

Vectron International**Filter specification****TFS 678****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
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 678 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	1,7 dB	max. 3,0 dB
Nominal frequency	f_N	-	678,0 MHz
Passband	PB	-	$f_N \pm 12,0$ MHz
Bandwidth	BW		
1 dB		42,0 dB	min. 24,0 MHz
Absolute attenuation	a_{abs}		
0,3 MHz ... 603 MHz		56 dB	min. 40 dB
603 MHz ... 640 MHz		20 dB	min. 10 dB
711 MHz ... 753 MHz		18 dB	min. 10 dB
753 MHz ... 778 MHz		40 dB	min. 30 dB
778 MHz ... 1008 MHz		48 dB	min. 40 dB
1008 MHz ... 1140 MHz		57 dB	min. 50 dB
IP3			min. +30 dBm
Input power level		-	max. 0 dBm
Operating temperature range	OTR	-	- 45 °C ... + 85 °C
Storage temperature range		-	- 45 °C ... + 85 °C
Temperature coefficient of frequency	TC_f^*	-76 ppm/K	-

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

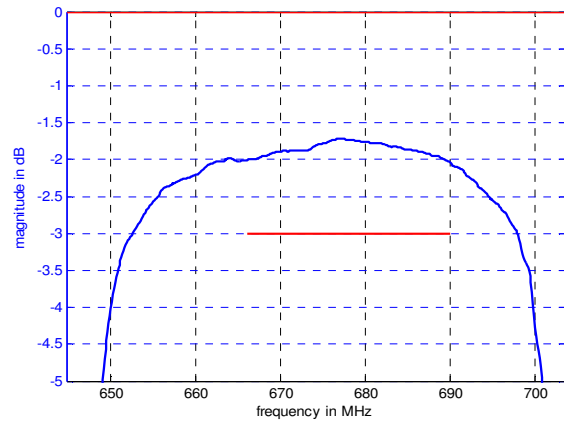
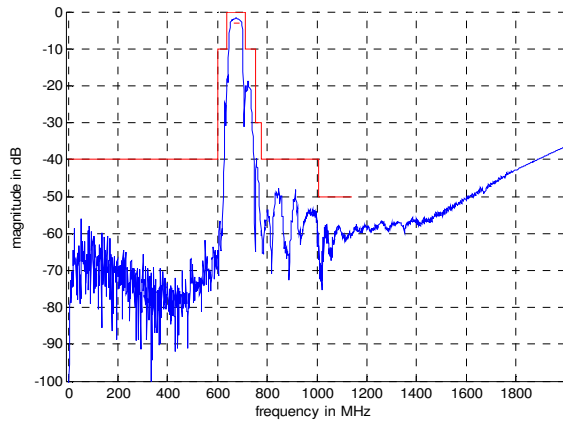
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Checked / Approved:

Vectron International GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

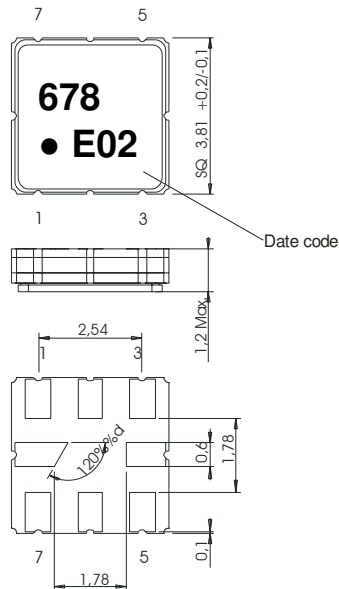
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Filter characteristic



Construction and pin connection

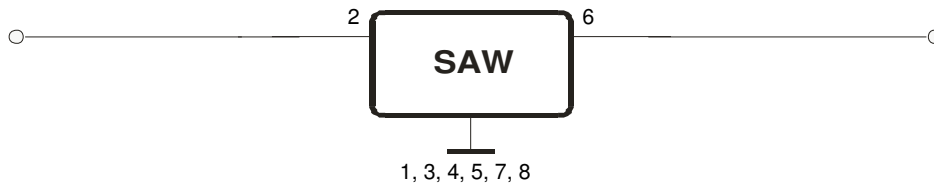
(All dimensions in mm)



1	Ground
2	Input
3	Ground
4	Ground
5	Ground
6	Output
7	Ground
8	Ground

Date code: Year + week
 E 2014
 F 2015
 G 2016
 ...

50 Ω Test circuit



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Stability characteristics, reliability

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 plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125°C / 15 min. each / 100 cycles
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: three times max.;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

This filter is RoHS compliant (2011/65/EU)

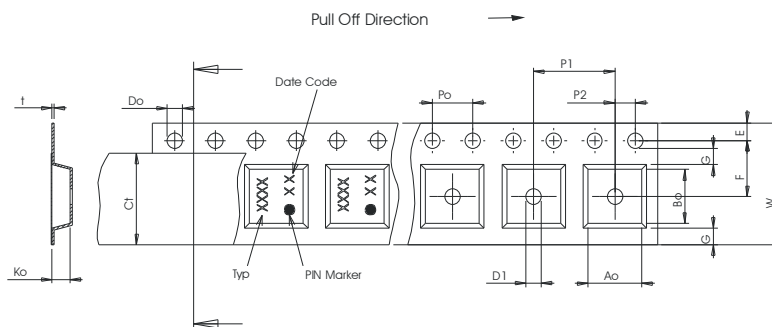
Packing

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

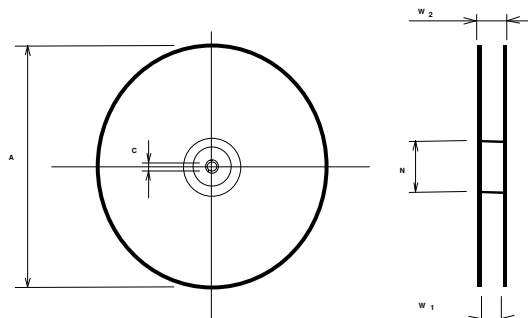
Tape (all dimensions in mm)

- W : 12,00 ± 0,3
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,1
- F : 5,50 ± 0,05
- G(min) : 0,75
- P2 : 2,00 ± 0,05
- P1 : 8,00 ± 0,1
- D1(min) : 1,50
- Ao : 4,30 ± 0,1
- Bo : 4,30 ± 0,1
- Ct : 9,5 ± 0,1



Reel (all dimensions in mm)

- A : 330
- W1 : 12,4 +2/-0
- W2(max) : 18,4
- N(min) : 50
- C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

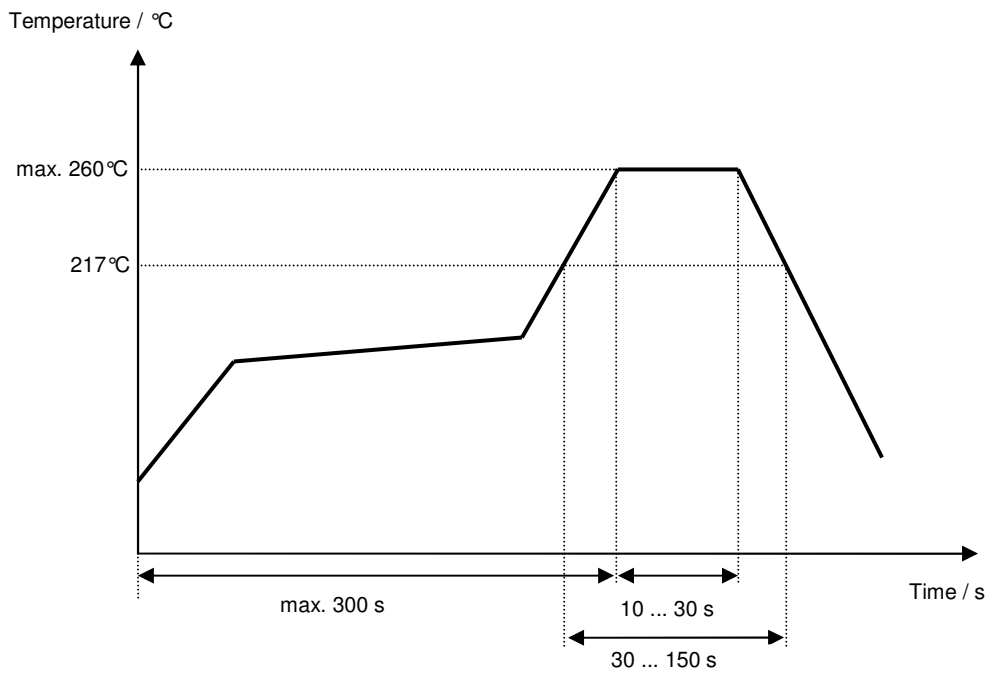
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Air reflow temperature conditions

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



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History

Version	Reason of Changes	Name	Date
1.0	Generation of development specification	Strehl	15.01.2007
1.1	Changing Data section according to customer requirement	Martens	28.03.2007
1.2	Change absolute attenuation	Strehl	04.04.2007
1.3	Change attenuation	S. Channaa	04.03.2008
1.4	Change attenuation, add typical values Add filter characteristic, generation of filter specification	S. Channaa	09.05.2008
1.5	maximum input power updated	Kortenbeutel	07.01.2014