

VI TELEFILTER**Filter Specification****TFS 360A - 1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedances
 for input: 360 Ω // - 1,05 pF
 for output: 360 Ω // - 1,05 pF
 Coupling coil: 91 nH

Characteristics**Remark:**

Reference level for the relative attenuation a_{rel} of the TFS 360 A 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_0 is the arithmetic mean value of the upper and lower frequencies at the 1.5 dB filter attenuation level relative to the insertion loss a_e . The nominal frequency f_N is fixed on 360 MHz without tolerance. The given values for the relative attenuation a_{rel} and for the group delay ripple have to be reached at the frequencies given below also if the centre frequency f_0 is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_0 .

D a t a		typ. value	tolerance/limit		
Insertion loss (Reference level)	$a_e = a_{min}$	-	max.	5,0	dB
Nominal frequency	f_N	-		360,00	MHz
Pass band ripple	$f_N \pm 67,7\text{kHz}$ BW	-	max.	1,5	dB
Relative attenuation	a_{rel}				
$f_N \pm 0,4$ MHz... $f_N \pm 0,6$ MHz		-	min.	29	dB
$f_N \pm 0,6$ MHz... $f_N \pm 0,8$ MHz		-	min.	42	dB
$f_N \pm 0,8$ MHz... $f_N \pm 1,6$ MHz		-	min.	50	dB
$f_N \pm 1,6$ MHz... $f_N \pm 3,0$ MHz		-	min.	45	dB
$f_N \pm 3,0$ MHz... $f_N \pm 115$ MHz		-	min.	52	dB
Group delay ripple	GD				
$f_N \pm 67,76$ kHz		-	max.	2,0	µs
Input power level		-	max.	10	dBm
Operating temperature range		- 20 °C ... + 75 °C			
Storage temperature		-35 °C ... + 85 °C			
Temperature coefficient of frequency TC		ca. - 0.036 ppm/K ²			
Frequency inversion temperature		+ 20 °C			

Generated:**Checked / approved:**

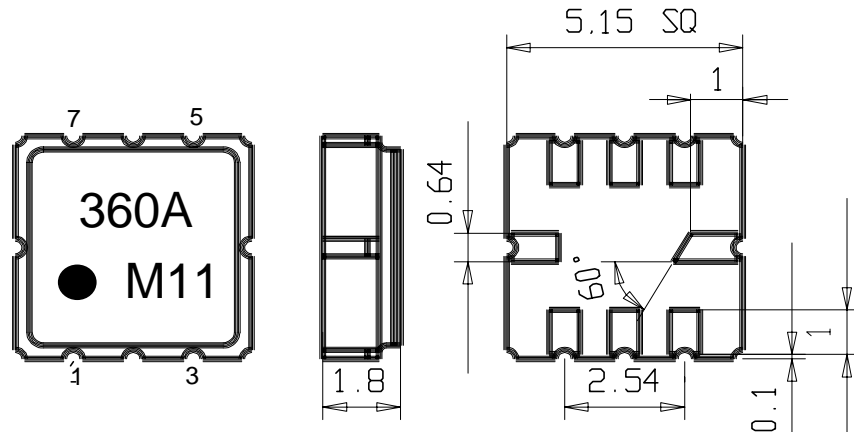
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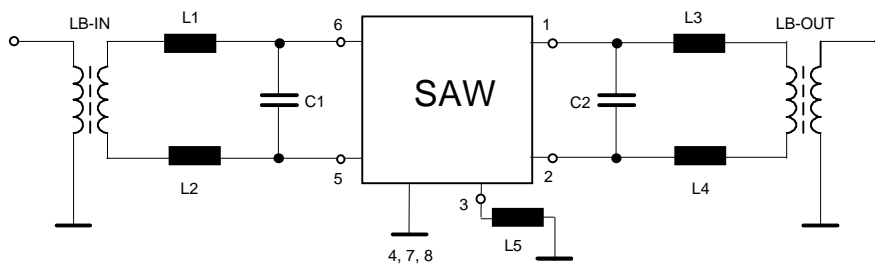
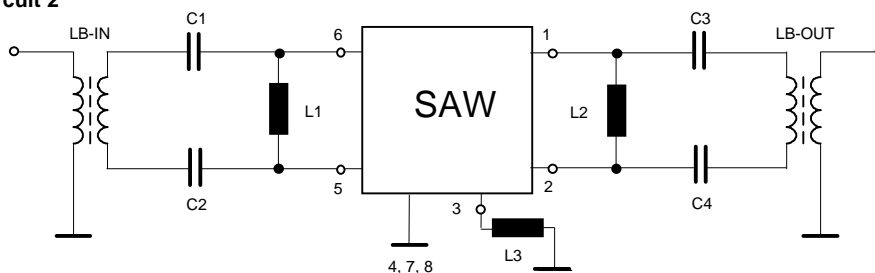
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Construction, pin configuration and 50 Ω - matching network

(All dimensions in mm)



Pin 1	Sym. Output	Pin 5	Sym. Input
Pin 2	Sym. Output	Pin 6	Sym. Input
Pin 3	External Coil	Pin 7	Ground
Pin 4	Package Ground	Pin 8	Package ground

50 Ohm Test circuit 1**50 Ohm Test circuit 2**

Stability Characteristics

After the following tests the filter shall meet the whole specification:

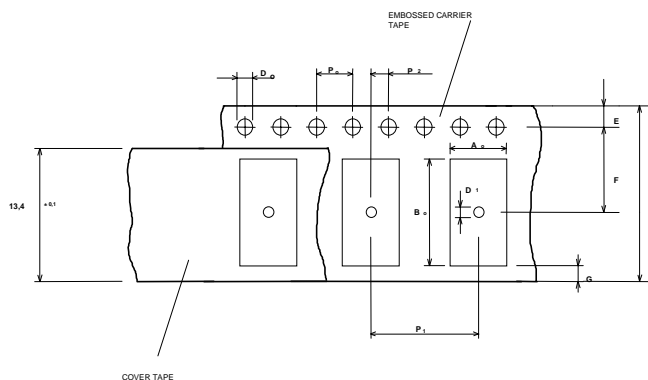
1. Shock: 500g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
DIN IEC 68 T2 - 6
3. Damp heat: 25 °C to 55°C / 95% r.H. / 10 cycles
(cycle) DIN IEC 68 - 2 - 30 Db
4. Resistance to solder heat (reflow): max. 2 times reflow process;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

Packing

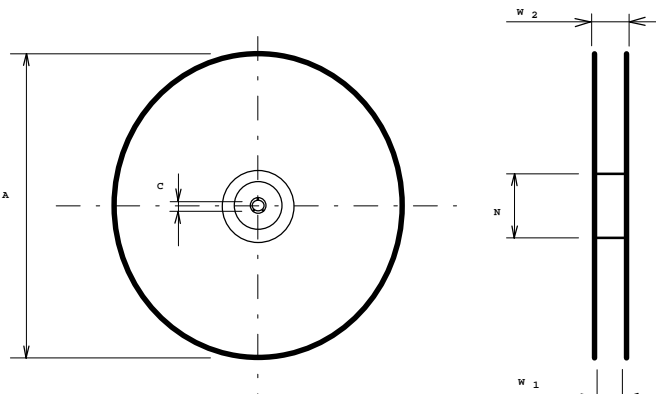
Tape & Reel:	IEC 286 - 3, with exception of value for N and minimum bending radius; tape type II, embossed carrier tape with top cover tape on the upper side;	
	max. pieces of filters per reel:	3000
	Reel of empty components at start:	min 300 mm
	Reel of empty components at start including leader:	min 500 mm
	Trailer	min 300 mm

Tape (all dimensions in mm)

W	: 12 ± 0,3
Po	: 4 ± 0,1
Do	: 1,5 + 0,1
E	: 1,75 ± 0,1
F	: 5,5 ± 0,1
G (min)	: 0,75
P2	: 2 ± 0,05
P1	: 4 ± 0,1
D1 (min)	: 1,5
Ao	: 5,3 ± 0,1
Bo	: 5,3 ± 0,1

**Reel (all dimensions in mm):**

A	:	330
W1	:	12,4 +2
W2 (max)	:	18,4
N (min)	:	50
C	:	13 ± 0,25

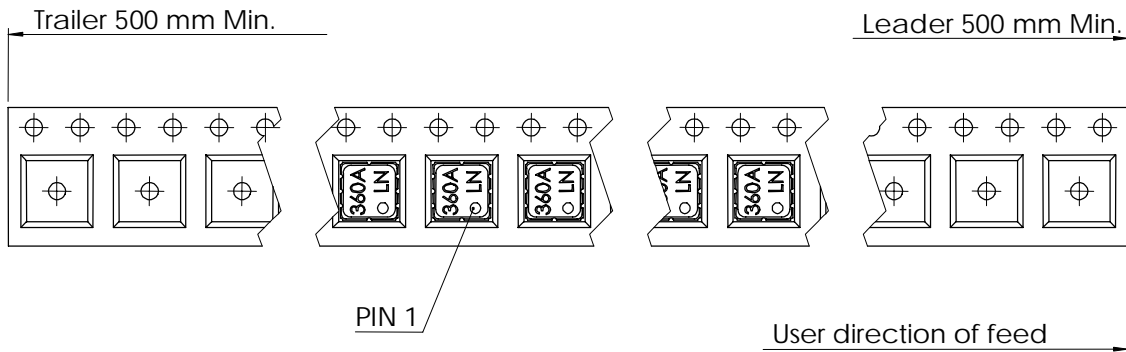


The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. The marking of the filters is able to read if the view is directed on the upper side of the carrier tape with the sprocket holes on the right side of the tape

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Air reflow temperature conditions

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

Chip-mount air reflow profile

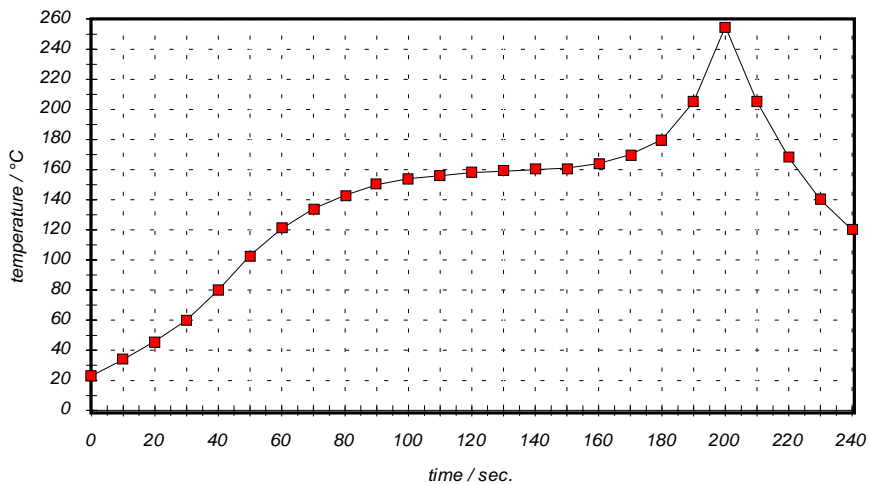


Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160

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VI TELEFILTER	Filter Specification		TFS 360A	- 5/5
	10	34	150	161
	20	46	160	164
	30	60	170	170
	40	80	180	180
	50	103	190	205
	60	121	195	230
	70	134	200	255
	80	143	205	230
	90	150	210	205
	100	154	215	180
	110	156	220	165
	120	158	230	140
	130	159	240	120

History

Version	Reason of Changes	Name	Date
1.5	Change date code from month to week Change errors in tape an reel information Remove 'Construction and Pin Connection' from page 1 Guarantee better values for stability characteristic	Dr. Wall	17.03.2000
1.6	Tape drawing with part position added.	André du Hamél	12.04.2001

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