Measurement condition

Ambient temperature T0:	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 869.0 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} are guaranteed over the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

D a t a						**typ. value**		**tolerance / limit**		
Insertion loss					a_e	3.0	dB	max.	4.0	dB
Insertion loss within OTR1					a_e	2.7	dB	max.	3.5	dB
Nominal frequency					f_N	-			869.0	MHz
Passband					PB	-		f_N ±	1.0	MHz
Pass band variation						1.0	dB	max.	1.7	dB
Pass band variation within OTR1						0.7	dB	max.	1.3	dB
Absolute attenuation					a_{abs}					
10.0	MHz	…	300.0	MHz		49	dB	min.	45	dB
300.0	MHz	…	845.0	MHz		44	dB	min.	40	dB
845.0	MHz	…	853.0	MHz		43	dB	min.	38	dB
879.0	MHz	…	883.0	MHz		25	dB	min.	15	dB
879.0	MHz	…	883.0	MHz	within OTR1	30	dB	min.	20	dB
883.0	MHz	…	915.0	MHz		55	dB	min.	45	dB
915.0	MHz	…	945.0	MHz		52	dB	min.	40	dB
945.0	MHz	…	1200.0	MHz		52	dB	min.	45	dB
1200.0	MHz	…	2000.0	MHz		39	dB	min.	35	dB
Return loss in PB						19	dB	min.	10	dB
Input power level in PB					**)	-		max.	13	dBm
Operating temperature range					OTR	-		- 40 °C ... + 85°C		
Reduced Operating temperature range					OTR1	-		- 20 °C ... + 70°C		
Storage temperature range						-		- 45 °C ... + 125°C		
Temperature coefficient of frequency					TC_f *)	-35	ppm/K			

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

**) 18dBm input power for short term operation for cycle time 1:10

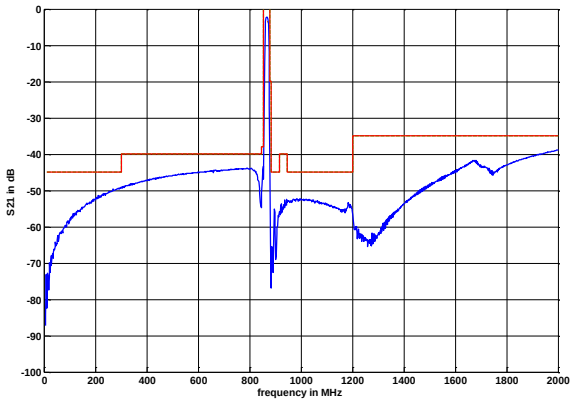
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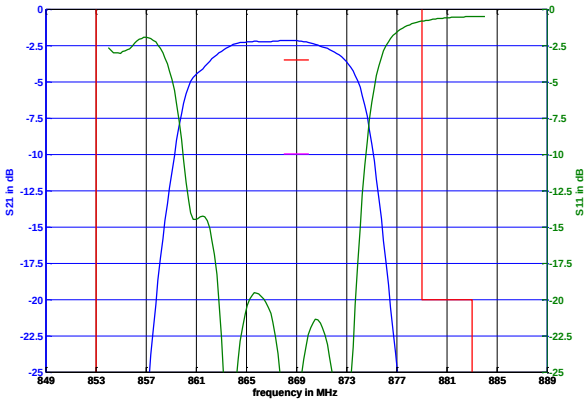
Checked / Approved:

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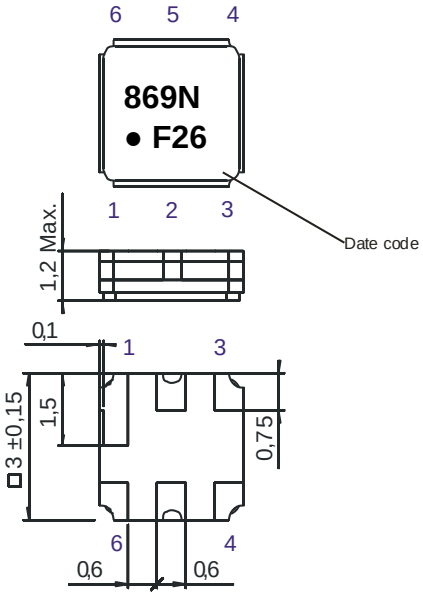
Filter characteristic





Construction and pin connection

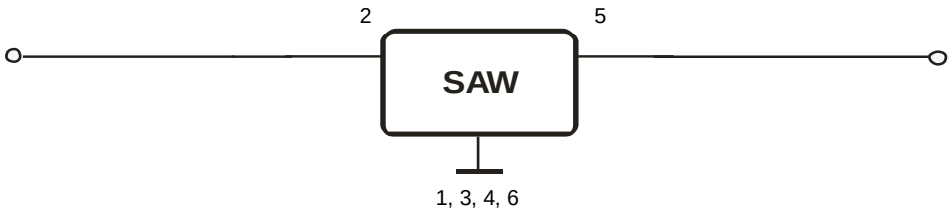
(All dimensions in mm)



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

Date code:	Year + week
F	2015
G	2016
H	2017
...	

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 plane, 3 planes; DIN IEC 68 T2 - 6

3. Change of temperature: -55 °C to 125°C / 15 min. 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)

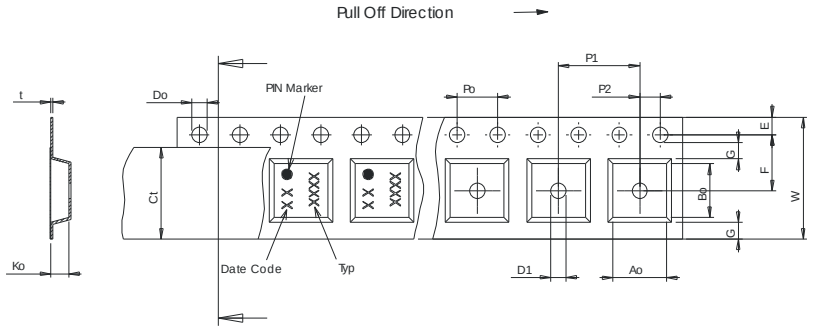
Packing

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

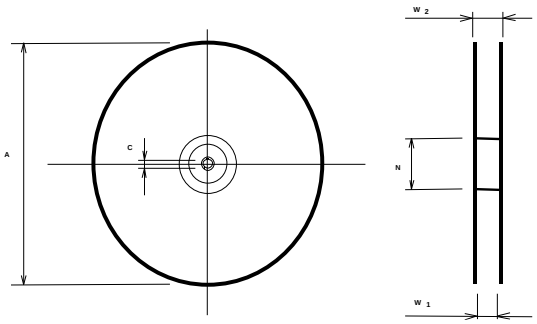
Tape (all dimensions in mm)

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	:	330	or 180
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.

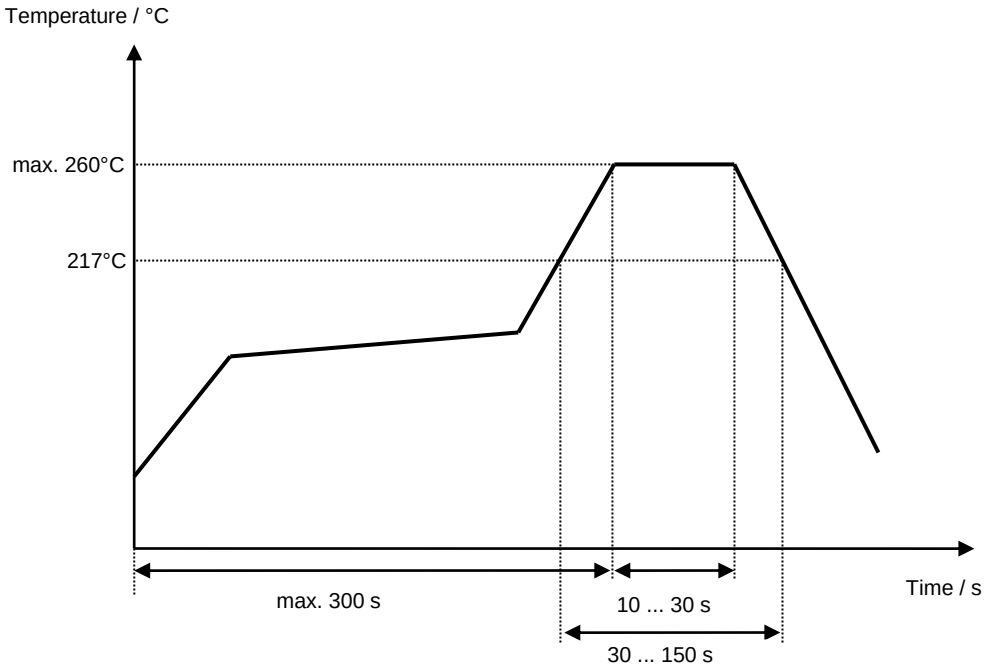
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Air reflow temperature conditions

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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History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Abutaimah	04.03.2015
1.1	- Generation of filter specification - Add typical values and filter characteristic	C. Noack	24.06.2015

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