



RF360
Europe GmbH

Data sheet

SAW Rx filter
LTE band 7

Series/type:	B8818
Ordering code:	B39272B8818P810
Date:	July 31, 2019
Version:	2.6

DCN: 80-PA243-7 Rev. B

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1 Application

- Low-loss RF filter for mobile telephone LTE Band 7 systems, receive path (Rx)
- Suitable for diversity applications
- Usable pass band 70 MHz
- 50 ohm / 50 ohm unbalanced to unbalanced operation
- Suitable for GPRS class 1 to 12

2 Features

- Package size $1.1_{\pm 0.1}$ mm \times $0.9_{\pm 0.1}$ mm
- Package height 0.45 mm (max.)
- Approximate weight 1 mg
- RoHS compatible
- Package for Surface Mount Technology (SMT)
- Ni/Au-plated terminals
- Filter surface passivated
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 3 (MSL3)

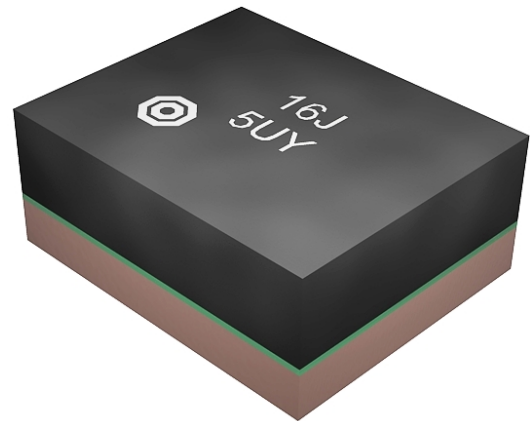
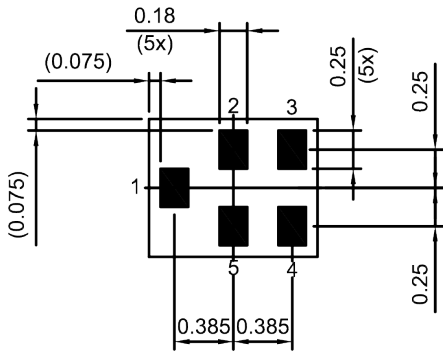


Figure 1: Picture of component with example of product marking.

3 Package

BOTTOM VIEW



Pad and pitch tolerance ±0.05

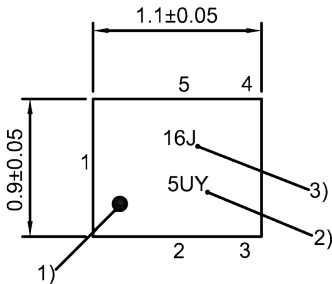
4 Pin configuration

- 1 Input
- 4 Output
- 2, 3, 5 Ground

SIDE VIEW

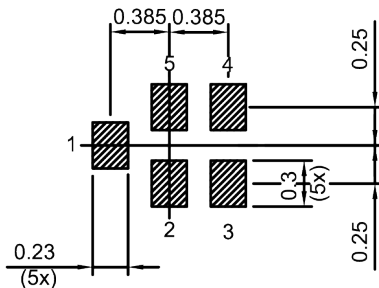


TOP VIEW



- 1) Marking for pad number 1
- 2) Encoded lot number
- 3) Please refer to caption below

Land pattern THRU VIEW



Landing pad tolerance -0.02

Figure 2: Drawing of package with package height A = 0.45 mm (max.). See Sec. Package information (p. 18).

5 Matching circuit

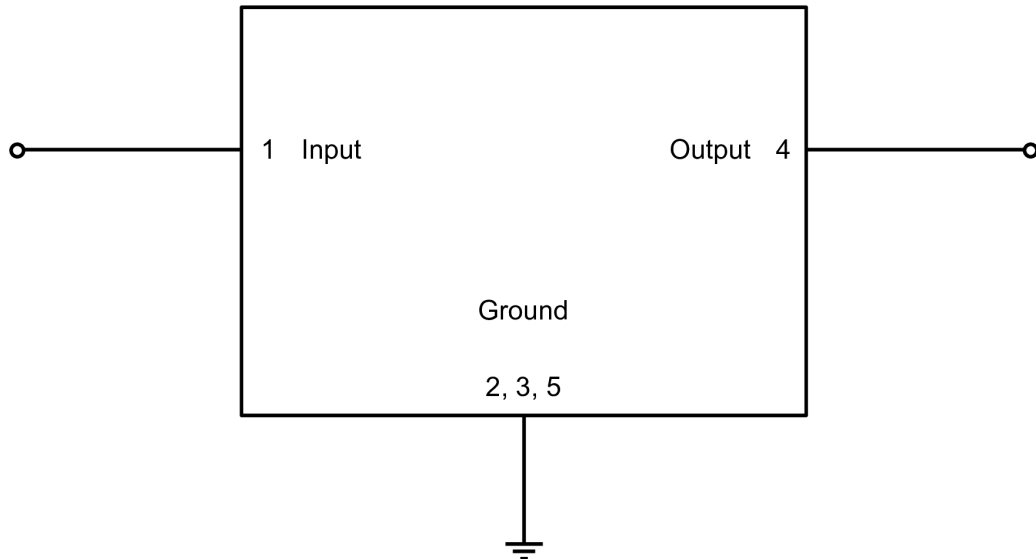


Figure 3: Schematic of matching circuit. No external matching components required.

6 Characteristics

Temperature range for specification	T_{SPEC}	= -20 °C ... +90 °C
Input terminating impedance	Z_{IN}	= 50 Ω
Output terminating impedance	Z_{OUT}	= 50 Ω

Characteristics			min. for T_{SPEC}	typ. @ +25 °C	max. for T_{SPEC}	
Center frequency		f_C	—	2655	—	MHz
Maximum insertion attenuation	2620... 2690	MHz	α_{max}	2.0	2.7	dB
Amplitude ripple (p-p)	2620... 2690	MHz	$\Delta\alpha$	0.8	1.5	dB
Maximum VSWR			VSWR _{max}			
@ input port	2620... 2690	MHz		1.8	2.1	
@ output port	2620... 2690	MHz		1.8	2.1	
Minimum attenuation			α_{min}			
	10... 832	MHz		36	40	dB
	832... 862	MHz		38	40	dB
	862... 1710	MHz		38	40	dB
	1710... 1785	MHz		40	42	dB
	1785... 2400	MHz		42	43	dB
	2400... 2500	MHz		45	47	dB
	2500... 2570	MHz		45	47	dB
	2570... 2595	MHz		3	5	dB
	2750... 2775	MHz		30	45	dB
	2775... 4900	MHz		35	38	dB
	4900... 5950	MHz		30	35	dB
	5950... 6000	MHz		30	36	dB

7 Maximum ratings

Storage temperature	$T_{STG}^{2)} = -40\text{ °C} \dots +85\text{ °C}^{1)}$	
DC voltage	$ V_{DC} = 5.0\text{ V (max.)}^{3)}$	
ESD voltage		
	$V_{ESD}^{4)} = 50\text{ V (max.)}$	Machine model.
	$V_{ESD}^{5)} = 150\text{ V (max.)}$	Human body model.
	$V_{ESD}^{6)} = 600\text{ V (max.)}$	Charged device model.
Input power	P_{IN}	
@ input port: 2500 ... 2570 MHz	15 dBm	Continuous wave for 2000 h @ 55 °C.
@ input port: 2620 ... 2690 MHz	5.0 dBm	Continuous wave for 2000 h @ 55 °C.
@ input port: other frequency ranges	5.0 dBm	Continuous wave for 2000 h @ 55 °C.

¹⁾ Extended upperlimit: 168 @125°C acc. to IEC 60068-2-2 Bb.

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

³⁾ 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy.

⁴⁾ According to JESD22-A115B (MM – Machine Model), 10 negative & 10 positive pulses.

⁵⁾ According to JESD22-A114F (HBM – Human Body Model), 1 negative & 1 positive pulse.

⁶⁾ According to JESD22-C101C (CDM – Field Induced Charged Device Model), 3 negative & 3 positive pulses.

8 Transmission coefficient

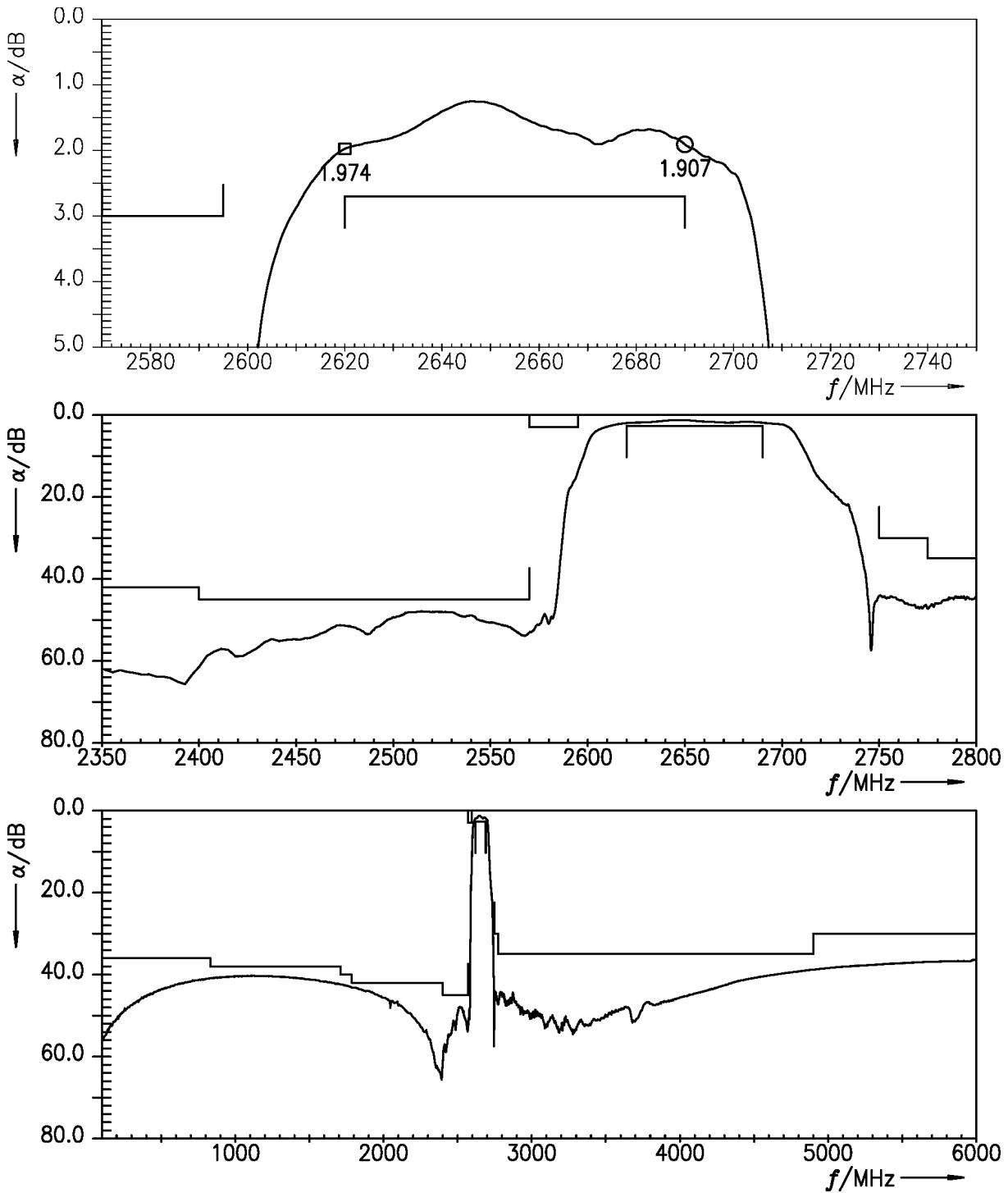


Figure 4: Attenuation.

9 Reflection coefficients

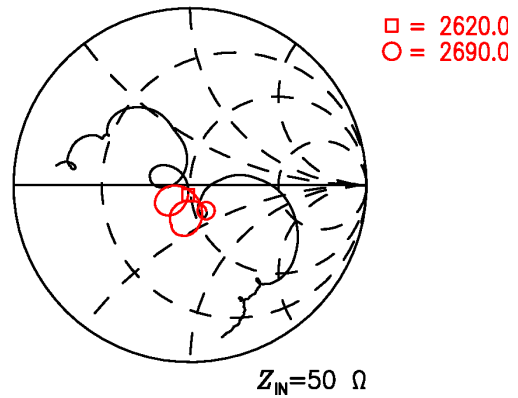
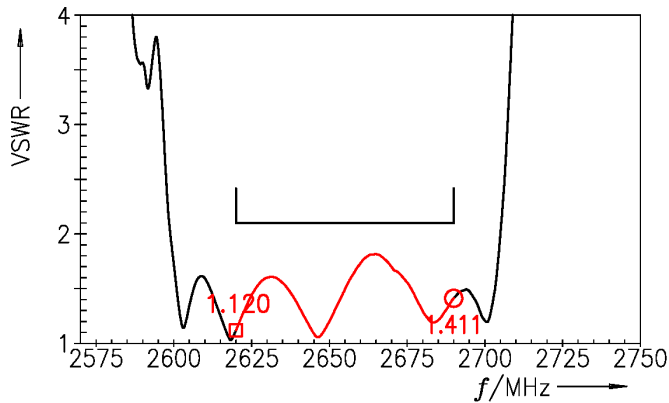


Figure 5: Reflection coefficient at input port.

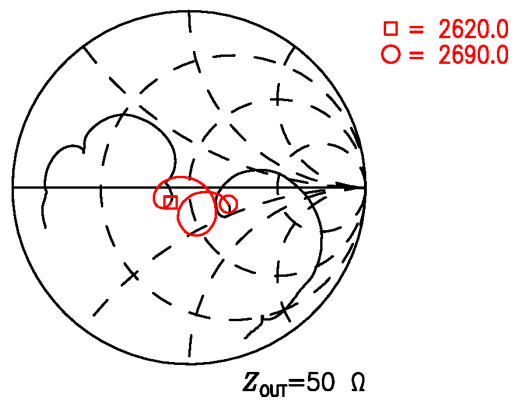
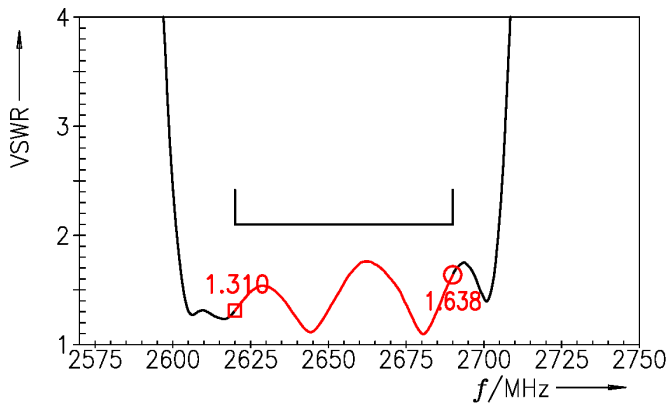


Figure 6: Reflection coefficient at output port.



10 Packing material

10.1 Tape

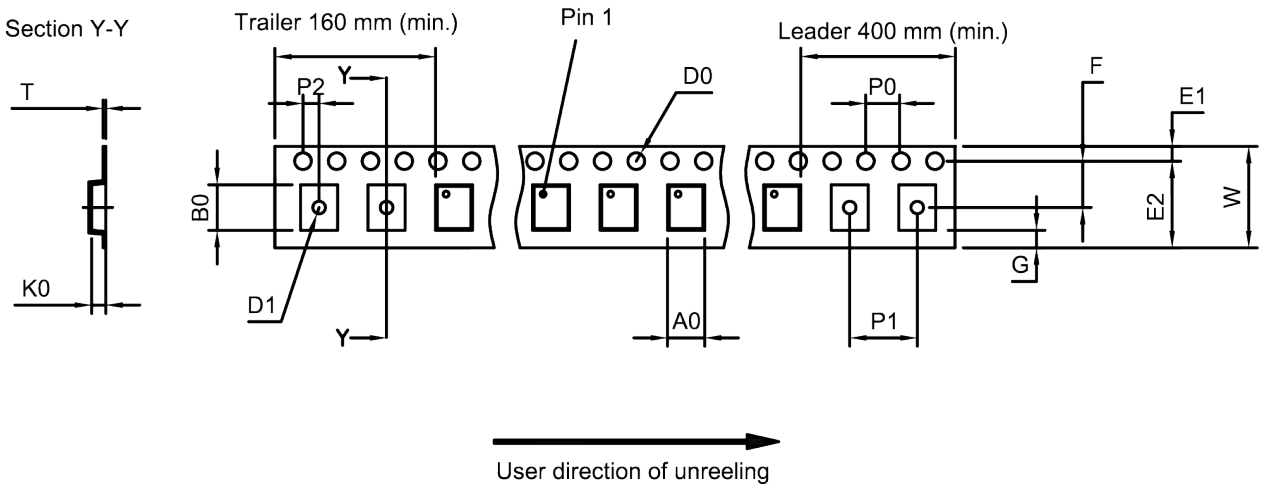


Figure 7: Drawing of tape (first-angle projection) for illustration only and not to scale. The valid tape dimensions are listed in Table 1.

A ₀	1.02±0.05 mm	E ₂	6.25 mm (min.)	P ₁	2.0±0.1 mm
B ₀	1.22±0.05 mm	F	3.5±0.05 mm	P ₂	2.0±0.05 mm
D ₀	1.55±0.05 mm	G	–	T	0.25±0.03 mm
D ₁	0.55±0.1 mm	K ₀	0.6±0.05 mm	W	8.0+0.3/-0.1 mm
E ₁	1.75±0.1 mm	P ₀	4.0±0.1 mm		

Table 1: Tape dimensions.

10.2 Reel with diameter of 180 mm

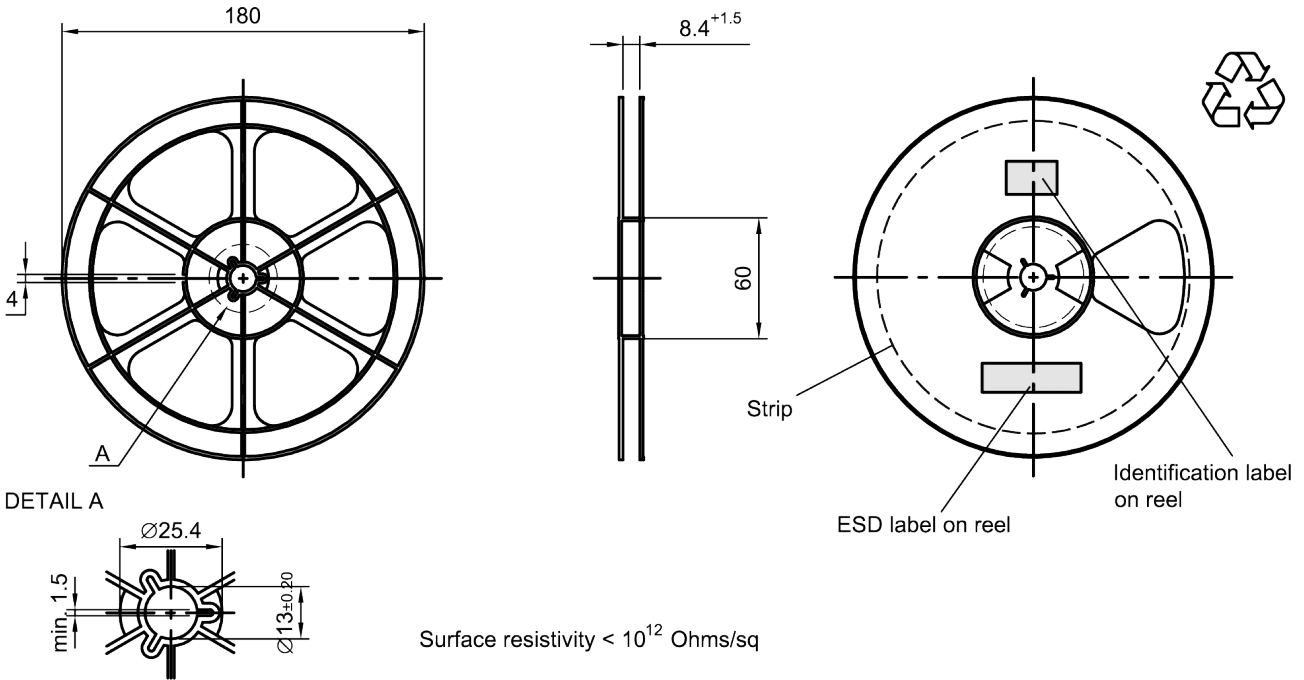


Figure 8: Drawing of reel (first-angle projection) with diameter of 180 mm.

Dimensions [mm]

X = 220+5

Y = 235+5

Sealing area 10±3

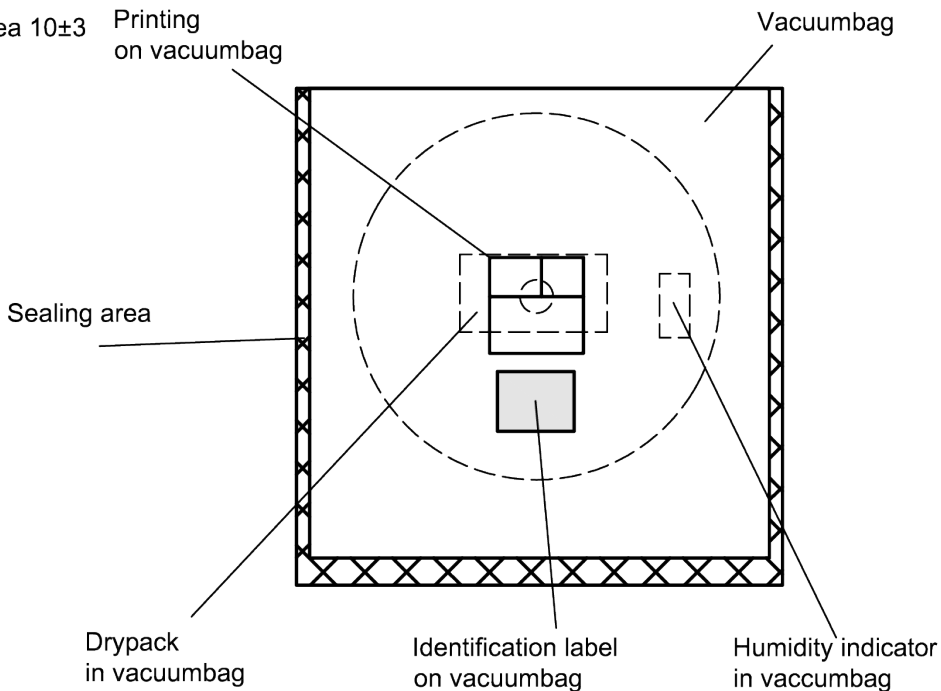


Figure 9: Drawing of moisture barrier bag (MBB) for reel with diameter of 180 mm.

Dimensions [mm]
L = 188
B = 188
H = 30
Tolerance ±5

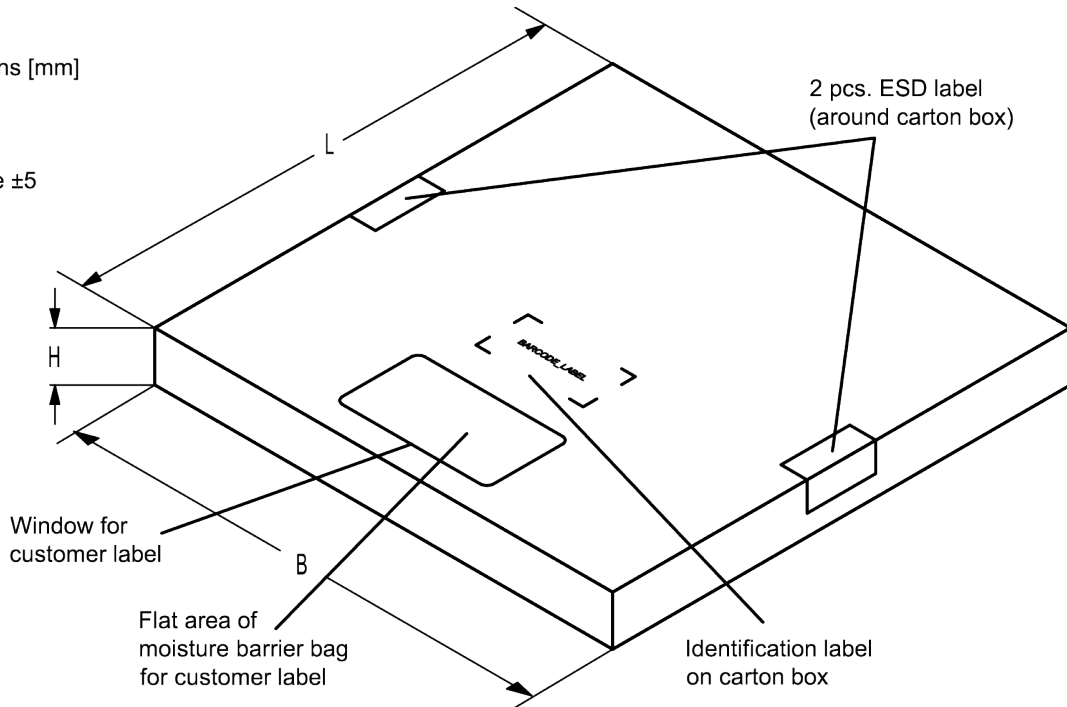


Figure 10: Drawing of folding box for reel with diameter of 180 mm.

10.3 Reel with diameter of 330 mm

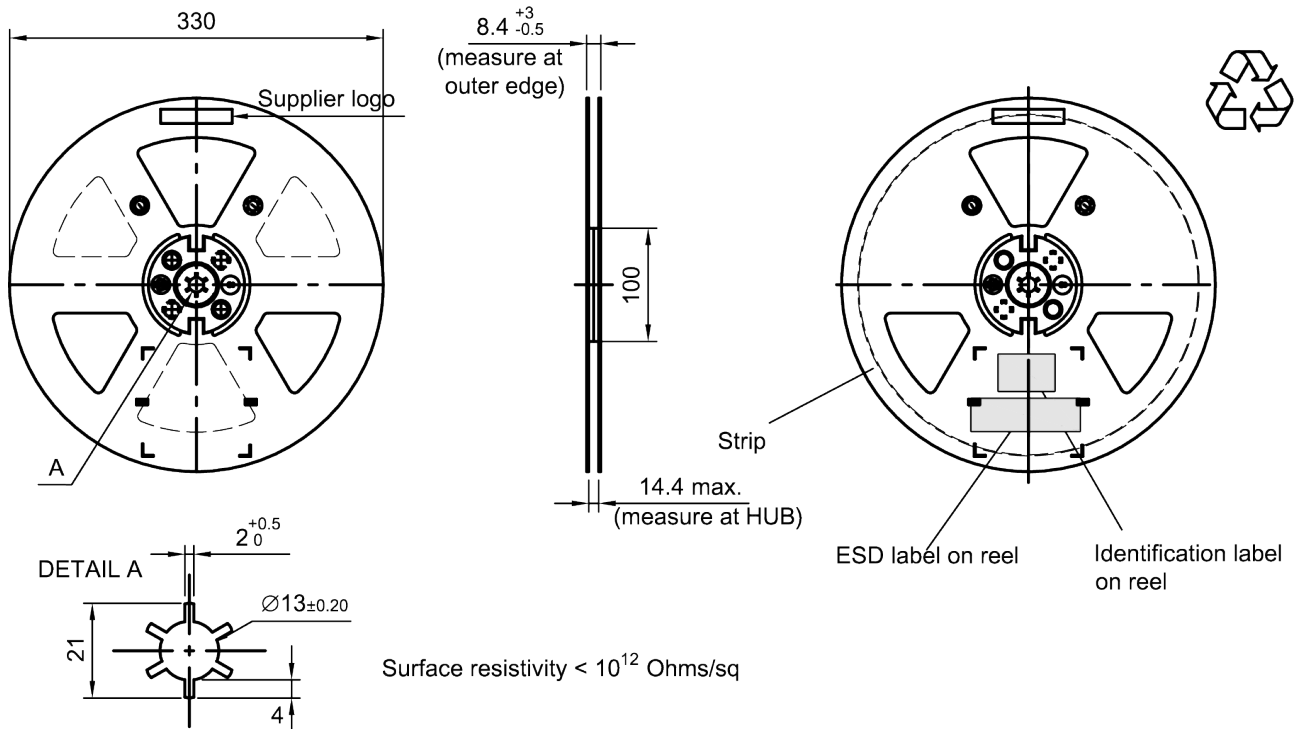


Figure 11: Drawing of reel (first-angle projection) with diameter of 330 mm.

Dimensions [mm]
 X = 400+5
 Y = 418+5
 Sealing area 10±3

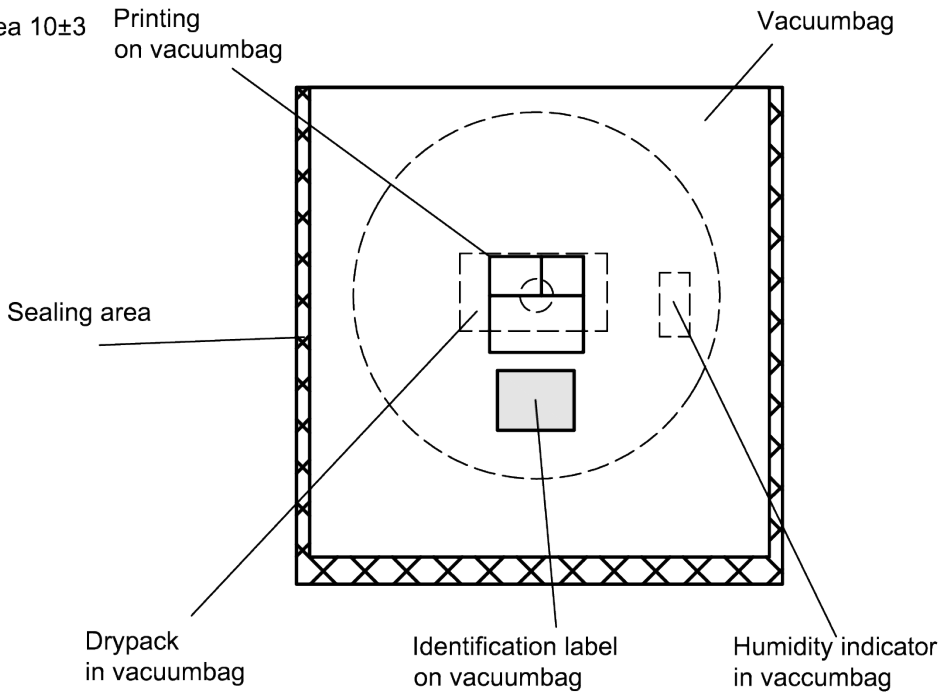


Figure 12: Drawing of moisture barrier bag (MBB) for reel with diameter of 330 mm.

Dimensions [mm]
 L = 335
 B = 338
 H = 36 (for 8 mm tape width)
 40 (for 12 mm tape width)
 Tolerance ±5

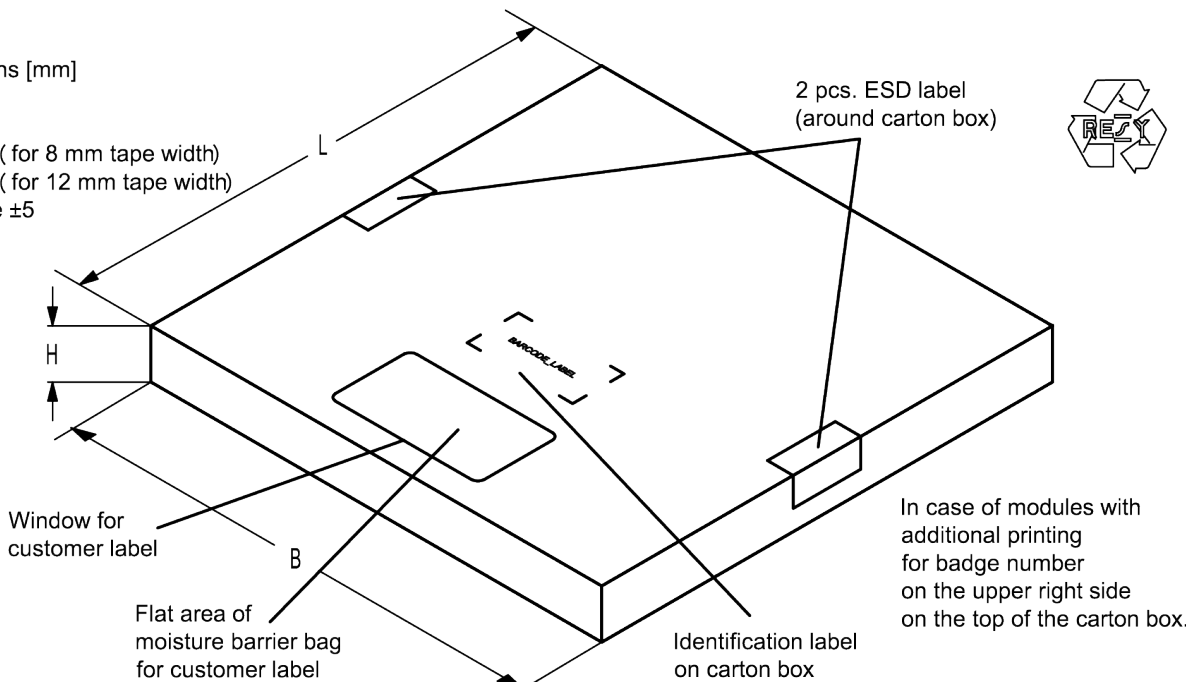


Figure 13: Drawing of folding box for reel with diameter of 330 mm.

11 Marking

Products are marked with product type number and lot number encoded according to Table 2:

■ Type number:

The 4 digit type number of the ordering code, e.g., B3xxxxB**1234**xxxx,
is encoded by a special BASE32 code into a 3 digit marking.

Example of decoding type number marking on device in decimal code.
16J => **1234**
 $1 \times 32^2 + 6 \times 32^1 + 18 (=J) \times 32^0 =$ **1234**
 The BASE32 code for product type B8818 is 8KJ.

■ Lot number:

The last 5 digits of the lot number, e.g., **12345**,
are encoded based on a special BASE47 code into a 3 digit marking.

Example of decoding lot number marking on device in decimal code.
5UY => **12345**
 $5 \times 47^2 + 27 (=U) \times 47^1 + 31 (=Y) \times 47^0 =$ **12345**

Adopted BASE32 code for type number			
Decimal value	Base32 code	Decimal value	Base32 code
0	0	16	G
1	1	17	H
2	2	18	J
3	3	19	K
4	4	20	M
5	5	21	N
6	6	22	P
7	7	23	Q
8	8	24	R
9	9	25	S
10	A	26	T
11	B	27	V
12	C	28	W
13	D	29	X
14	E	30	Y
15	F	31	Z

Adopted BASE47 code for lot number			
Decimal value	Base47 code	Decimal value	Base47 code
0	0	24	R
1	1	25	S
2	2	26	T
3	3	27	U
4	4	28	V
5	5	29	W
6	6	30	X
7	7	31	Y
8	8	32	Z
9	9	33	b
10	A	34	d
11	B	35	f
12	C	36	h
13	D	37	n
14	E	38	r
15	F	39	t
16	G	40	v
17	H	41	\
18	J	42	?
19	K	43	{
20	L	44	}
21	M	45	<
22	N	46	>
23	P		

Table 2: Lists for encoding and decoding of marking.

12 Soldering profile

The recommended soldering process is in accordance with IEC 60068-2-58 – 3rd 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 3: Characteristics of recommended soldering profile for lead-free solder (Sn95.5Ag3.8Cu0.7).

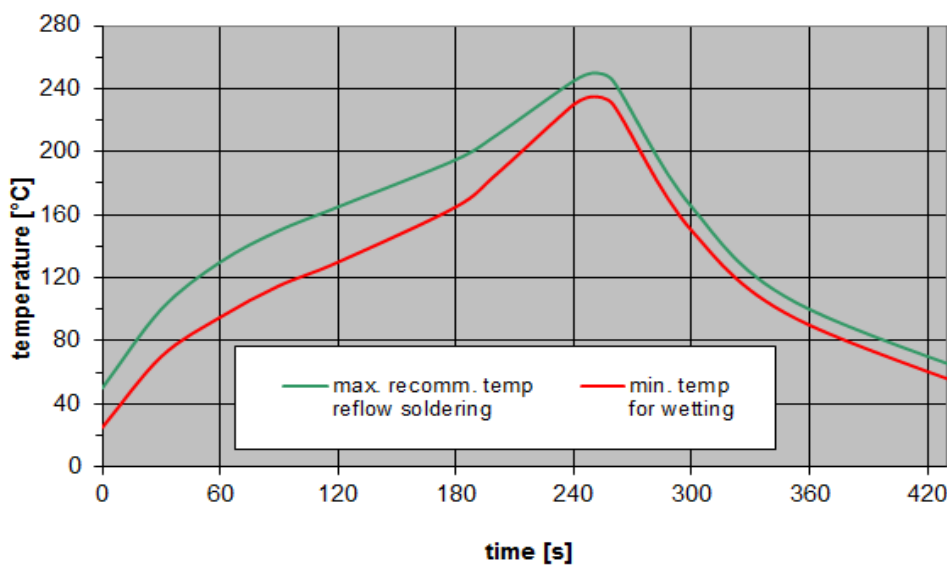


Figure 14: Recommended reflow profile for convection and infrared soldering – lead-free solder.

13 Annotations

13.1 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.

13.2 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.

13.3 Ordering codes and packing units

Ordering code	Packing unit
B39272B8818P810	15000 pcs
B39272B8818P810S 5	5000 pcs

Table 4: Ordering codes and packing units.

14 Cautions and warnings

14.1 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.

14.2 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.

14.3 Moldability

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

14.4 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.

15 Important notes

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