

VI TELEFILTER**Filter specification****TFS 69A****1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedance: *
 Input: 142 Ω || -56 pF
 Output: 105 Ω || -64 pF

Characteristics**Remark:**

The nominal frequency f_N is fixed at 69,99 MHz. The insertion loss a_e is defined as loss value determined at f_N . Reference level for the relative attenuation a_{rel} of the TFS 69A is the insertion loss a_e . The centre frequency f_c 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 . All specified data are met within the operating temperature range.

D a t a		typ. value		tolerance/limit	
Insertion loss	a_e	20,5	dB	max.	22 dB
Nominal frequency	f_N	-			69,99 MHz
Pass band	PB	-		$f_N \pm$	0,61 MHz
Amplitude ripple	PB	0,5	dB	max.	0,7 dB
Deviation from linear phase		1	deg	max.	5 deg
Triple transit suppression		50	dB	min.	30 dB
Relative attenuation	a_{rel}				
	$f_N \pm 0,630$ MHz	0,7	dB	max.	1,5 dB
	$f_N \pm 0,750$ MHz	40	dB	min.	35 dB
	$f_N \pm 0,900$ MHz	60	dB	min.	50 dB
Operating temperature range		-		- 10 °C ... + 75 °C	
Storage temperature range		-		- 40 °C ... + 85 °C	
Frequency inversion temperature		44	°C		-
Temperature coefficient of frequency **)	TCf	-0,04	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.

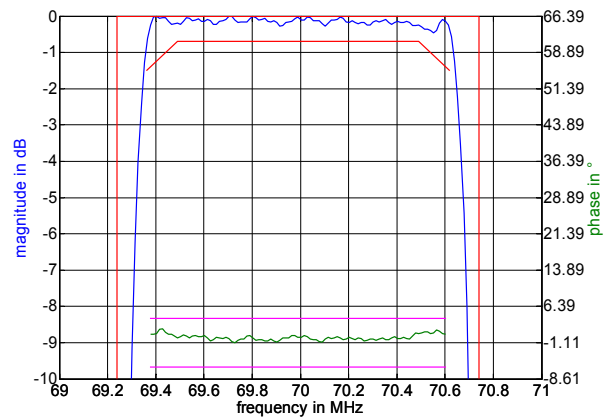
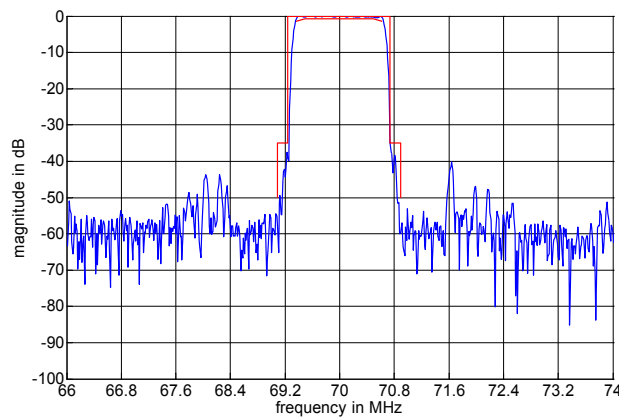
**) $\Delta f_c(\text{Hz}) = TC_f (\text{ppm/K}^2) \times (T - T_A)^2 \times f_{cat}(\text{MHz})$

generated: _____

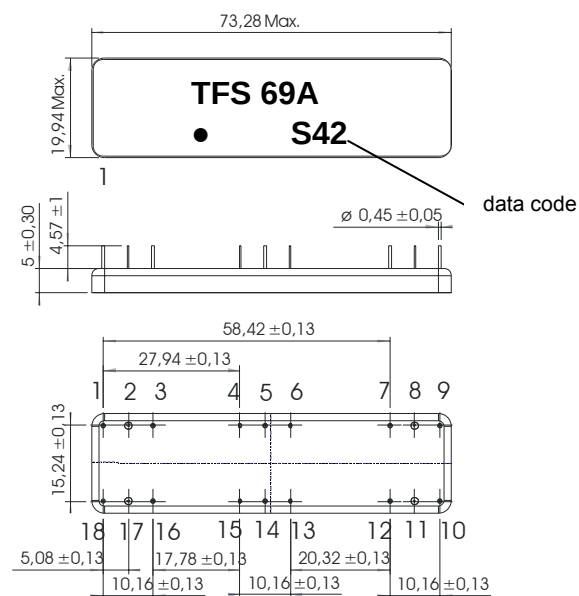
checked / approved: _____

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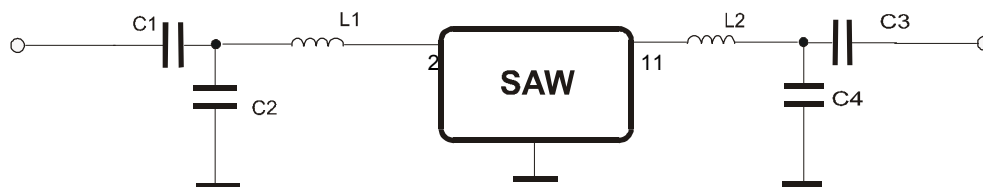
VI TELEFILTER**Filter specification****TFS 69A****2/5****Filter characteristic****Construction and pin connection**

(All dimensions in mm)



1	Ground
2	Input
3,4,5,6	Ground
7,8,9,10	Ground
11	Output
12,13,14,15	Ground
16,17,18	Ground

Date code: Year + week
 S 2004
 T 2005
 U 2006
 ...

50 Ohm Test circuit

1,3,4,5,6,7,8,9,10,
 12,13,14,15,16,17,18

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VI TELEFILTER**Filter specification****TFS 69A****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 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;

VI TELEFILTER**Filter specification****TFS 69A****4/5****Air reflow temperature conditions**Conditions

Average ramp-up rate (30°C to 217°C)

> 100°C

> 150°C

> 217°C

Peak temperature

Time within 5°C of actual peak temperature

Cool-down rate (Peak to 50°C)

Time from 30°C to 255°C

Exposure

less than 3°C/second

between 300 and 600 seconds

between 240 and 500 seconds

between 90 and 150 seconds

255°C

between 10 and 30 seconds

less than 6°C/second

no greater than 300 seconds

All temperatures shown are +5/-0°C.

VI TELEFILTER**Filter specification****TFS 69A****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of development specification	Roizengaft	25.02.2004
1.1	typical values, terminating impedances (preliminary values) and typical plots added	Pfeiffer	23.03.2004
1.2	terminating impedance fixed, inversion temperature added, air reflow temperature conditions modified	Pfeiffer	14.10.2004