

VI TELEFILTER

Filter specification

TFS 280R

Measurement condition

Ambient temperature: 22 °C
 Input power level: 0 dBm
 Terminating impedance: *
 Input: 67 Ω || -9.5 pF
 Output: 163 Ω || -6.8 pF

Characteristics

Remark:

The nominal frequency f_N is fixed at 280 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 280R is the insertion loss a_e . All specified data are met within the operating temperature range.

coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_C .

D a t a	typ. value		tolerance / limit		
Insertion Loss	a_e	10,4 dB	max.	12	dB
Nominal Frequency	f_N			280	MHz
Relative Attenuation	a_{rel}				
$f_N \dots f_N \pm 7,5 \text{ MHz}$		0,5 dB	max.	1	dB
$f_N \pm 7,5 \text{ MHz} \dots f_N \pm 8,5 \text{ MHz}$		1,5 dB	max.	3	dB
$f_N \pm 15 \text{ MHz} \dots f_N \pm 17 \text{ MHz}$		20	min.	10	dB
$f_N \pm 17 \text{ MHz} \dots f_N \pm 100 \text{ MHz}$		42	min.	40	dB
Group Delay Ripple					
$f_N - 7,5 \text{ MHz} \dots f_N + 7,5 \text{ MHz}$		30	max.	40	ns
Operating Temperature Range	OTR	-	- 40°C ... + 85°C		
Storage Temperature Range		-	- 40°C ... + 85°C		
Temperature Coefficient of Frequency	TC_f **	- 87 ppm/K	-		
Input Power Level		-	max.	15	dBm

*) 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.

**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

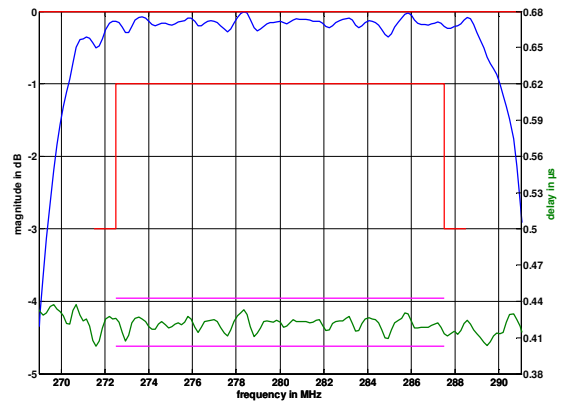
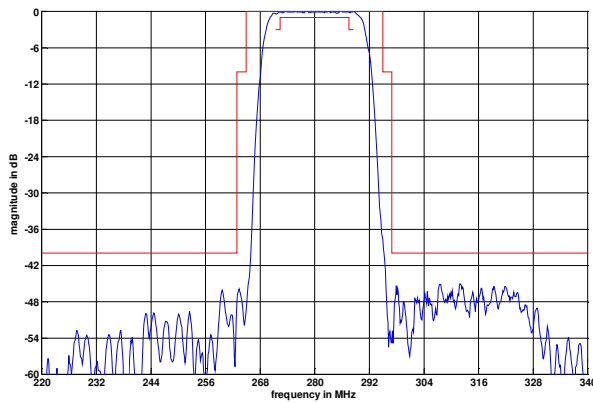
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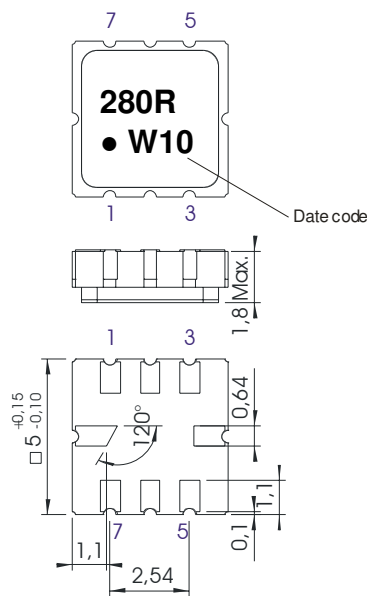
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Filter characteristic



Construction and pin connection

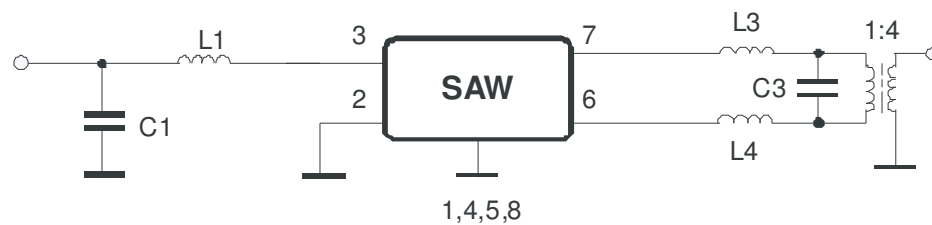
(All dimensions in mm)



- 1 Ground
- 2 Input RF Return
- 3 Input
- 4 Ground
- 5 Ground
- 6 Output
- 7 Output
- 8 Ground

Date code: Year + week
 W 2008
 X 2009
 A 2010
 ...

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;

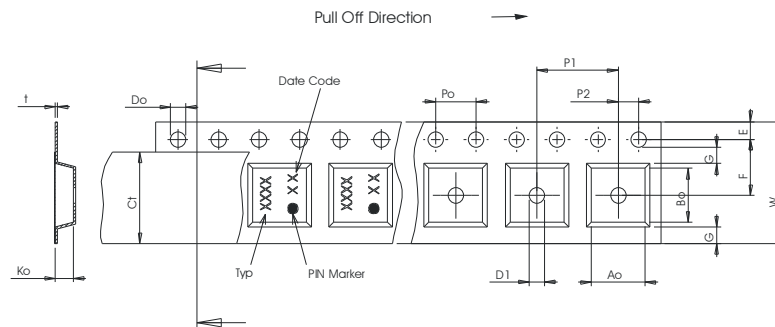
Packing

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

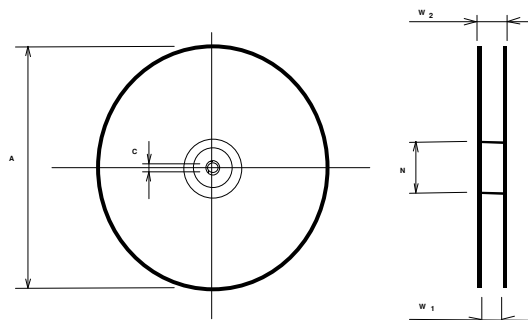
Tape (all dimensions in mm)

- W : 12,00
- Po : 4,00
- Do : 1,50
- E : 1,75
- F : 5,50
- G(min) : 0,75
- P2 : 2,00
- P1 : 8,00
- D1(min) : 1,50
- Ao : 5,30
- Bo : 5,30
- Ct : 9,5



Reel (all dimensions in mm)

- A : 330
- W1 : 12,4
- W2(max) : 18,4
- N(min) : 50
- C : 13,0



The minimum bending radius is 45 mm.

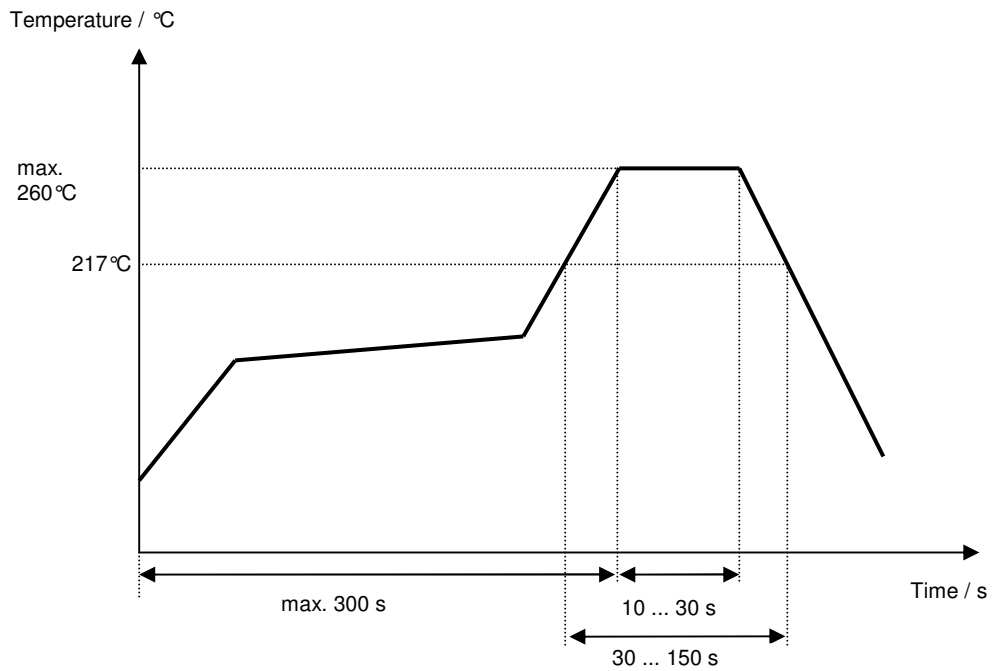
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Air reflow temperature conditions

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**Filter specification****TFS 280R****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- generate specification	Chilla	12.02.2008
1.1	- created filter specification - added terminating impedances - changed insertion loss - added typical values - added temperature coefficient of frequency - corrected for pinning - added filter characteristic - added test circuit	Chilla	07.03.2008

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