

VI TELEFILTER

Filter specification

TFS 457

1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	165 Ω -0,3 pF	
Output:	165 Ω -0,3 pF	

Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS 457 is the minimum of the pass band attenuation a_{min} . The minimum of the pass band attenuation a_{min} is defined as the insertion loss a_e . The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 2dB filter attenuation level relative to the insertion loss a_e . The nominal frequency f_N is fixed on 457,5 MHz without tolerance. The given values for the relative attenuation a_{rel} have to be reached also if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature ranges.

D a t a		typ. value	tolerance / limit
Insertion loss (reference level)	$a_e = a_{min}$	2,7 dB	max. 3,0 dB
Nominal frequency	f_N	-	457,5 MHz
Centre frequency	f_c	457,5 MHz	-
Passband	OTR2	-	$f_N \pm 11,5$ MHz
	OTR1	-	$f_N \pm 12$ MHz
Pass band ripple		1,2 ** dB	max. 3,0** dB
Relative attenuation	a_{rel}		
$f_N - 80,0$ MHz ... $f_N - 100,0$ MHz	OTR2	62 dB	min. 50 dB
$f_N - 35,0$ MHz ... $f_N - 55,0$ MHz	OTR2	50 dB	min. 30 dB
$f_N + 25,0$ MHz ... $f_N + 57,5$ MHz	OTR2	22 dB	min. 17 dB
$f_N + 25,0$ MHz ... $f_N + 57,5$ MHz	OTR1	24 dB	min. 20 dB
$f_N + 57,5$ MHz ... $f_N + 82,5$ MHz	OTR2	52 dB	min. 37 dB
$f_N + 57,5$ MHz ... $f_N + 82,5$ MHz	OTR1	55 dB	min. 40 dB
$f_N + 127,5$ MHz ... $f_N + 152,5$ MHz	OTR2	68 dB	min. 57 dB
Intermodulation	IP3 ***	-	min. 20,0 dBm
Input power level		-	max. 10 dBm
Permissible DC voltage		-	max. 12 V
Operating temperature range 1	OTR1	-	- 25 °C ... + 75 °C
Operating temperature range 2	OTR2	-	- 40 °C ... + 85 °C
Storage temperature range		-	- 40 °C ... + 85 °C
Temperature coefficient of frequency	TC_f ****	- 72 ppm/K	

*) 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.

***) 1,5 dB over $f_N \pm 10$ MHz at ambiente temperature (23 °C).

****) modulation signals: $f_N + 1$ MHz and $f_N + 2$ MHz, each of 10 dBm

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

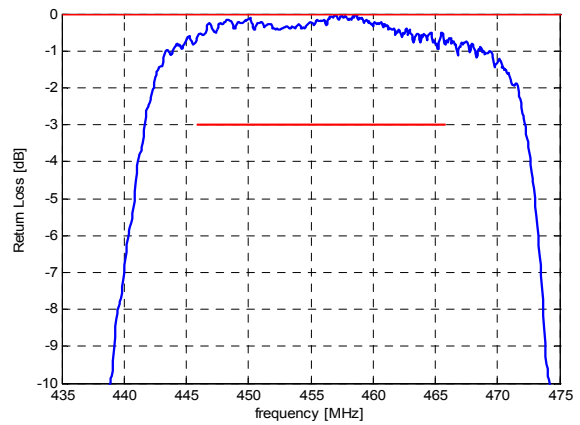
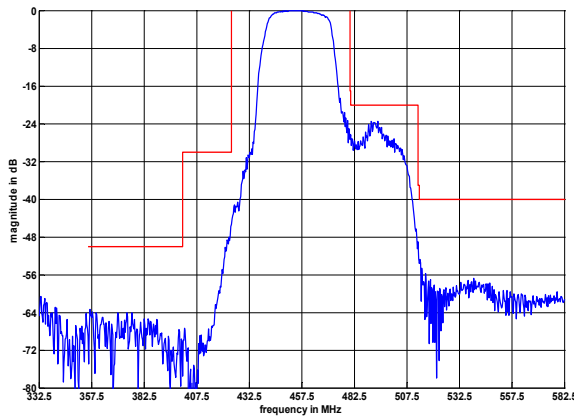
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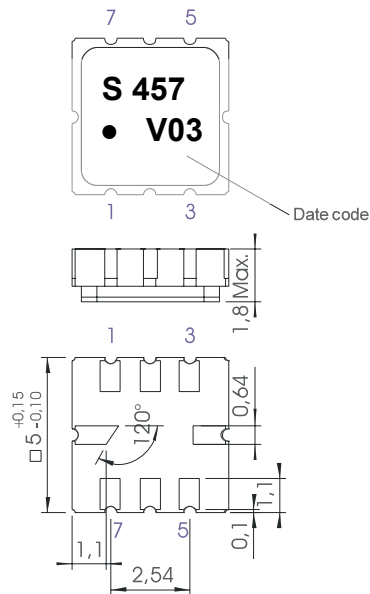
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Filter characteristic



Construction and pin connection

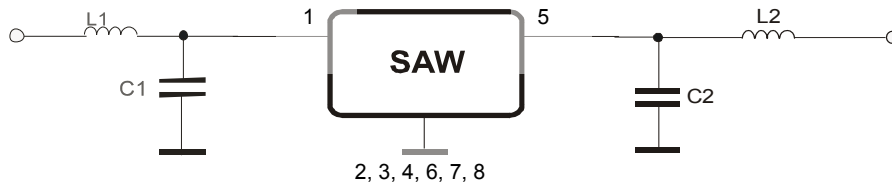
(All dimensions in mm)



- 1 Input
- 2 Ground
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground
- 7 Ground
- 8 Ground

Date code: Year + week
 V 2007
 W 2008
 X 2009
 ...

50 Ω Test circuit



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Stability characteristics, reliability

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: three times max.;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

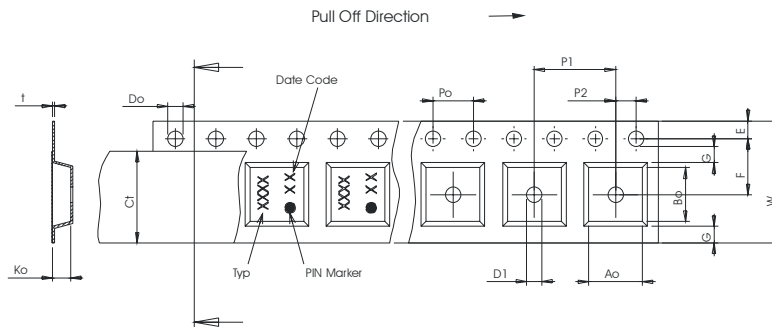
Packing

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:	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

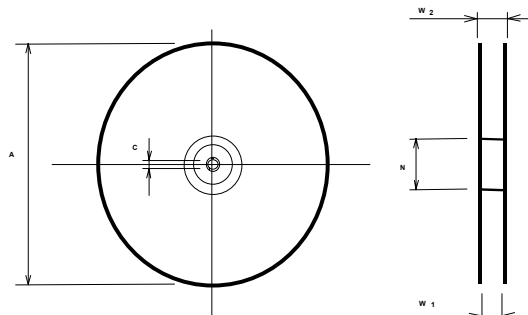
Tape (all dimensions in mm)

- W : 12,00 ± 0,3
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,1
- F : 5,50 ± 0,05
- G(min) : 0,75
- P2 : 2,00 ± 0,05
- P1 : 8,00 ± 0,1
- D1(min) : 1,50
- Ao : 5,30 ± 0,1
- Bo : 5,30 ± 0,1
- Ct : 9,5 ± 0,1



Reel (all dimensions in mm)

- A : 330
- W1 : 12,4 +2/-0
- W2(max) : 18,4
- N(min) : 50
- 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 457****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- generate according customer requirement specification	Dr. Sabah	11.07.2001
1.1	- add of 50 Ω matching circuit	Dr. Sabah	13.07.2001
1.2	- correct the matching circuit	Dr. Sabah	17.08.2001
1.3	- generation of filter specification - add typical value - add input and output impedance - add filter characteristic	Noack	03.05.2004
1.4	- change OTR and stability characteristics	Strehl	26.01.2007

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