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 1960 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.

D a t a			**typ. value**		**tolerance / limit**		
Insertion loss	a_e		2,9	dB	max.	4,3	dB
Insertion loss in OTR2			2,7	dB	max.	4,1	dB
Nominal frequency	f_N		-			1960	MHz
Passband	PB				f_N ±	30	MHz
Pass band ripple			0,6	dB	max.	2	dB
Pass band variation			1,5	dB	max.	3	dB
Absolute attenuation	a_{abs}						
10 MHz ... 1850 MHz			33	dB	min.	24	dB
1850 MHz ... 1910 MHz			17	dB	min.	10,5	dB
1850 MHz ... 1910 MHz		in OTR2	18	dB	min.	11,5	dB
2010 MHz ... 2040 MHz			6	dB	min.	4,5	dB
2010 MHz ... 2040 MHz		in OTR2	7	dB	min.	5,5	dB
2040 MHz ... 2070 MHz			45	dB	min.	30	dB
2070 MHz ... 2500 MHz			43	dB	min.	23	dB
2500 MHz ... 2700 MHz			43	dB	min.	32	dB
2700 MHz ... 4000 MHz			31	dB	min.	28	dB
4000 MHz ... 6000 MHz			7	dB	min.	5	dB
Input power level			-		max.	10	dBm
Operating temperature range	OTR		-		- 30 °C ... + 85 °C		
Operating temperature range2	OTR2		-		- 10 °C ... + 70 °C		
Storage temperature range			-		- 40 °C ... + 85 °C		
Temperature coefficient of frequency	TC_f *		-46	ppm/K			

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

Generated:

Checked / Approved:

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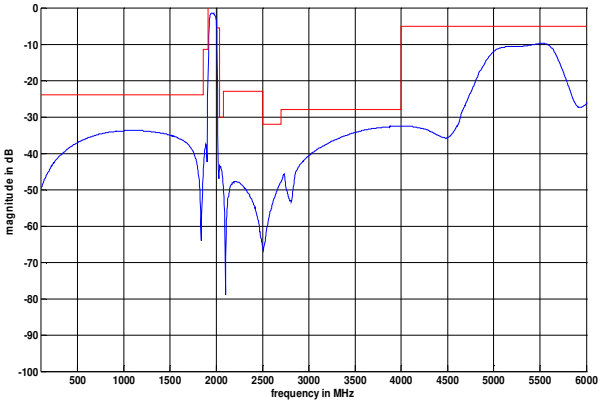
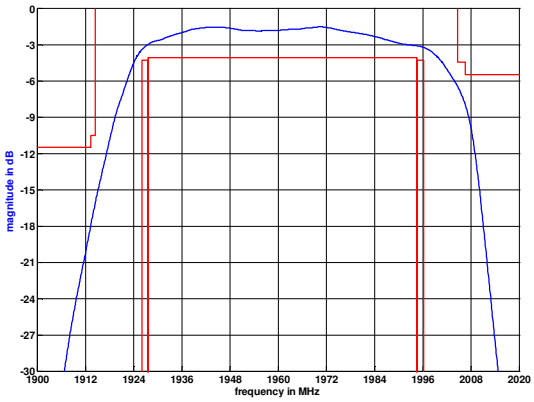
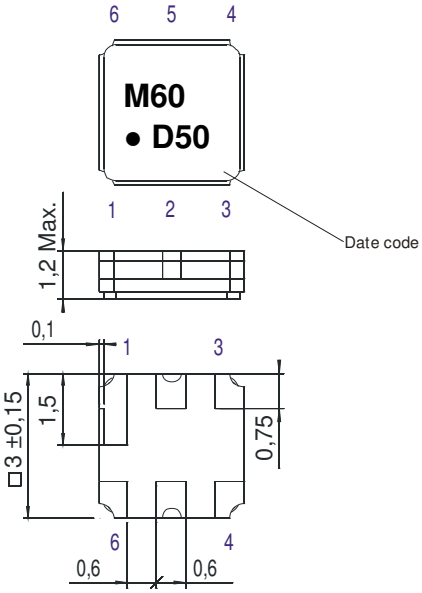
Filter characteristic





Construction and pin connection

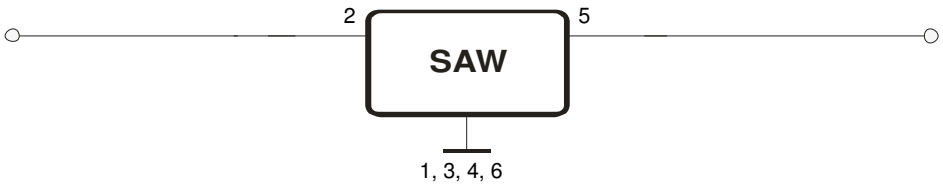
(All dimensions in mm)



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

Date code:	Year + week
C	2012
D	2013
E	2014

50 Ohm 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 / 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 (20011/65/EU)

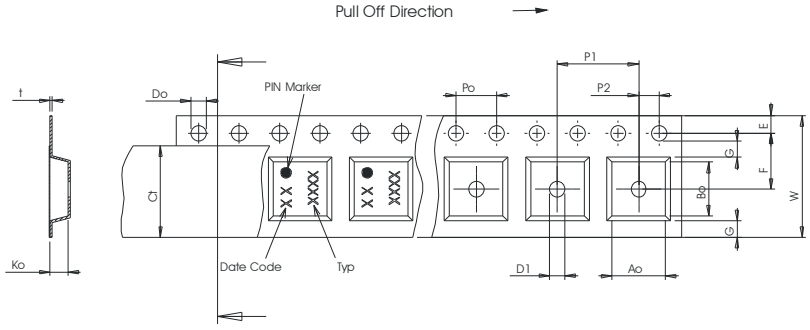
Packing

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

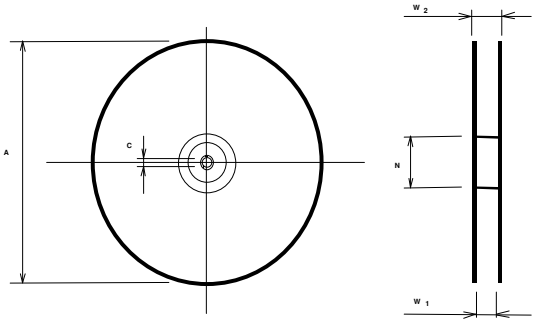
Tape (all dimensions in mm)

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
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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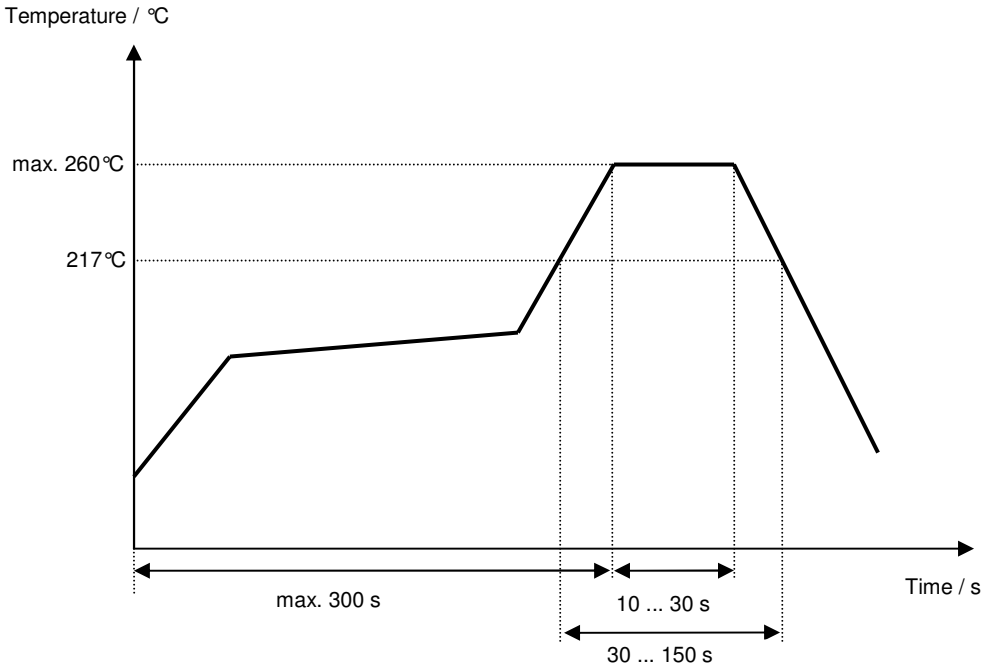
Air reflow temperature conditions

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	Roizengaft	19.12.2003
1.1	add of formula for temperature coefficient of frequency, add of value of temperature coefficient, change of operating temperature range, change of absolute attenuation	Roizengaft	22.12.2003
1.2	add of typical values	Dr. Sabah	08.01.2004
1.3	generation of filter specification added OTR 2 changed limit line scheme changed temperature coefficient added filter characteristic	Martens	11.12.2006
1.4	changed limit line scheme	Noack	25.10.2007
1.5	added filter characteristic	Strehl	12.08.2008
2.0	change data table and filter characteristic	Noack	12.04.2010
2.1	changing power level changing tape and reel direction	S.Springfeldt	01.12.2011
2.2	changing power level	S. Springfeldt	11.12.2013

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