Measurement condition

Ambient temperature T_A:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	Ω

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS1278B is the minimum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 1278.75 MHz without any tolerance or limit. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss	a_e	2.7	dB	max.	4	dB
Nominal frequency	f_N				1278.75	MHz
Passband	PB	-		f_N ±	20	MHz
Passband variation	PBV	0.3	dB	max.	1	dB
Bandwidth	BW	-				
3 dB		104	MHz	min.	40	MHz
38 dB		186	MHz	max.	200	MHz
Relative attenuation	a_{rel}	-				
10 MHz … 1164 MHz		34	dB	min.	28	dB
1393 MHz … 2000 MHz		38	dB	min.	28	dB
Group delay ripple within PB	GDR	4	ns	max.	5	ns
Return loss within PB	RL	17	dB	min.	10	dB
Input power level		-				
Continuous wave over life time within PB				max.	15	dBm
Operating temperature range	OTR	-			-40 °C ... +85 °C	
Storage temperature range		-			-55 °C … +125 °C	
Temperature coefficient of frequency	TC_f *)	-72	ppm/K		-	

*) $\Delta f = TC_f(T - T_A)f_N$

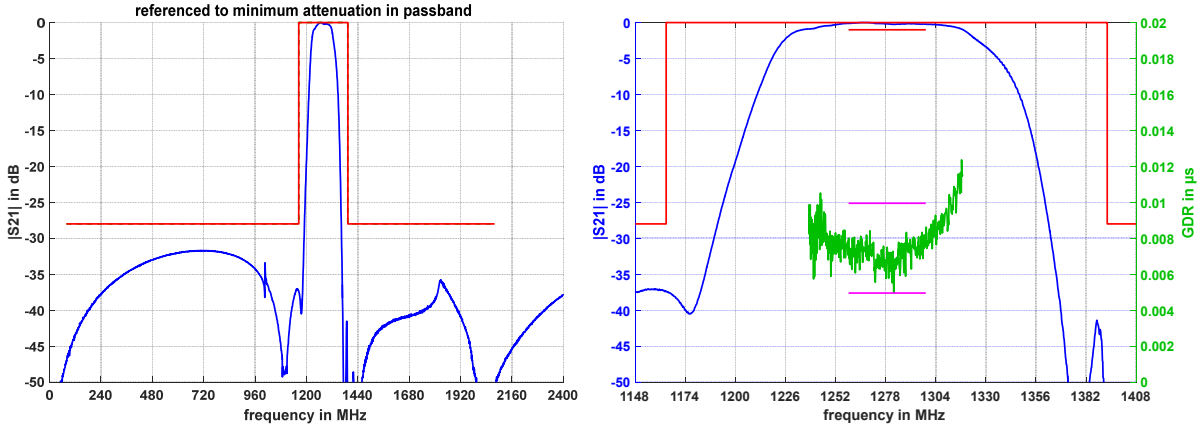
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Checked / Approved:

Microchip Frequency Technology GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30

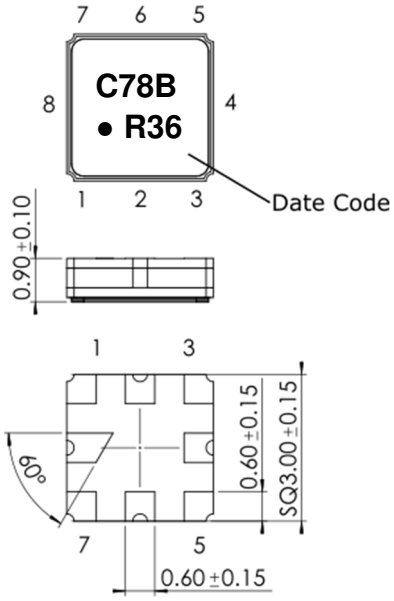
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Filter characteristic



Construction and pin connection

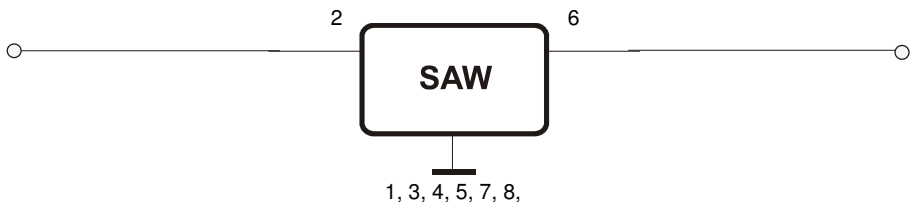
(All dimensions in mm)



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

Date code:	Year + week
R	2023
S	2024
T	2025
...	

50 Ohm Test circuit



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Stability characteristics, reliability

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

1. Shock: 500 g, 1 ms, half sine wave, 3 shocks each plane;
   DIN IEC 60068 T2 - 27

2. Vibration: 10 Hz to 2000 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 60068 T2 - 6

3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
   DIN IEC 60068 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;

5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

This filter is RoHS compliant (2011/65/EU+2015/863/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;

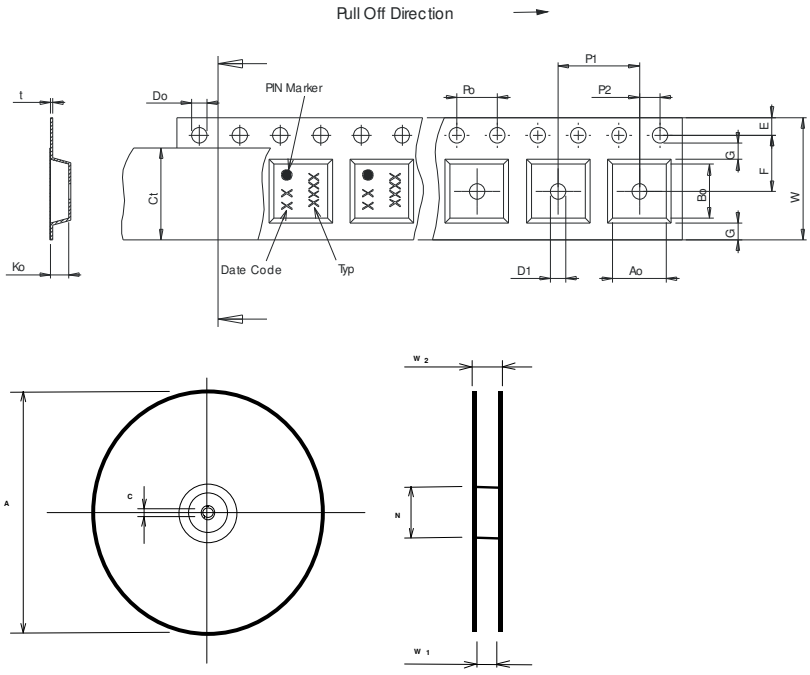
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	:	8.00	±0.3
Po	:	4.00	±0.1
Do	:	1.50	+0.1/-0
E	:	1.75	±0.1
F	:	3.50	±0.05
G(min)	:	0.75	
P2	:	2.00	±0.05
P1	:	4.00	±0.1
D1(min)	:	1.50	
Ao	:	3.25	±0.1
Bo	:	3.25	±0.1
Ct	:	5.30	±0.1
Ko	:	1.50	±0.1
t	:	0.25	±0.05

Reel (all dimensions in mm)

A	:330	or 180
W1	: 8.40	+1.5/-0
W2(max)	: 14.40	
N(min)	: 60.00	
C	: 13.0	±0.2



The minimum bending radius is 45 mm.

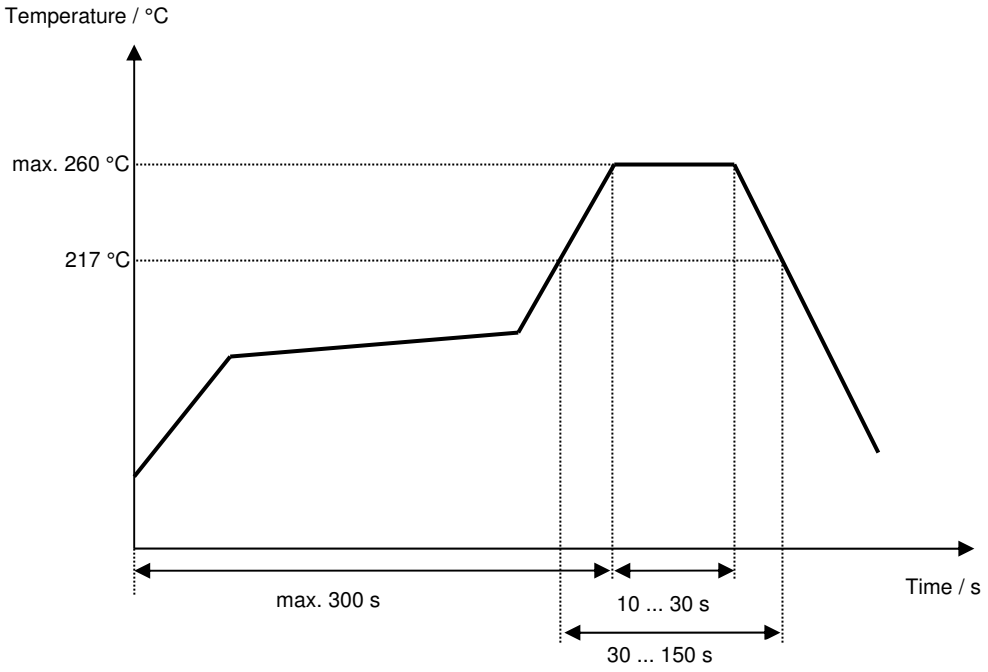
Microchip Frequency Technology GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30

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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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D 14 513 TELTOW / Germany
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History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification based on 1278_RFQ8_5ic	P. Jaster	03.07.2020
2.0	- Generation of filter specification - Updating data table (band width at 3 and 38 dB) - Updating tape and reel geometries	S. Springfeldt	15.09.2020
2.1	- Exchange of typical plots	S. Springfeldt	21.09.2023

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