

**Measurement condition**

Ambient temperature $T_A$ :	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	120 $\Omega$	-2.4 pF
Output:	140 $\Omega$	-2.4 pF

**Characteristics**

**Remark:**

Reference level for the relative attenuation  $a_{rel}$  of the TFS868T is the minimum of the pass band attenuation  $a_{min}$ . The minimum of the pass band attenuation  $a_{min}$  is defined as the insertion loss  $a_e$ . The centre frequency  $f_c$  is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the insertion loss  $a_e$ . The nominal frequency  $f_N$  is fixed at 868.80 MHz without tolerance. The given values for the relative attenuation  $a_{rel}$  have to be reached at the frequencies given below even if the centre frequency  $f_c$  is shifted due to the temperature coefficient of frequency  $TC_f$  in the operating temperature range and due to a production tolerance for the centre frequency  $f_c$ .

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Insertion loss</b>	$a_e$	2.85 dB	max. 3.6 dB
(reference level)			
<b>Nominal frequency</b>	$f_N$	-	868.80 MHz
<b>Centre frequency</b>	$f_c$	868.80 MHz	-
<b>Passband</b>	PB	1.30 MHz	min. $\pm$ 300 kHz
<b>Passband ripple</b>	p-p	0.6 dB	max. 3 dB
<b>Amplitude ripple <math>f_N \pm 200</math>kHz</b>	p-p	0.45 dB	max. 2 dB
<b>Relative attenuation</b>	$a_{rel}$		
$f_N \pm 200.0$ kHz	$f_N \pm 200.0$ kHz	0.45 dB	max. 2 dB
$f_N \pm 300.0$ kHz	$f_N \pm 300.0$ kHz	0.52 dB	max. 3 dB
$f_N - 12.3$ MHz	$f_N - 12.3$ MHz	56 dB	min. 50 dB
$f_N - 2.8$ MHz	$f_N - 2.8$ MHz	36 dB	min. 30 dB
$f_N + 11.7$ MHz	$f_N + 11.7$ MHz	41 dB	min. 30 dB
$f_N + 21.7$ MHz	$f_N + 21.7$ MHz	43 dB	min. 40 dB
$f_N + 27.7$ MHz	$f_N + 27.7$ MHz	51 dB	min. 45 dB
$f_N + 131.7$ MHz	$f_N + 131.7$ MHz	57 dB	min. 50 dB
<b>Input power level</b>		-	max. 12 dBm
<b>Operating temperature range</b>	OTR	-	- 20 °C ... + 70 °C
<b>Storage temperature range</b>		-	- 55 °C ... + 125 °C
<b>Frequency inversion temperature</b>		10 °C	-
<b>Temperature coefficient of frequency</b>	$TC_f$ **	-0.033 ppm/K <sup>2</sup>	-

\*) 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.

\*\*)  $\Delta f = TC_f(T - T_0)^2 f_N$

**Generated:**

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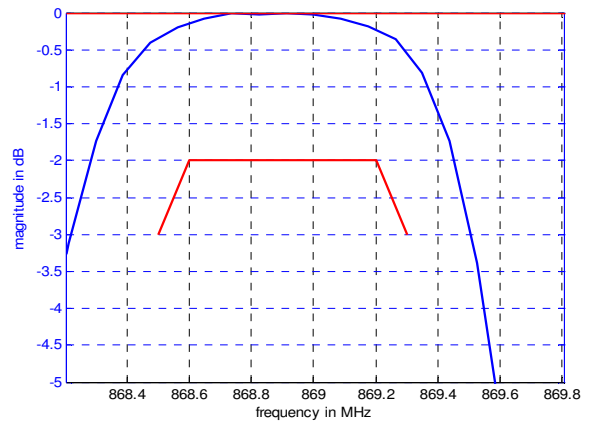
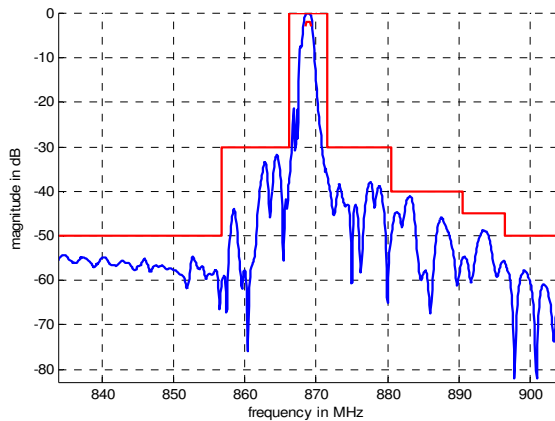
**Checked / Approved:**

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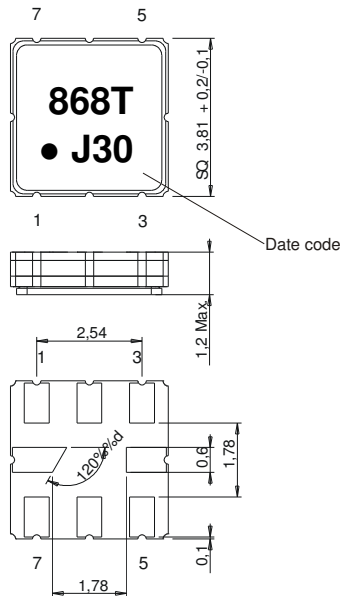
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Filter characteristic



Construction and pin connection

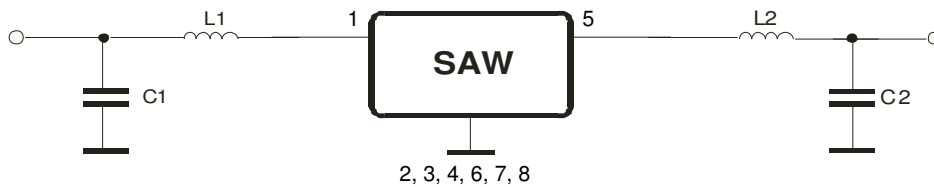
(All dimensions in mm)



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

Date code: Year + week  
 J 2017  
 K 2018  
 L 2019  
 ..

50 Ω 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)

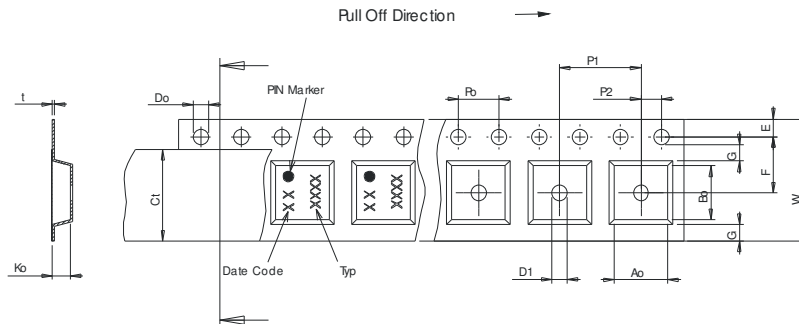
**Packing**

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

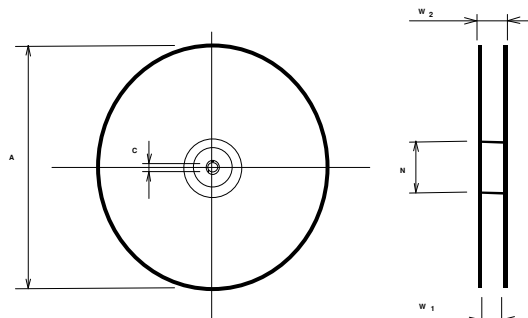
**Tape (all dimensions in mm)**

- W : 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 : 9.2 ±0.1
- Ko : 1.80 ±0.1
- t : 0.30 ±0.05



**Reel (all dimensions in mm)**

- A : 330 or 180
- W1 : 12.4 +2/-0
- W2(max) : 18.40
- N(min) : 50.00
- C : 13.0 +0.5/-0.2



The minimum bending radius is 45 mm.

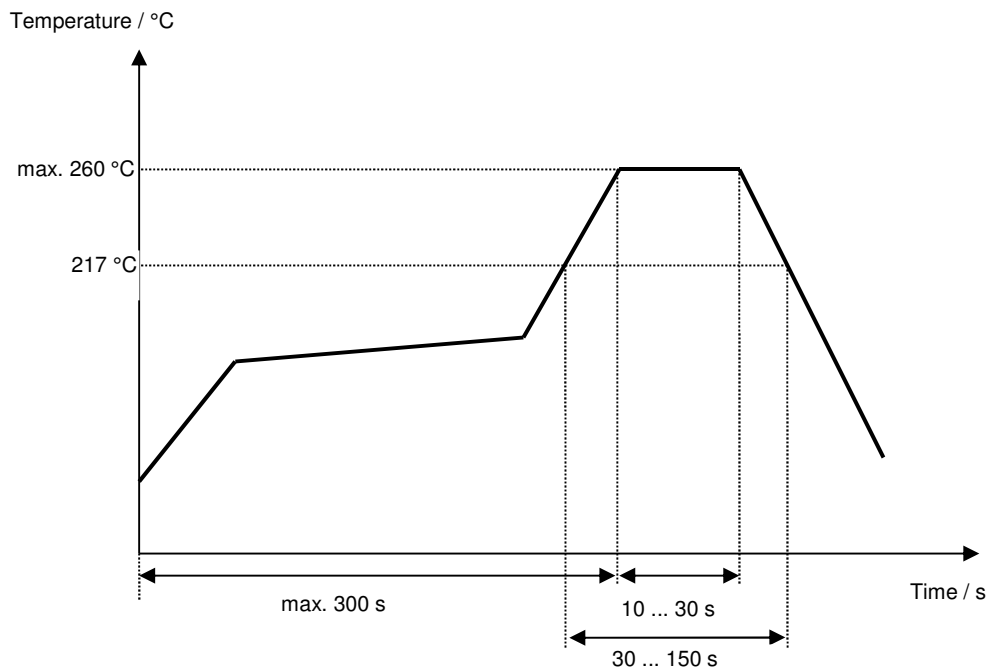
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**Air reflow temperature conditions**

<b>Conditions</b>	<b>Exposure</b>
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**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- generation of filter specification	Abutaimah	09.03.2017
2.0	- correct passband ripple conditions - update storage temperature range - update tape & reel dimensions - update tape & reel pull off direction - correct typo in remark section	Bonnen	25.07.2017



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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