

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	73 Ω	-5.1 pF
Output:	85 Ω	-4.6 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFD 895B is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 895.0 MHz without any tolerance. The values of relative attenuation a_{rel} 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 (reference level)	a_e	8.7 dB	max. 9.5 dB
Nominal frequency	f_N	-	895.0 MHz
Passband	PB	-	$f_N \pm 0.75$ MHz
Pass band ripple	p-p	0.5 dB	max. 0.75 dB
Bandwidth 0.5 dB	BW	6.6 MHz	min. 1.5 MHz
Relative attenuation	a_{rel}		
$f_N \dots f_N \pm 0.75$ MHz		0.5 dB	max. 0.75 dB
$f_N \pm 15$ MHz ... $f_N \pm 25$ MHz		28 dB	min. 20 dB
Absolute group delay	***	814 ns	± 20 ns
Group delay ripple within PB	p-p	40 ns	max. 100 ns
Return loss within PB		10 dB	min. 7 dB
Compression (10 dBm to 20 dBm)		0.15 dB	max. 0.3 dB
Input power level		-	max. 8 dBm
Input power level, (20 hours max.)		-	max. 20 dBm
Operating temperature range	OTR	-	- 20 °C ... + 70 °C
Storage temperature range		-	- 40 °C ... + 85 °C
Temperature coefficient of frequency	TC_f **	-16 ppm/K	-

*) 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.

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

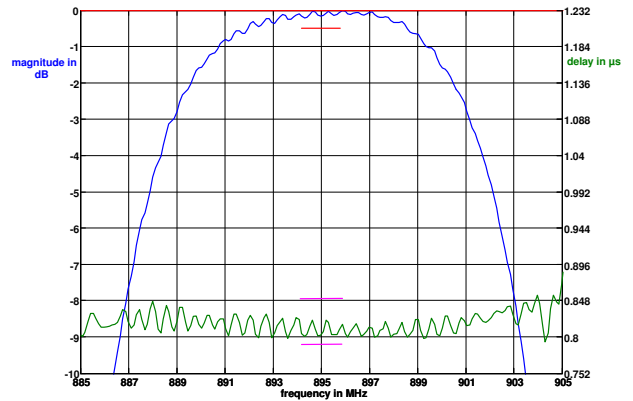
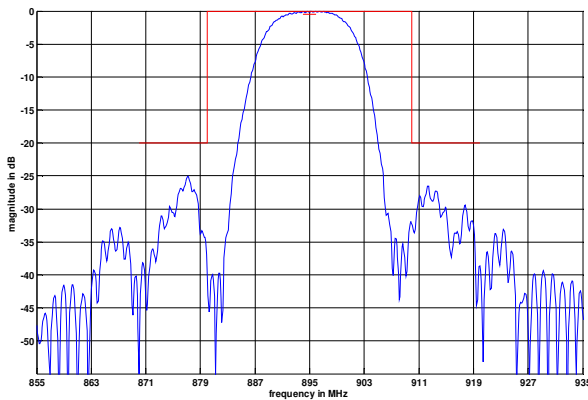
***) mean value in passband

Generated:**Checked / Approved:**

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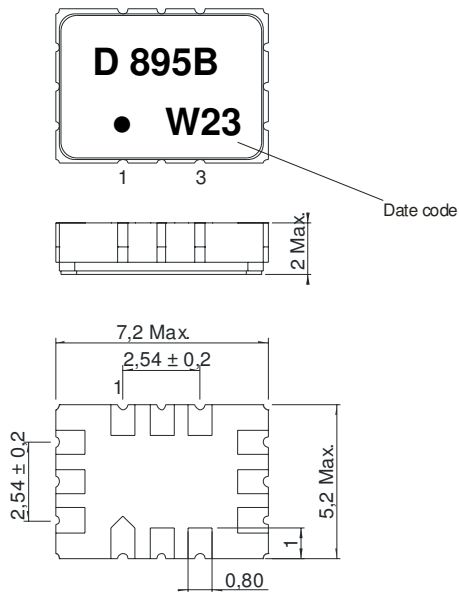
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Filter characteristic



Construction and pin connection

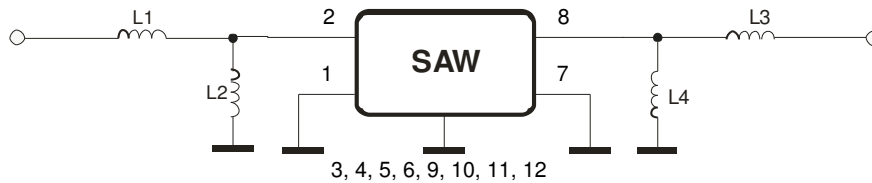
(All dimensions in mm)



- 1 Input RF Return
- 2 Input
- 3 Ground
- 4 Ground
- 5 Ground
- 6 Ground
- 7 Output RF Return
- 8 Output
- 9 Ground
- 10 Ground
- 11 Ground
- 12 Ground

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

50 Ohm 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)

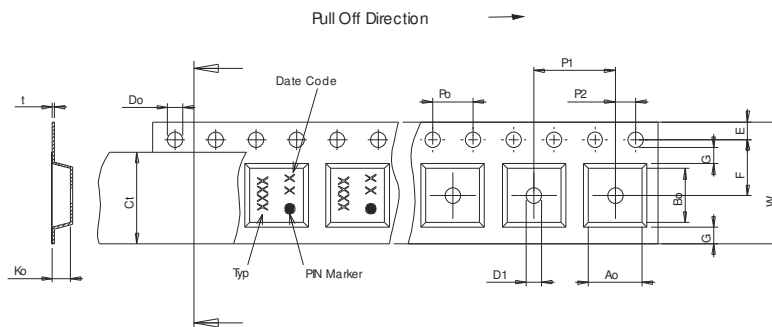
Packing

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

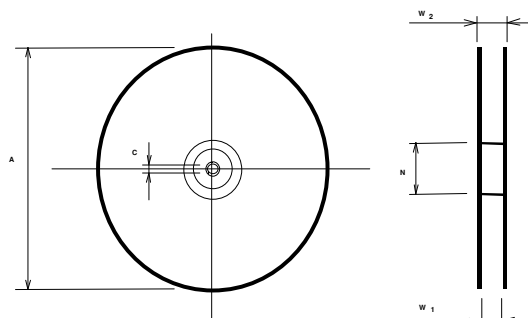
Tape (all dimensions in mm)

- W : 16.00 ± 0.3
- Po : 4.00 ± 0.1
- Do : 1.50 +0.1/-0
- E : 1.75 ± 0.1
- F : 7.50 ± 0.1
- G(min) : 0.60
- P2 : 2.00 ± 0.1
- P1 : 8.00 ± 0.1
- D1(min) : 1.50
- Ao : 5.50 ± 0.1
- Bo : 7.50 ± 0.1
- Ct : 13.5 ± 0.1



Reel (all dimensions in mm)

- A : 330
- W1 : 16.4 +2/-0
- W2(max) : 22.4
- N(min) : 50
- C : 13.0 +0.5/-0.2



The minimum bending radius is 45 mm.

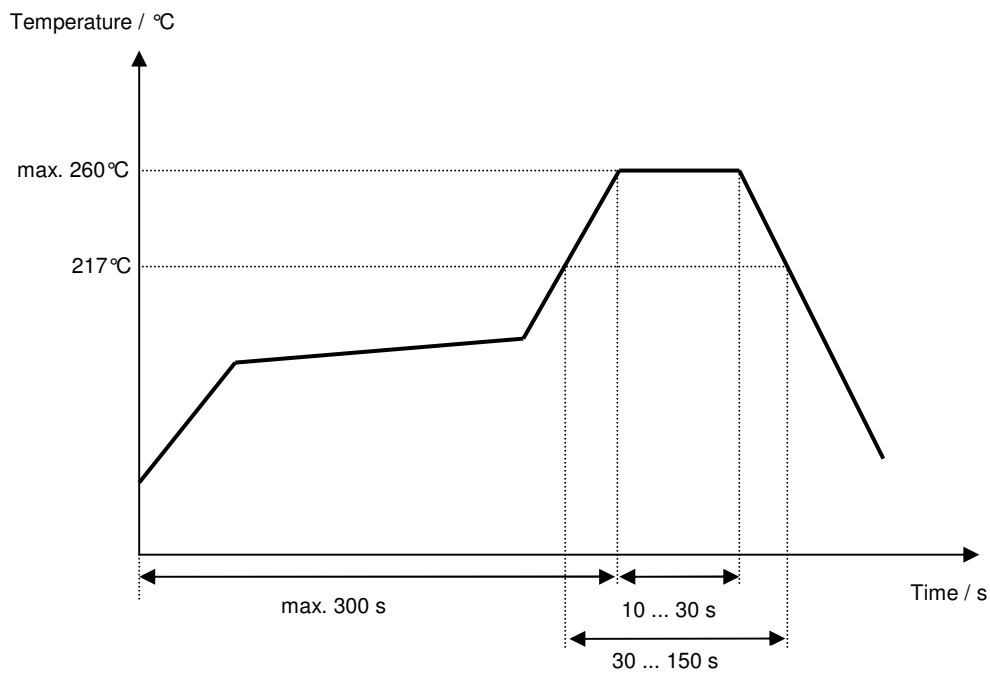
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Air reflow temperature conditions

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	03.07.2007
1.1	- Add and change data - Change construction and pin connection	Strehl	06.07.2007
1.2	- Exchange construction and pin connection	Strehl	25.07.2007
1.3	- Change pin connection - Add input power level goal and 50 Ω Test circuit	Strehl	01.08.2007
1.4	- change of max. input power level, insertion loss, amplitude and group delay ripple	Pfeiffer	28.08.2007
1.5	- add of terminating impedances (preliminary values) and filter characteristics - temporary change of insertion loss, relative attenuation and group delay limits	Pfeiffer	29.01.2008
1.6	- change terminating impedances, filter characteristics and typical values - change of insertion loss, amplitude and group delay limits	Pfeiffer	25.02.2008
1.7	- terminating impedances corrected	Pfeiffer	29.02.2008
1.8	- substituting version 1.7 for version 1.5 according customer requirements	Pfeiffer	08.04.2008
1.9	- add linearity	Alawneh	30.04.2008
1.10	- correct remark - correct typical value for return loss within PB	Alawneh	30.05.2008
1.11	- change PB and input power level	Strehl	04.06.2008
2.0	- update insertion loss, passband ripple, return loss, group delay ripple, - absolute group delay tolerance, Input power level, update stability section.	TCUK	15.10.2014