffer	05.12.03

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