

**VI TELEFILTER**

**Filter specification**

**TFS 846**

**1/5**

**Measurement condition**

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

**Characteristics**

Remark:

The maximum attenuation in the pass band is defined as the insertion loss  $a_e$ . The nominal frequency  $f_N$  is fixed at 846 MHz without any tolerance or limit. The values of absolute attenuation  $a_{abs}$  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.

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Insertion loss in PB1</b>	$a_e$	1,6 dB	max. 2,3 dB
<b>Insertion loss in PB2</b>	$a_{e_2}$	2,2 dB	max. 3,0 dB
<b>Nominal frequency</b>	$f_N$	-	846 MHz
<b>Centre frequency</b>	$f_C$	846 MHz	-
<b>Passband 1</b>	PB1	-	$f_N \pm 13,5$ MHz
<b>Pass band ripple</b>		0,9 dB	max. 1,5 dB
<b>Passband 2</b>	PB2	-	$f_N \pm 16,0$ MHz
<b>Absolute attenuation</b>	$a_{abs}$		
750 MHz ... 800 MHz		28 dB	min. 25 dB
880 MHz ... 915 MHz		32 dB	min. 25 dB
1000 MHz ... 1100 MHz		31 dB	min. 26 dB
1200 MHz ... 1250 MHz		31 dB	min. 26 dB
1550 MHz ... 1600 MHz		38 dB	min. 20 dB
<b>VSWR within PB1</b>		2,1 : 1	max. 2,2 : 1
<b>Input power level</b>		-	max. 15 dBm
<b>Operating temperature range</b>	OTR	-	- 30 °C ... + 70 °C
<b>Storage temperature range</b>		-	- 40 °C ... + 85 °C
<b>Temperature coefficient of frequency</b>	$TC_f$ *	- 46 ppm/K	

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

**Generated:**

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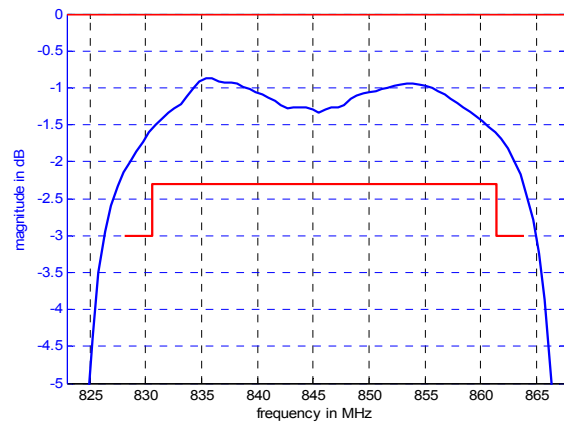
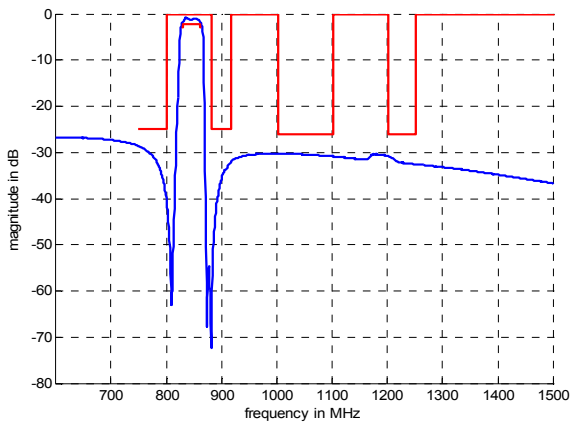
**Checked / Approved:**

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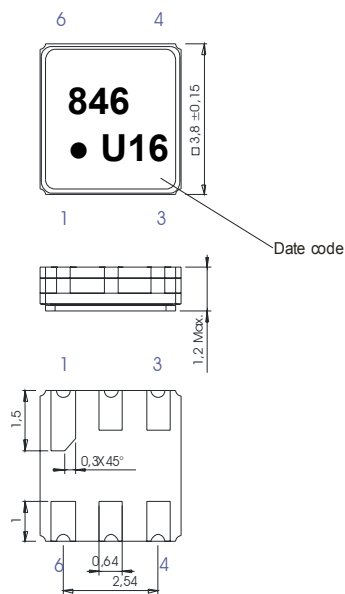
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**Filter characteristic**



**Construction and pin connection**

(All dimensions in mm)

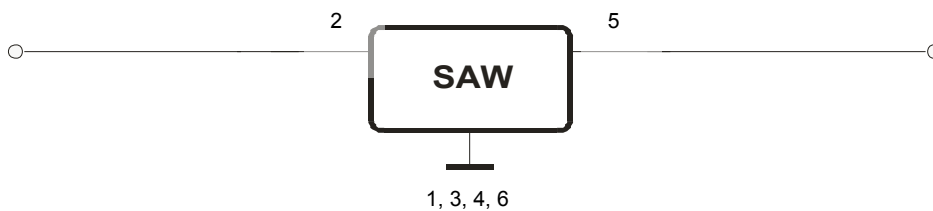


- 1 Ground
- 2 Input
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground

Date code: Year + week  
 U 2006  
 V 2007  
 W 2008  
 ...

Gold thickness on pads is max 0,1 µm

**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)

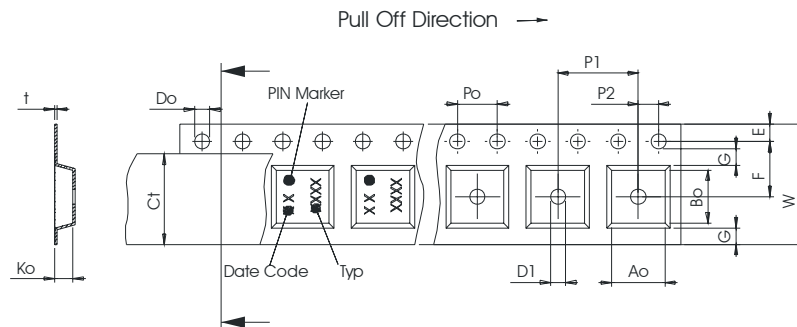
**Packing**

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 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

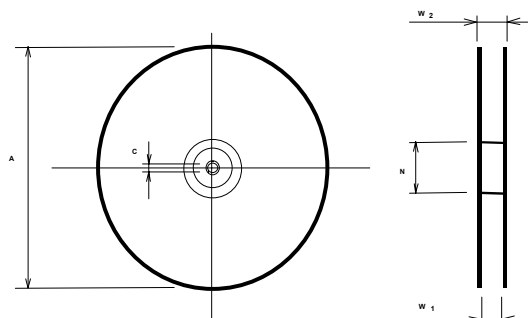
**Tape (all dimensions in mm)**

- W : 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 : 4,30 ± 0,1
- Bo : 4,30 ± 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.

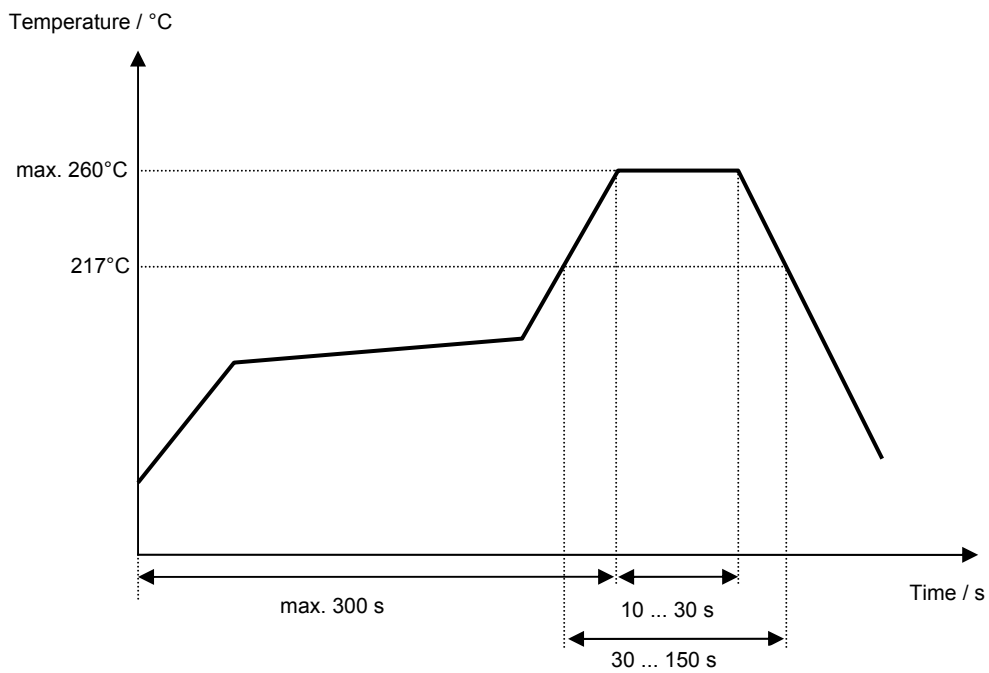
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**Air reflow temperature conditions**

<b>Conditions</b>	<b>Exposure</b>
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 846****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	Generation of development specification	Strehl	10.02.2005
1.1	Add typical values and filter characteristic Generation of filter specification	Strehl	14.10.2005
1.2	Change construction and stability characteristics	Strehl	19.04.2006

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