

VI TELEFILTER**Resonator specification****TFR 868D****1/5****Measurement condition**

Ambient temperature: 25 °C
 Input power level: 0 dBm
 Terminating impedance *
 for input: 50Ω
 for output: 50Ω

Characteristics**Remark:**

The minimum of the pass band attenuation a_{\min} is defined as the insertion loss a_e . The centre frequency f_C is the frequency of the minimum of the passband attenuation a_{\min} . The tolerance for the centre frequency also includes a frequency shift due to the temperature coefficient of frequency TC_f in the operating temperature range and a production tolerance for the centre frequency f_C .

D a t a		typ. value	tolerance / limit
Insertion loss (reference level)	$a_e = a_{\min}$	1,5 dB	max. 3,0 dB
Centre frequency	f_C	868,35 MHz	±150 kHz
Ageing of centre frequency		-	max. ±10 ppm/yr
Quality Factor	Unloaded Q	4,200	-
	Loaded Q 50Ω	2,000	-
Parallel capacitance	C_0	1,7 pF	max. ±0,3 pF
Motional resistance	R_1	12 Ω	max. 22 Ω
Motional inductance	L_1	66 μH	-
Motional capacitance	C_1	2,3 fF	-
DC Insulation resistance		-	min. 1 MΩ
DC Voltage	V_{DC}	-	max. 10 V
AC Voltage (50Hz/60Hz)	V_{pp}	-	max. 10 V
Input power level		-	max. 0 dBm
Operating temperature range	OTR	-	-40 °C ... + 85°C
Storage temperature range		-	-45 °C ... + 85°C
Turnover temperature	T_0	39 °C	
Temperature coefficient of frequency	TC_f **	0,032 ppm/K ²	

*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions, do not hesitate to ask for an application note or contact our design team.

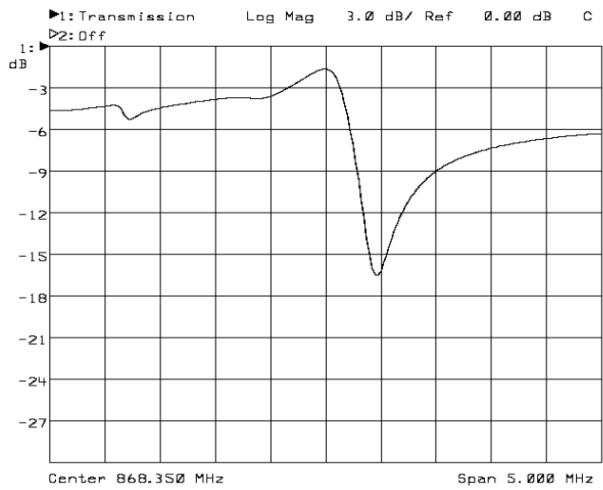
**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T_0 - T)^2 \times f_{CAT}(\text{MHz})$.

Generated:**Checked / Approved:**

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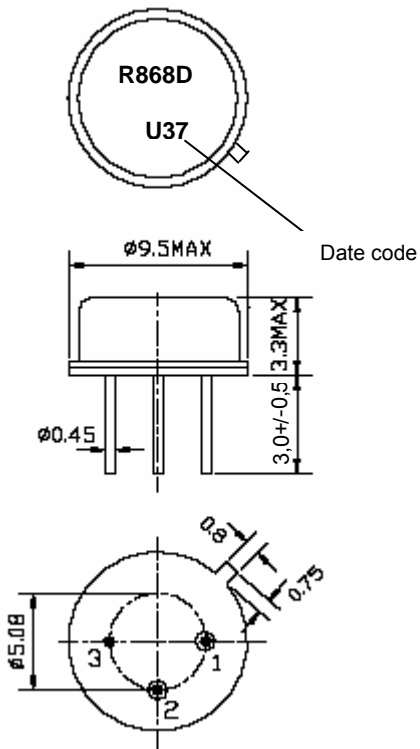
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Resonator characteristic



Construction and pin connection

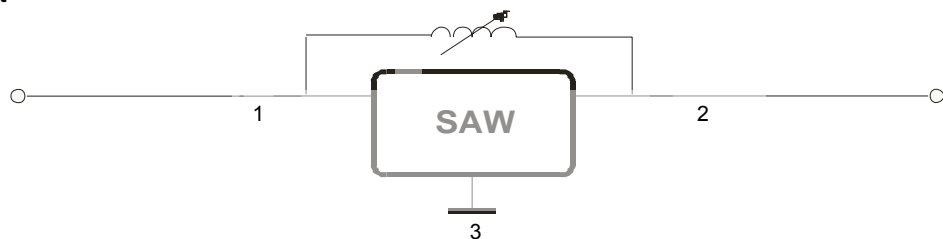
(All dimensions in mm)



Date code: Year + week
 U 2006
 V 2007
 W 2008
 ...

1 Input
 2 Output
 3 Ground

50 Ohm Test circuit



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Stability Characteristics

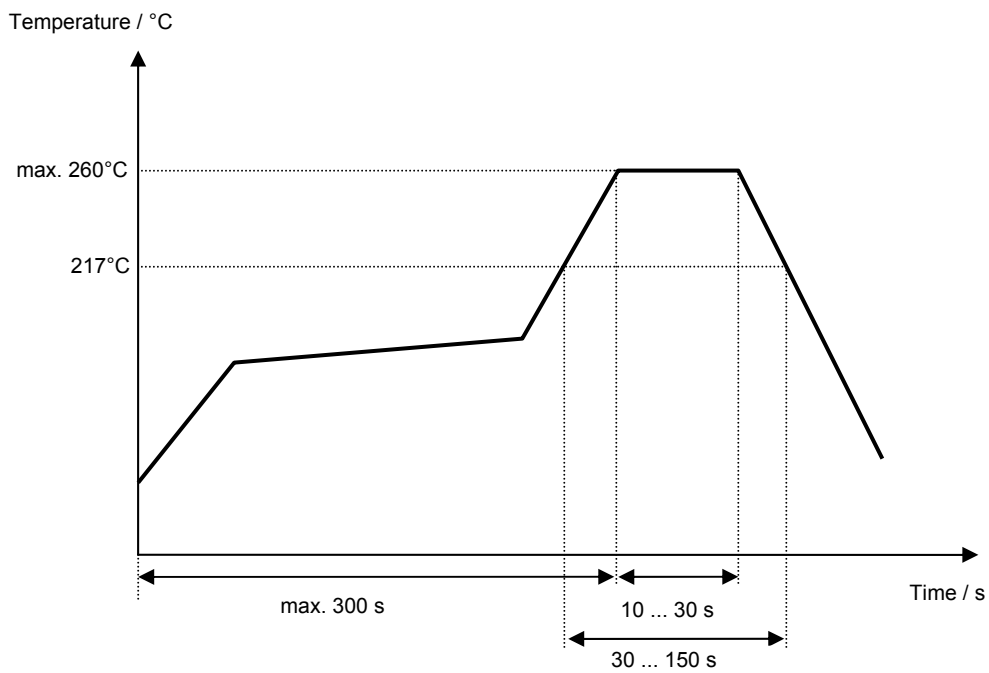
After the following tests the filter shall meet the whole specification:

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;

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 868D****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of resonator specification	Strehl	18.01.2005
1.1	Added resonator characteristic	Martens	13.09.2006

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