

VI TELEFILTER**Resonator Specification****TFR 125****1/5****Measurement condition**

Ambient temperature:	25	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50 Ω 0 pF	
Output:	50 Ω 0 pF	

Characteristics

Remark:

The minimum of the attenuation $a_{\min}$ is defined as the insertion loss a_e . The centre frequency f_c is the measured frequency at the minimum insertion loss point. The frequency shift of the resonator in the operating temperature range is not included in the production tolerance scheme.

D a t a		typ. value	tolerance / limit
Insertion loss (reference level)	$a_e = a_{\min}$	2,4 dB	max. 3,0 dB
Resonant frequency at ambient temperature	f_c	-	125 $\pm$ 0,05 MHz
Quality factor	Q		
Unloaded		13600	min. 8000
Parallel capacitance *	C_0	5,4 pF	-
Motional resistance *	R_m	34 Ω	-
Motional inductance *	L_m	620 μ H	-
Motional capacitance *	C_m	2,6 fF	-
Operating temperature range	OTR	-	-20 °C ... + 70 °C
Storage temperature range		-	-30 °C ... + 150 °C
Frequency inversion temperature	T_0	13 °C	-
Temperature coefficient of frequency	TC_f **	-0,038 ppm/K ²	-

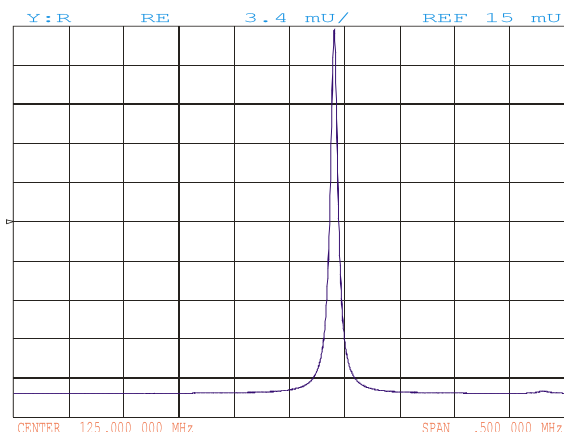
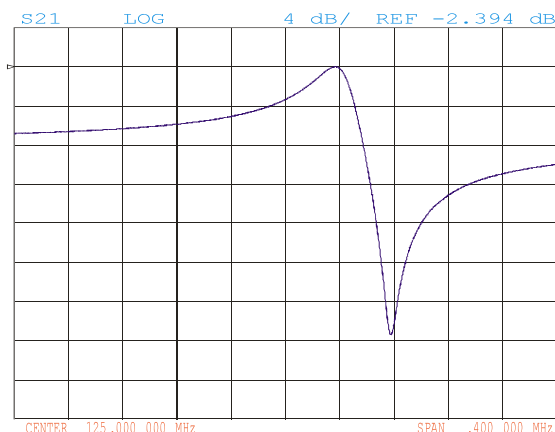
*) The equivalent circuit model is for reference only.

**) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T - T_0)^2 \times f_{CAT}(\text{MHz})$

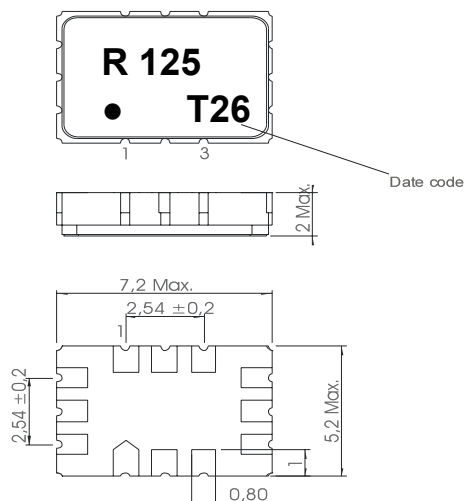
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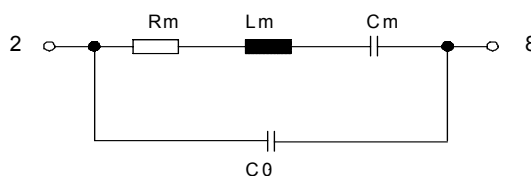
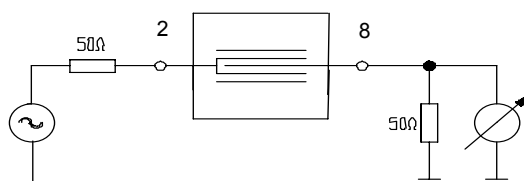
VI TELEFILTER**Resonator Specification****TFR 125****2/5****Resonator characteristic****Construction and pin connection**

(All dimensions in mm)



1	Ground
2	Output
3	Ground
4	Ground
5	Ground
6	Ground
7	Ground
8	Input
9	Ground
10	Ground
11	Ground
12	Ground

Date code: Year + week
 T 2005
 U 2006
 V 2007
 ...

50 Ω test circuit and equivalent circuit

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VI TELEFILTER**Resonator Specification****TFR 125****3/5****Stability characteristics**

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 / 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 refer to the attached "Air reflow temperature conditions" on page 4;

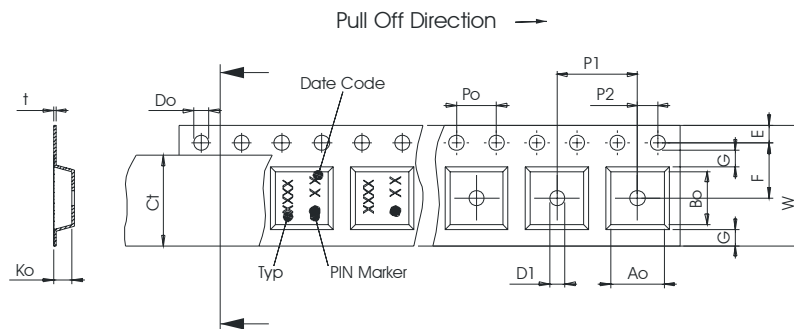
Packing

Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

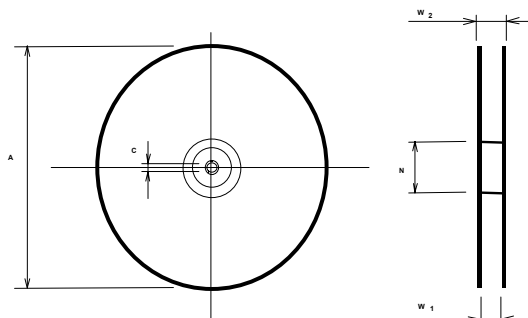
max. pieces of filters peer reel:	3000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 16,00 ± 0,3
Po	: 4,00 ± 0,1
Do	: 1,50 +0,1/-0
E	: 1,75 ± 0,1
F	: 7,50 ± 0,1
G(min)	: 0,60
P2	: 2,00 ± 0,1
P1	: 8,00 ± 0,1
D1(min)	: 1,50
Ao	: 5,50 ± 0,1
Bo	: 7,50 ± 0,1
Ct	: 13,5 ± 0,1

**Reel (all dimensions in mm)**

A	: 330
W1	: 16,4 +2/-0
W2(max)	: 22,4
N(min)	: 50
C	: 13,0 +0,5/-0,2



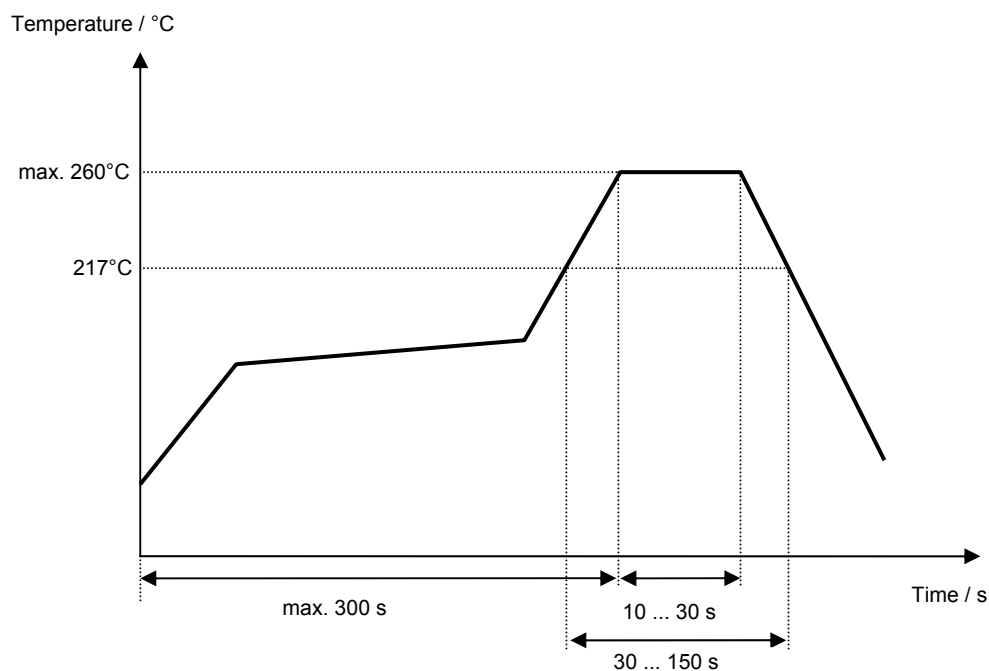
The minimum bending radius is 45 mm.

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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

VI TELEFILTER**Resonator Specification****TFR 125****5/5****History**

Version	Reason of changes	Name	Date
1.0	- Generation of resonator specification	Martens	27.06.2005
1.1	- Changed temperature coefficient and frequency inversion temperature	Martens	28.06.2005