

Microchip**Filter specification****TFS837****1/5****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 TFS837 is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 837MHz without any tolerance. 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.

Data	typ. value		tolerance / limit	
Insertion loss	a_e	1.4 dB	max.	3.5 dB
Nominal frequency	f_N			837.0 MHz
Passband	PB		$f_N \pm$	7.0 MHz
Pass band variation		0.4 dB	max.	0.7 dB
Relative attenuation	a_{rel}			
0.3 MHz ... 798 MHz		29 dB	min.	25 dB
888 MHz ... 892 MHz		35 dB	min.	33 dB
892 MHz ... 950 MHz		32 dB	min.	30 dB
950 MHz ... 2000 MHz		29 dB	min.	20 dB
Return loss within PB		13 dB	min.	10 dB
Input power level			max.	10 dBm
Operating temperature range	OTR			- 10 °C ... + 80 °C
Storage temperature range				- 30 °C ... + 85 °C
Temperature coefficient of frequency	TC_f^*	-42 ppm/K		-

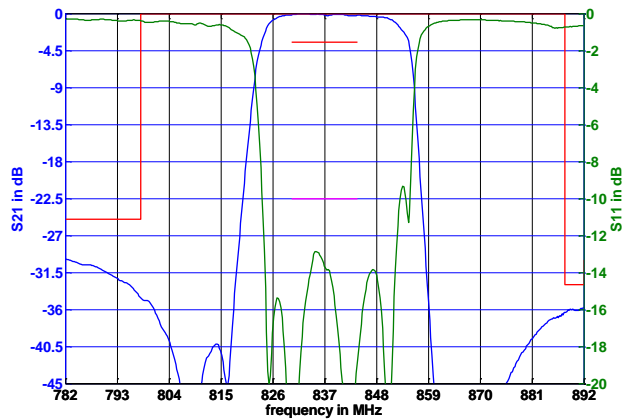
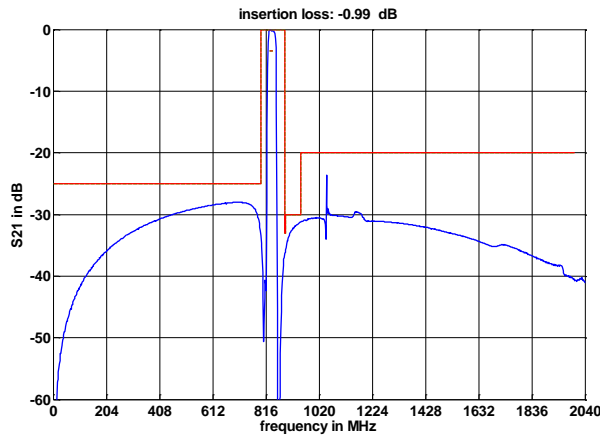
*) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

Generated:**Checked / Approved:**

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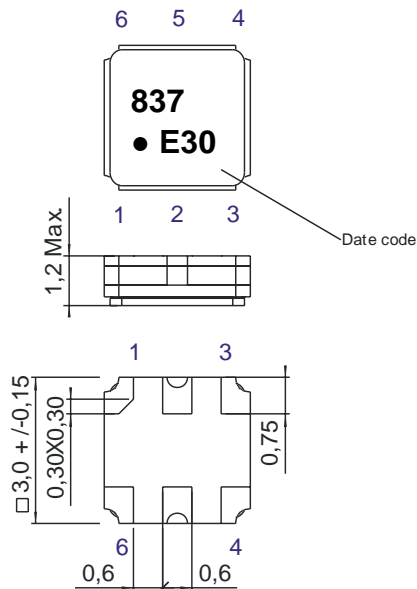
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Filter characteristic



Construction and pin connection

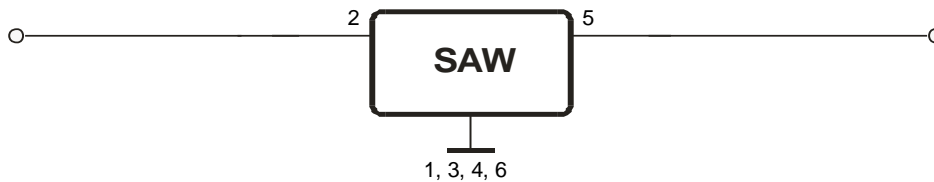
(All dimensions in mm)



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

Date code: Year + week
 E 2014
 F 2015
 G 2016
 ...

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, 1ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10Hz to 500Hz, 0.35 mm or 5g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature: -55°C to 125°C / 15min. each / 100 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;

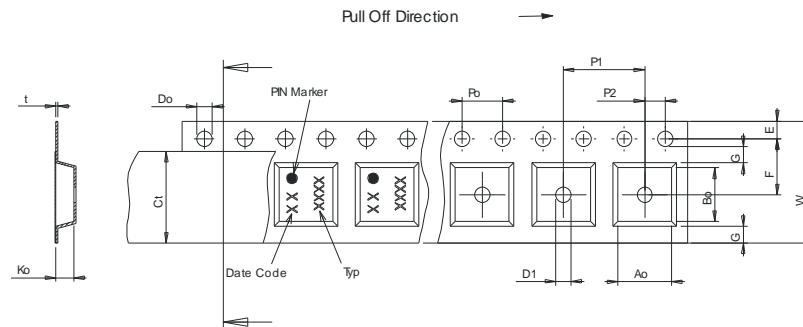
This filter is RoHS compliant (2011/65/EU)

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 |

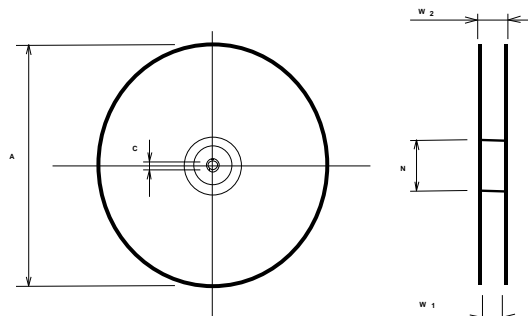
Tape (all dimensions in mm)

- W : 8.00 ± 0.3
- Po : 4.00 ± 0.1
- Do : 1.50 +0.1/-0
- E : 1.75 ± 0.1
- F : 3.50 ± 0.05
- G(min) : 0.75
- P2 : 2.00 ± 0.05
- P1 : 4.00 ± 0.1
- D1(min) : 1.50
- Ao : 3.25 ± 0.1
- Bo : 3.25 ± 0.1
- Ct : 5.3 ± 0.1



Reel (all dimensions in mm)

- A : 180 or 330
- W1 : 8.4 +1.5/-0
- W2(max) : 14.4
- N(min) : 60
- C : 13.0 ± 0.2



The minimum bending radius is 45 mm.

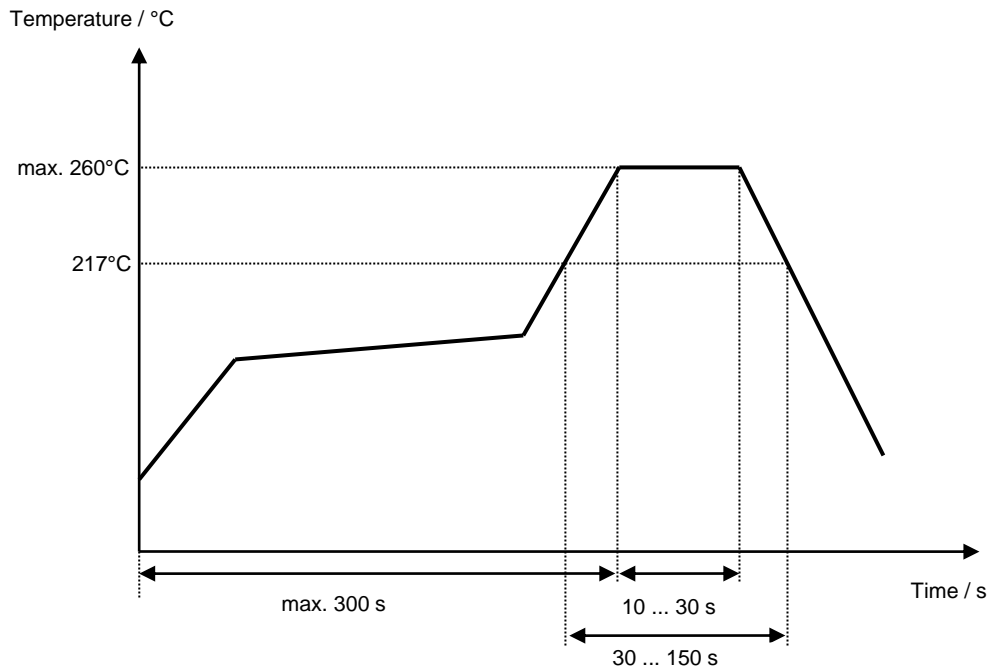
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Air reflow temperature conditions

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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Microchip**Filter specification****TFS837****5/5**

History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Strehl	21.02.2007
1.1	- Relaxation of amplitude ripple from 0.5dB to 0.7dB, relative attenuation @888-892 from -35dB to -33dB	S.Springfeldt	29.11.2007
1.2	- Generation of filter specification	S.Springfeldt	21.07.2014

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