

VI TELEFILTER**Preliminary Specification****TFS 1960****1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedances
 for input: 50 Ω
 for 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	2,70 dB	max. 4,1 dB
Nominal frequency	f_N	-	1960 MHz
Pass band	PB	80,65 dB	$f_N \pm 30$ MHz
Pass band ripple		0,6 dB	max. 2 dB
Absolute attenuation	a_{abs}		
10 MHz ... 1850 MHz		33 dB	min. 24 dB
1850 MHz ... 1910 MHz		18 dB	min. 11,5 dB
2010 MHz ... 2040 MHz		7,3 dB	min. 5,5 dB
2040 MHz ... 2070 MHz		45 dB	min. 30 dB
2070 MHz ... 5000 MHz		35 dB	min. 23 dB
5000 MHz ... 6000 MHz		14 dB	min. 10 dB
Operating temperature range		-	- 10 °C ... + 70 °C
Storage temperature range		-	- 40 °C ... + 85 °C
Temperature coefficient of frequency	TCf*)	-36 ppm/K	-
Input power level		-	max. 5 dBm

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

generated: _____

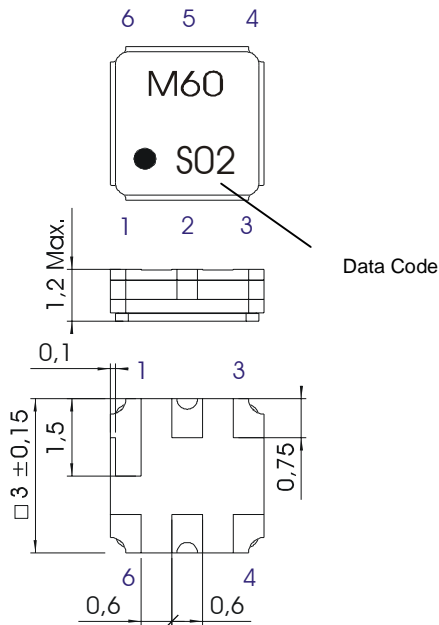
checked / approved: _____

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Construction and pin configuration

(All dimensions in mm)



Date code: Year+week

P	2002
R	2003
S	2004

...

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

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VI TELEFILTER**Preliminary Specification****TFS 1960****3/5****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. 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: twice max. ;
for temperature conditions, please refer to the attached "Air reflow temperature conditions" on page 4

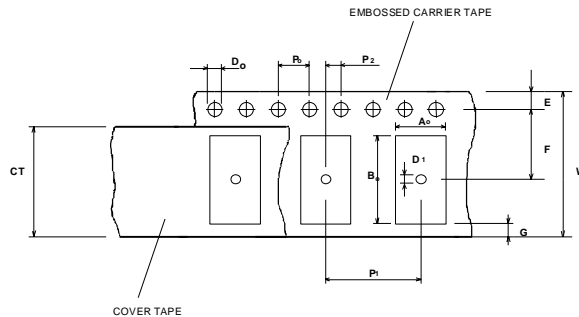
Packing

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:	9000
reel of empty components at start:	min 300 mm
reel of empty components at start including leader:	min 500 mm
trailer	min 300 mm

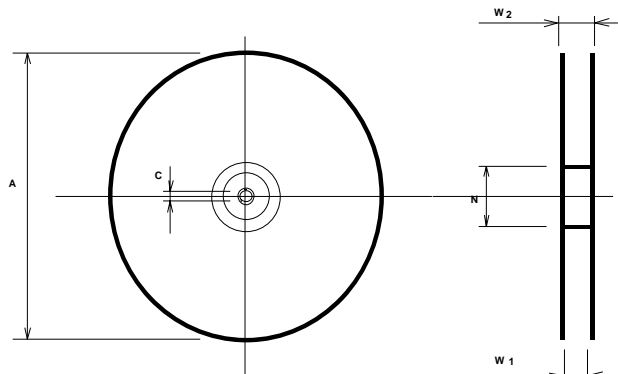
Tape (all dimensions in mm)

W	: 8	±0,3
Po	: 4	±0,1
Do	: 1,5	+0,1
E	: 1,75	±0,1
F	: 3,5	±0,05
G (min)	: 0,75	
P2	: 2	±0,05
P1	: 4	±0,1
D1(min)	: 1,5	
Ao	: 3,25	±0,1
Bo	: 3,25	±0,1
CT	: 5,5	±0,2



Reel (all dimensions in mm):

A	: 330
W1	: 8,4 + 2,0
W2 (max)	: 14,4
N (min)	: 50
C	: 13 +0,5/ -0,2



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. Markings on the filters can be read if the upper side of the carrier tape is regarded with the sprocket holes on its right.

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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.	

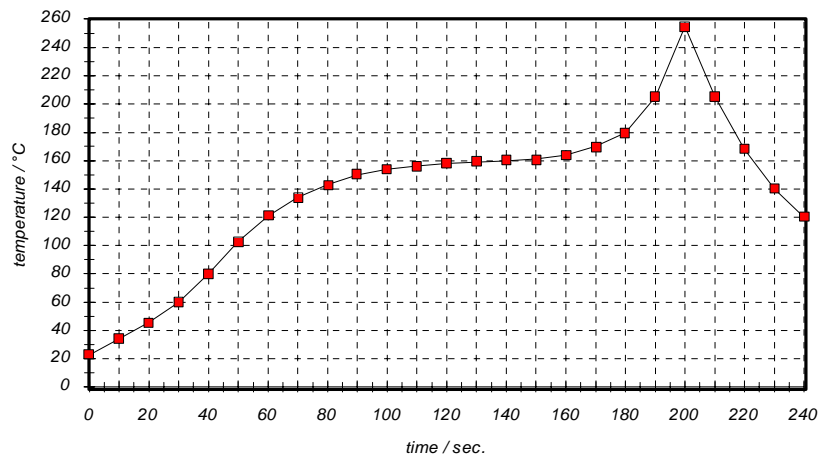
Chip-mount air reflow profile

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
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

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VI TELEFILTER**Preliminary Specification****TFS 1960****5/5****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

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