



RF360 Europe GmbH  
A Qualcomm – TDK Joint Venture

## Data sheet

Micro-acoustic filter  
WLAN 2G

Series/type:	B8897
Ordering code:	B39242B8897L210
Date:	June 20, 2019
Version:	2.0

DCN: 80-PA243-342 Rev. A

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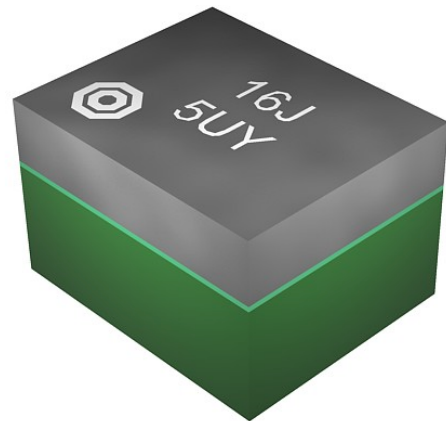
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## 1 Application

- Ultra small size WiFi filter
- Usable passbands : 120 MHz
- Low-loss passband IL and flatness
- Filter impedance 50  $\Omega$
- Unbalanced to unbalanced operation
- Matching network required for operation at 50  $\Omega$

## 2 Features

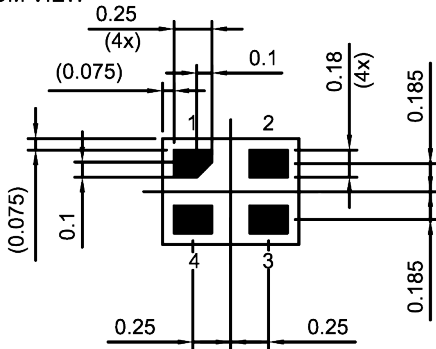
- Package size 0.9 mm  $\times$  0.7 mm
- Package height 0.50mm (max)
- Approximate weight 1mg
- RoHS compatible
- Package for Surface Mount Technology (SMT)
- Ni/Au plated terminals
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 3 (MSL3)



**Figure 1:** Picture of component with example of product marking.

3 Package

BOTTOM VIEW

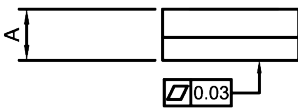


Pad and pitch tolerance ±0.05

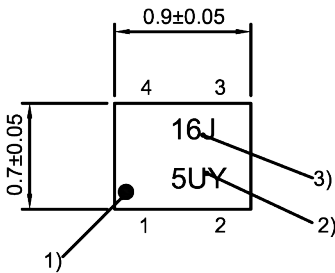
4 Pin configuration

- 1 Input
- 3 Output
- 2, 4 Ground

SIDE VIEW

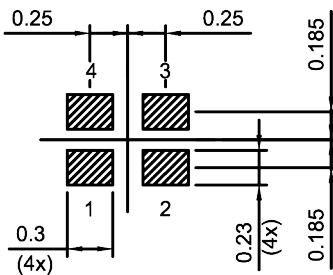


TOP VIEW



- 1) Marking for pad number 1
- 2) Example of encoded lot number
- 3) Example fo encoded filter type number

Land pattern  
THRU VIEW



Landing pad tolerance -0.02

Figure 2: Drawing of package with package height A = 0.50 mm (max) . See Sec. Package information (p. 16).

5 Matching circuit

■  $L_{s1} = 2.2 \text{ nH}$

■  $L_{s3} = 2.2 \text{ nH}$

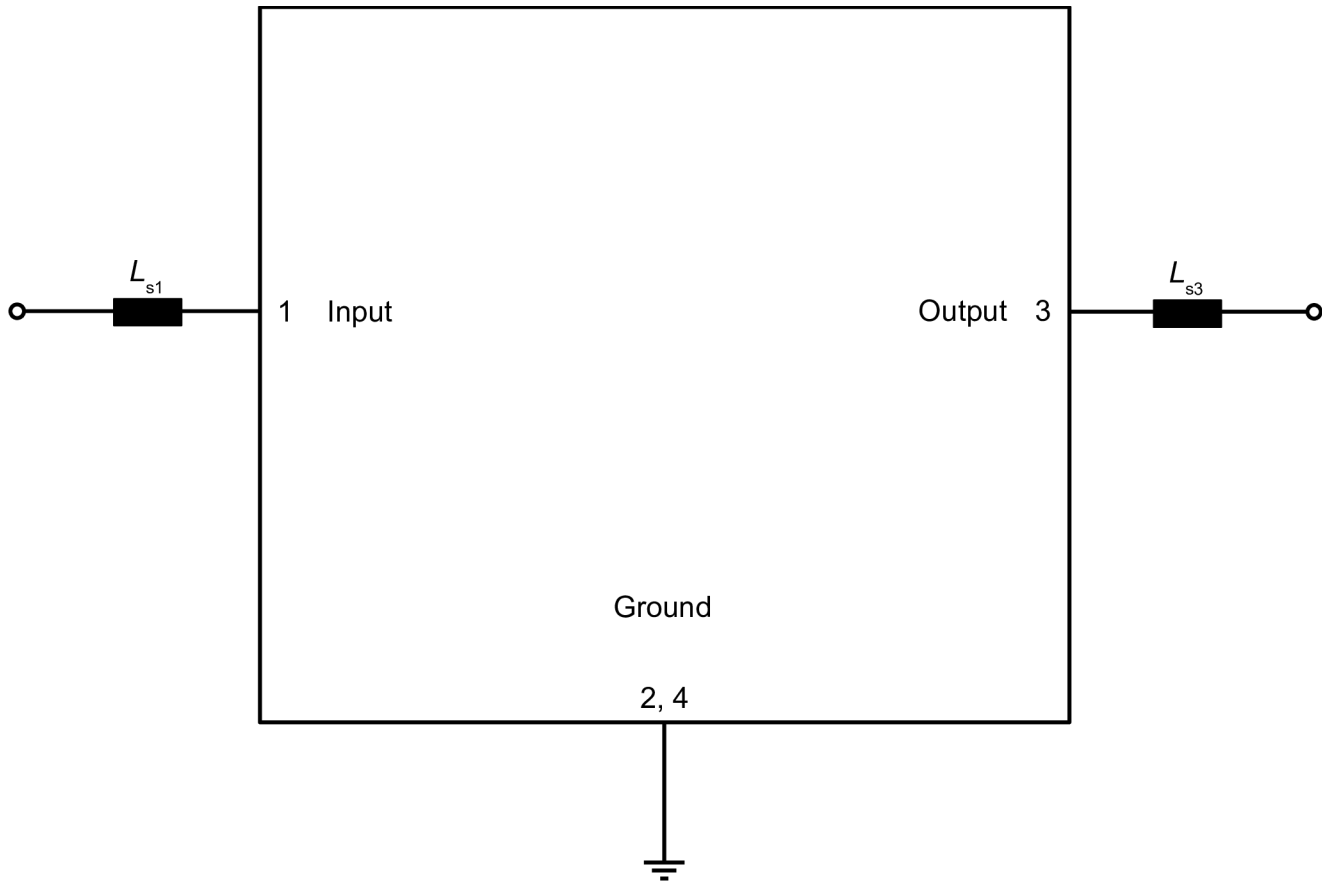


Figure 3: Schematic of matching circuit.

## 6 Characteristics

Temperature range for specification	$T_{SPEC}$	= -20 °C ... +85 °C
Input terminating impedance	$Z_{IN}$	= 50 $\Omega$ with ser. 2.2 nH <sup>1)</sup>
Output terminating impedance	$Z_{OUT}$	= 50 $\Omega$ with ser. 2.2 nH <sup>1)</sup>

Characteristics				min. for $T_{SPEC}$	typ. @ +25 °C	max. for $T_{SPEC}$	
<b>Center frequency</b>			$f_c$	—	2442	—	MHz
<b>Insertion Loss</b>			$\alpha$				
	2382... 2492	MHz		—	1.2 <sup>2)</sup>	2.1	dB
	2492... 2502	MHz		—	1.4 <sup>2)</sup>	2.7	dB
<b>VSWR</b>			VSWR				
@ input port	2382... 2502	MHz		—	1.7	2.2	
@ output port	2382... 2502	MHz		—	1.7	2.2	
<b>Attenuation</b>			$\alpha$				
	700... 900	MHz		36	40	—	dB
	1200... 1600	MHz		33	38	—	dB
	1800... 1900	MHz		33	38	—	dB
	1900... 2100	MHz		33	38	—	dB
	2100... 2200	MHz		35	41	—	dB
	2300... 2320	MHz		29	34	—	dB
	2320... 2340	MHz		15 <sup>3)</sup>	31 <sup>3)</sup>	—	dB
	2340... 2350	MHz		7 <sup>3)</sup>	19 <sup>3)</sup>	—	dB
	2540... 2570	MHz		12 <sup>3)</sup>	34 <sup>3)</sup>	—	dB
	2570... 2690	MHz		28	34	—	dB
	3400... 3600	MHz		30	41	—	dB
	3600... 3800	MHz		32	38	—	dB
	4900... 5925	MHz		29	33	—	dB

- <sup>1)</sup> See Sec. Matching circuit (p. 6).  
<sup>2)</sup> Typical value average over indicated frequency range  
<sup>3)</sup> Average over any 5.0 MHz

## 7 Maximum ratings

Storage temperature	$T_{STG}^{2)} = -40\text{ °C} \dots +85\text{ °C}^{1)}$	
DC voltage	$ V_{DC} ^{3)} = 5.0V$	
ESD voltage	$V_{ESD}^{4)} = 50\text{ V}$	Machine model.
Input power @ input port: 2382 ... 2502 MHz	$P_{IN} = 5\text{ dBm}$	Continuous wave for 5000 h @ 55 °C.

<sup>1)</sup> Extended upperlimit: 96h@125°C acc. to IEC 60068-2-2 Bb.

<sup>2)</sup> Not valid for packaging material. Storage temperature for packaging material is -25 °C to +40 °C.

<sup>3)</sup> 168h Damp Heat Steady State acc. IEC 60068-2-67 Cy.

<sup>4)</sup> According to JESD22-A115B (MM – Machine Model), 10 negative & 10 positive pulses



8 Transmission coefficient

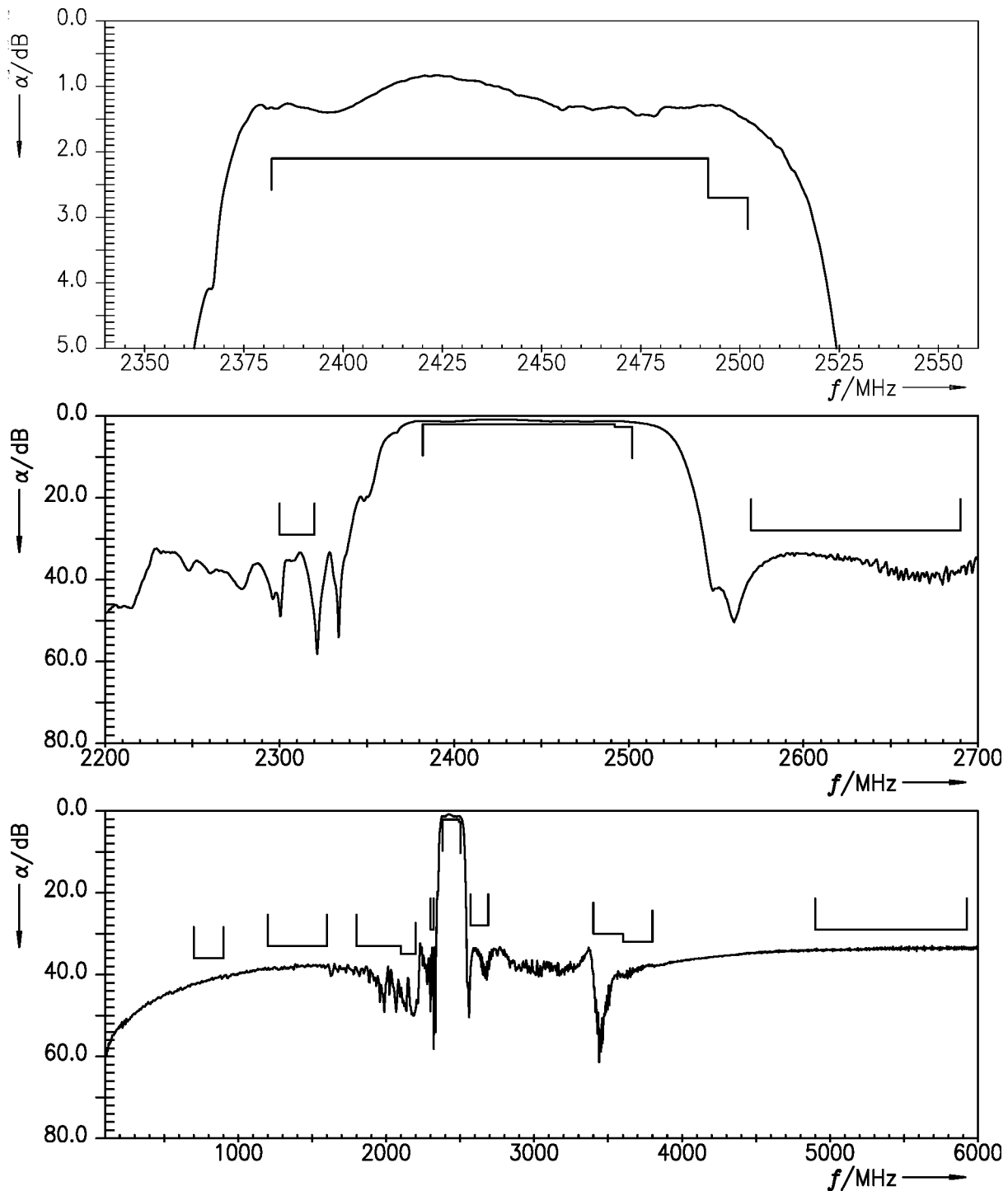


Figure 4: Attenuation .

9 Reflection coefficients

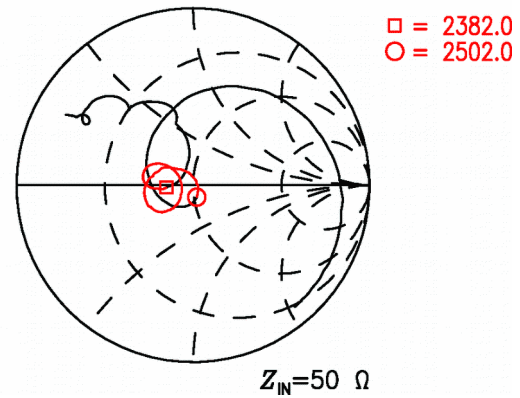
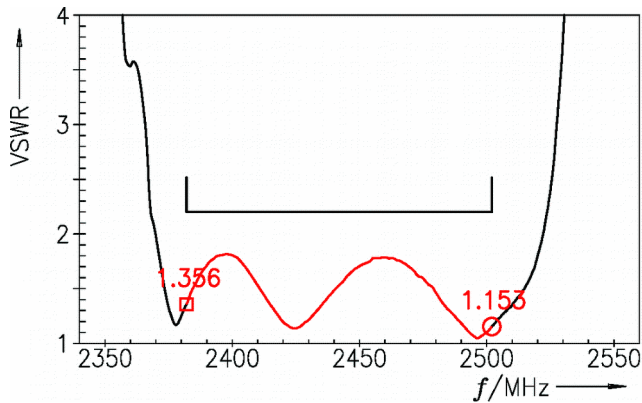


Figure 5: Reflection coefficient at input port.

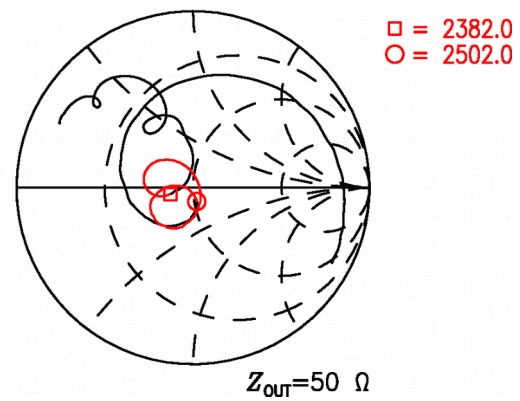
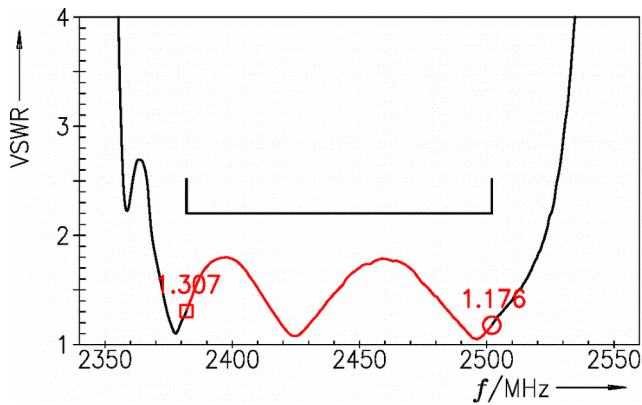
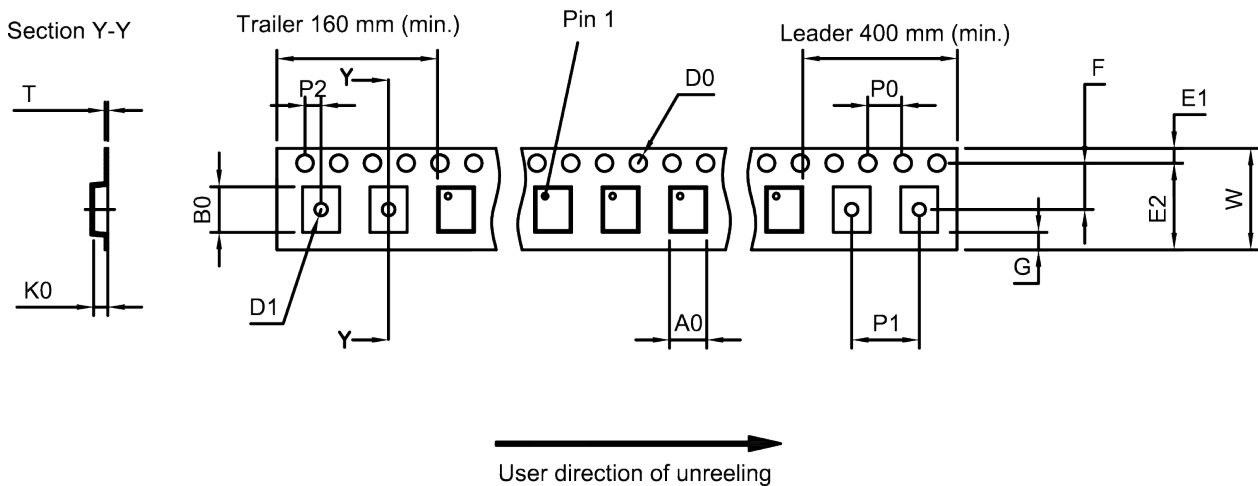


Figure 6: Reflection coefficient at output port.

## 10 Packing material

### 10.1 Tape



**Figure 7:** Drawing of tape (first-angle projection) for illustration only and not to scale. The valid tape dimensions are listed in Table 1.

$A_0$	$0.85 \pm 0.05$ mm	$E_2$	0.625 mm (min.)	$P_1$	$2.0 \pm 0.05$ mm
$B_0$	$1.05 \pm 0.05$ mm	F	$3.5 \pm 0.05$ mm	$P_2$	$2.0 \pm 0.05$ mm
$D_0$	$1.5 \pm 0.05$ mm	G	0.75 mm (min.)	T	$0.25 \pm 0.02$ mm
$D_1$	$0.40 / -0.05$ mm	$K_0$	$0.69 \pm 0.03$ mm	W	$8.2 \pm 0.1$ mm
$E_1$	$1.75 \pm 0.1$ mm	$P_0$	$4.0 \pm 0.1$ mm		

**Table 1:** Tape dimensions.

10.2 Reel with diameter of 180 mm

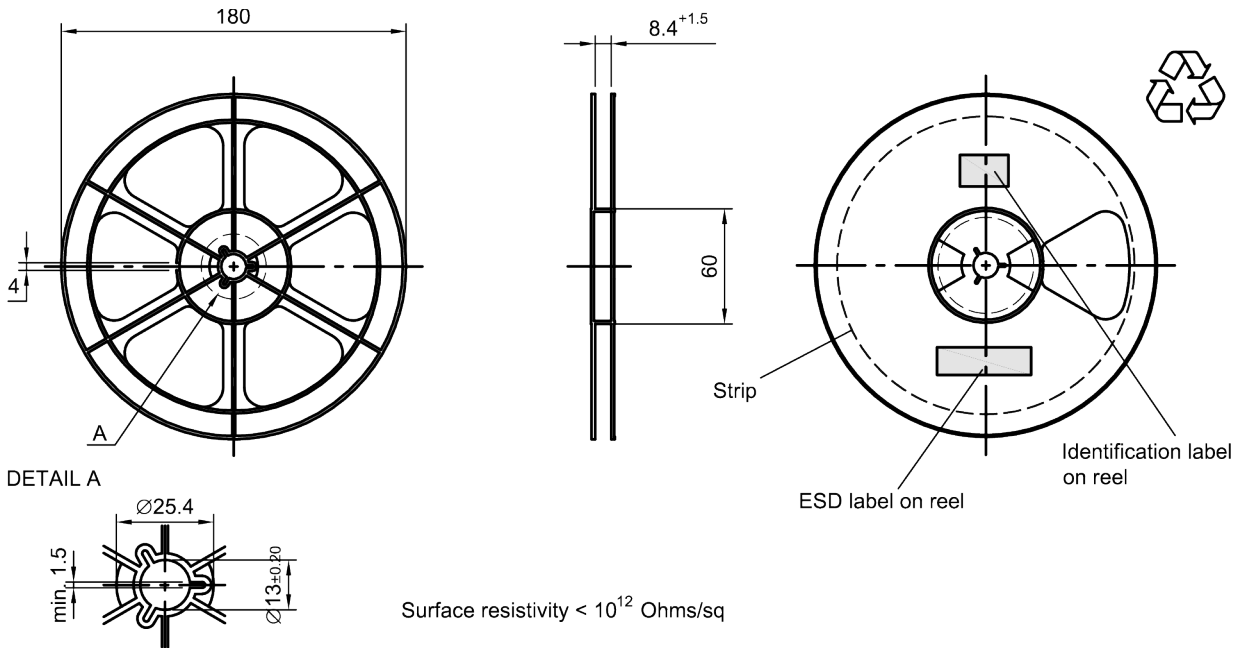


Figure 8: Drawing of reel (first-angle projection) with diameter of 180 mm.

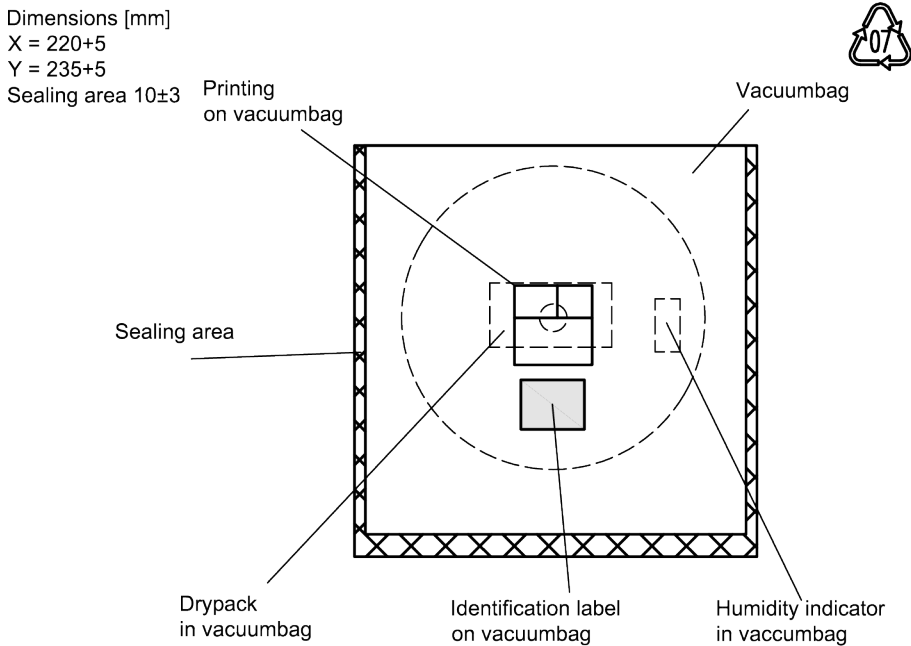
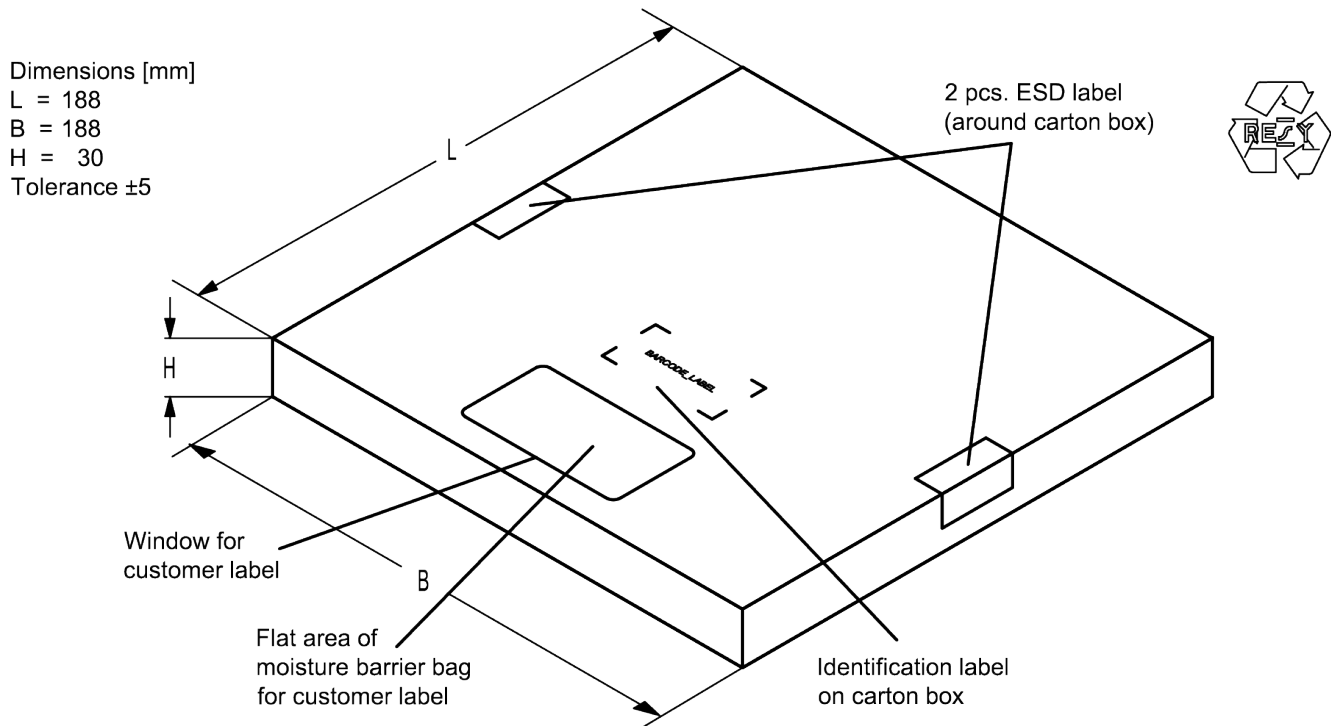


Figure 9: Drawing of moisture barrier bag (MBB) for reel with diameter of 180 mm.



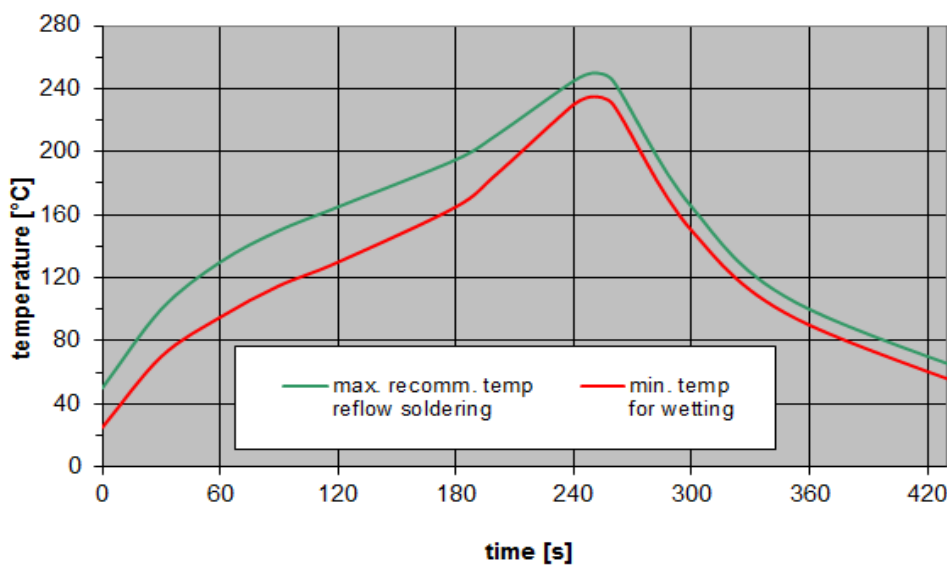
**Figure 10:** Drawing of folding box for reel with diameter of 180 mm.

## 11 Soldering profile

The recommended soldering process is in accordance with IEC 60068-2-58 – 3<sup>rd</sup> edit and IPC/JEDEC J-STD-020B.

ramp rate	≤ 3 K/s
preheat	125 °C to 220 °C, 150 s to 210 s, 0.4 K/s to 1.0 K/s
T > 220 °C	30 s to 70 s
T > 230 °C	min. 10 s
T > 245 °C	max. 20 s
T ≥ 255 °C	–
peak temperature $T_{peak}$	250 °C +0/-5 °C
wetting temperature $T_{min}$	230 °C +5/-0 °C for 10 s ± 1 s
cooling rate	≤ 3 K/s
soldering temperature T	measured at solder pads

**Table 2:** Characteristics of recommended soldering profile for lead-free solder (Sn95.5Ag3.8Cu0.7).



**Figure 11:** Recommended reflow profile for convection and infrared soldering – lead-free solder.

## 12 Annotations

### 12.1 RoHS compatibility

ROHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.

### 12.2 Scattering parameters (S-parameters)

The pin/port assignment is available in the headers of the S-parameter files. Please contact your local RF360 sales office.

### 12.3 Ordering codes and packing units

Ordering code	Packing unit
B39242B8897L210	15,000 pcs
B39242B8897L210S 5	5,000 pcs

**Table 3:** Ordering codes and packing units.

## 13 Cautions and warnings

### 13.1 Display of ordering codes for RF360 products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications and the website of RF360, or in order-related documents such as shipping notes, order confirmations and product labels. The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products. Detailed information can be found on the Internet under [www.rf360jv.com/orderingcodes](http://www.rf360jv.com/orderingcodes).

### 13.2 Material information

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our sales offices.

For information on recycling of tapes and reels please contact one of our sales offices.

### 13.3 Moldability

Before using in overmolding environment, please contact your local RF360 sales office.

### 13.4 Package information

#### Landing area

The printed circuit board (PCB) land pattern (landing area) shown is based on RF360 internal development and empirical data and illustrated for example purposes, only. As customers' SMD assembly processes may have a plenty of variants and influence factors which are not under control or knowledge of RF360, additional careful process development on customer side is necessary and strongly recommended in order to achieve best soldering results tailored to the particular customer needs.

#### Dimensions

Unless otherwise specified all dimensions are understood using unit millimeter (mm).

#### Projection method

Unless otherwise specified first-angle projection is applied.



## 14 Important notes

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1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, RF360 Europe GmbH and its affiliates are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an RF360 product with the properties described in the product specification is suitable for use in a particular customer application.
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