



RF360
Europe GmbH

SAW components

SAW band stop filter
DVB-H / DVB-T

Series/type:	B1670
Ordering code:	B39901B1670B510
Date:	June 27, 2017
Version:	2.2

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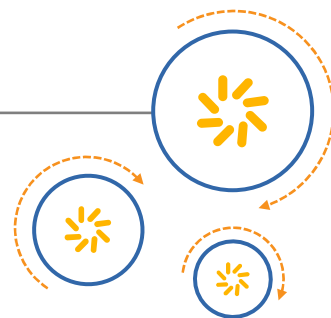
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A Qualcomm – TDK Joint Venture

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SAW components**B1670****SAW band stop filter****847.0 / 897.5 MHz**

Data sheet

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SAW components

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SAW band stop filter

847.0 / 897.5 MHz

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1 Application

- Low loss RF band stop for DVB-H / DVB-T
- Low insertion loss
- Low amplitude ripple and group delay ripple
- Usable pass band width 743 MHz
- Impedance at input and output 50 Ω
- Unbalanced to unbalanced operation

2 Features

- Package code QCC8F
- Package size 3.0 ± 0.1 mm $\times$ 3.0 ± 0.1 mm
- Package height 1.1 ± 0.125 mm
- Approximate weight 0.04 g
- RoHS compatible
- Package for Surface Mount Technology (SMT)
- Ni/Au-plated terminals
- Lead free soldering compatible with J-STD20C
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 1 (MSL1)

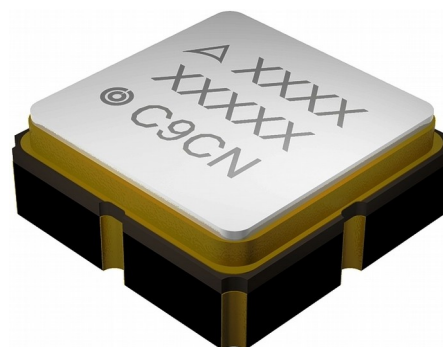


Figure 1: Picture of component with example of product marking.

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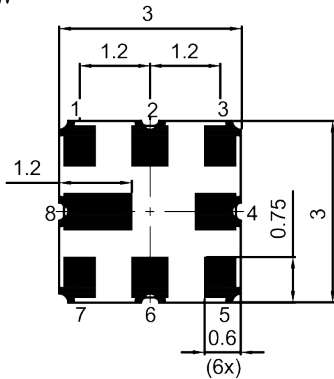
SAW band stop filter

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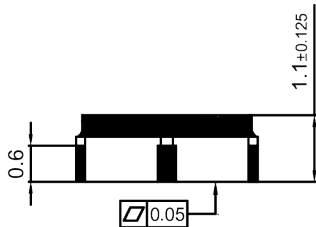
Data sheet

3 Package

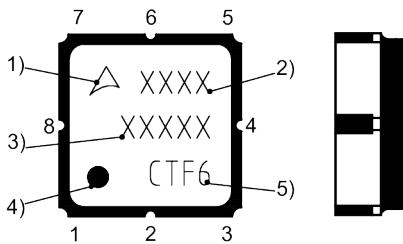
BOTTOM VIEW



SIDE VIEW



TOP VIEW



SIDE VIEW

- 1) Company logo
- 2) Device designation
- 3) Last five digits of the lot number
- 4) Marking for pad number 1
- 5) Example of production location and date code

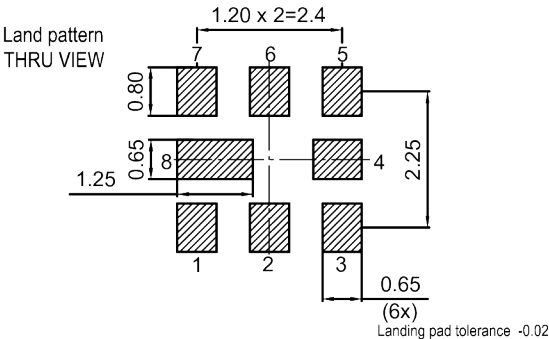


Figure 2: Drawing of package. See Sec. Package information (p. 16).

4 Pin configuration

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

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5 Matching circuit

■ $L_{c1,2} = 6.8 \text{ nH}$

■ $L_{c5,6} = 6.2 \text{ nH}$

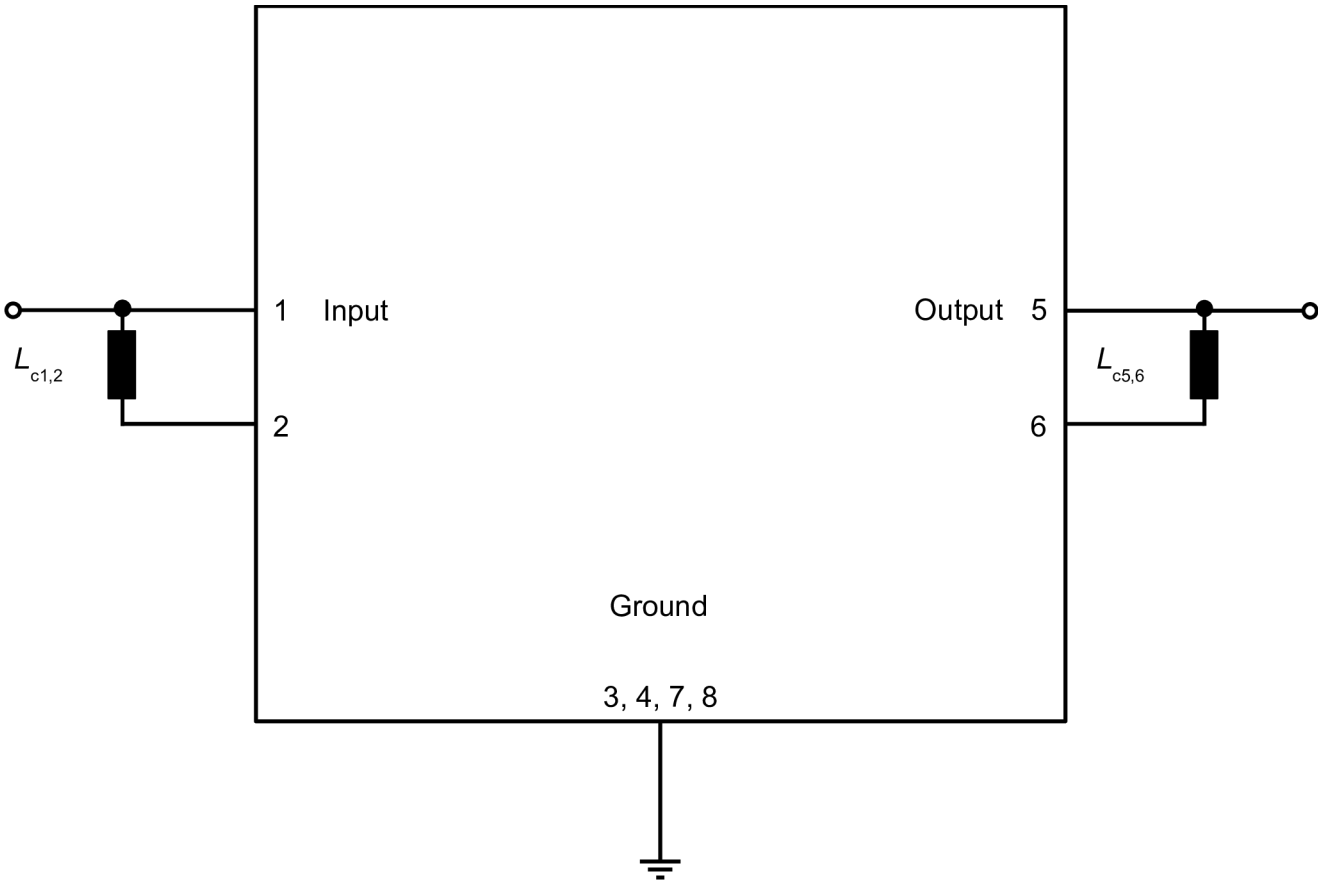


Figure 3: Schematic of matching circuit.

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6 Characteristics

Temperature range for specification	T_{SPEC}	= -40 °C ... +105 °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	—	847.0 / 897.5	—	MHz
Minimum insertion attenuation	470... 790	MHz	α_{min}	0.3	0.8	dB
Maximum insertion attenuation	47... 68	MHz	α_{max}	0.5	1	dB
	174... 230	MHz		0.5	1	dB
	470... 750	MHz		1.3	2.5	dB
	750... 790	MHz		3.0	4.0	dB
Minimum attenuation	832... 862	MHz	α_{min}	18	25	dB
	880... 915	MHz		20	26	dB
	1452... 1492	MHz		14	21	dB
	1710... 1990	MHz		30	37	dB

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7 Maximum ratings

Operable temperature	$T_{OP} = -40\text{ °C} \dots +125\text{ °C}$	
Storage temperature	$T_{STG}^{1)} = -40\text{ °C} \dots +125\text{ °C}$	
DC voltage	$ V_{DC} = 5.0\text{ V}$	
ESD voltage	$V_{ESD}^{2)} = 100\text{ V}$	Machine model.
Input power	P_{IN}	
@ input port: 832 ... 862 MHz	18 dBm	
@ input port: 880 ... 915 MHz	18 dBm	

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

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

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8 Transmission coefficient

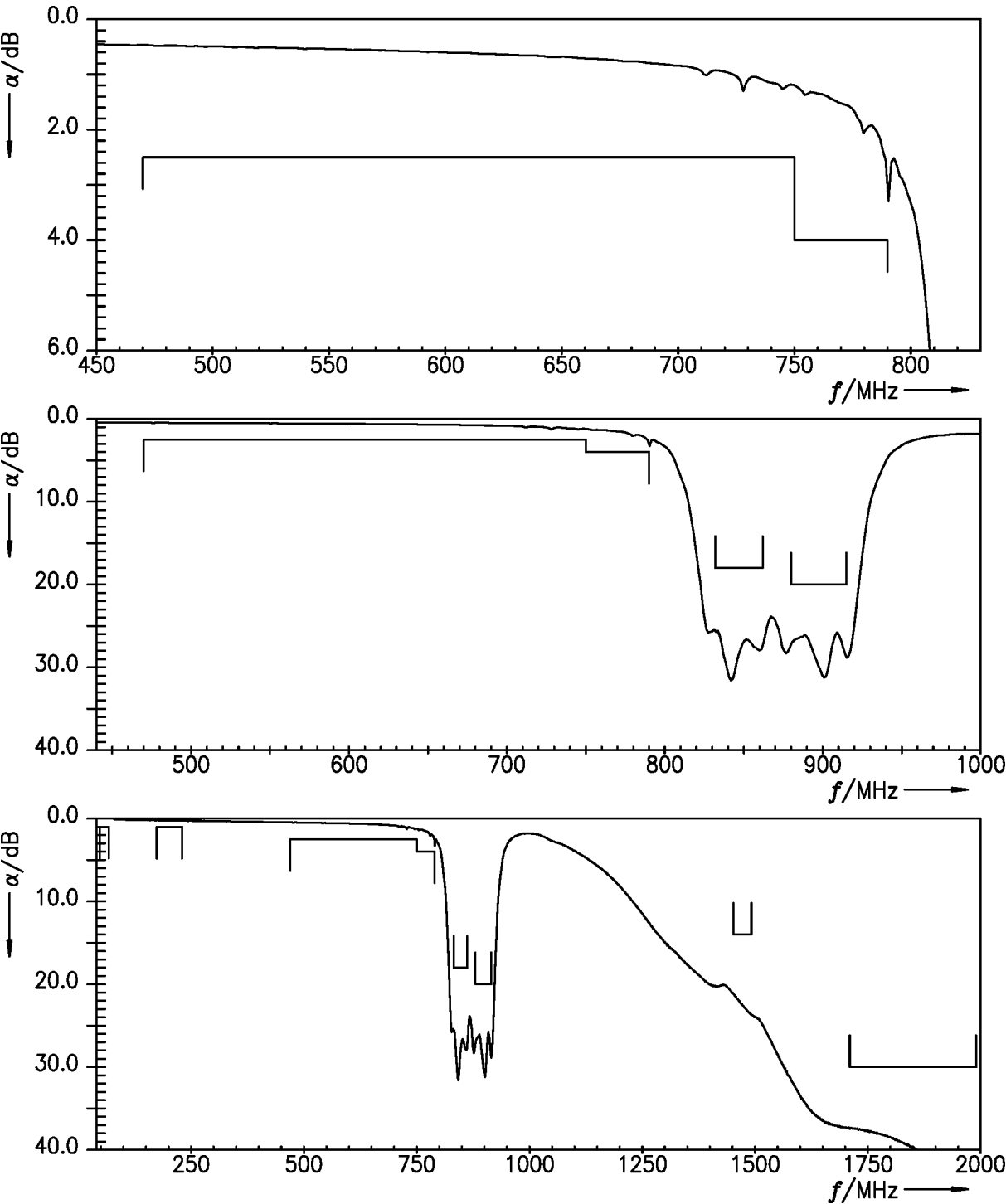


Figure 4: Attenuation.

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9 Packing material

9.1 Tape

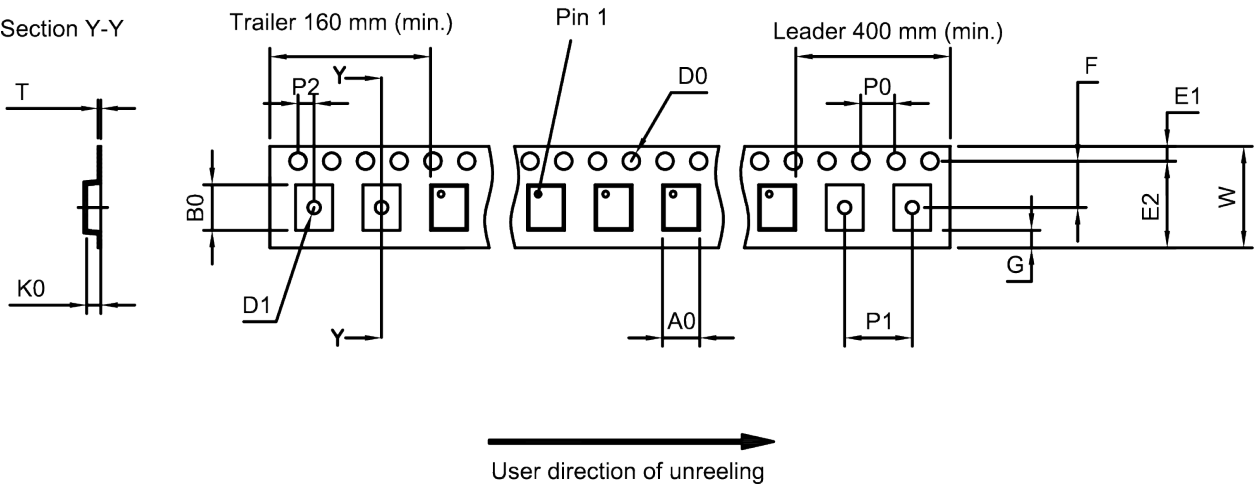


Figure 5: Drawing of tape (first-angle projection) with tape dimensions according to Table 1.

A ₀	3.25±0.1 mm	E ₂	10.25 mm (min.)	P ₁	4.0±0.1 mm
B ₀	3.3±0.1 mm	F	5.5±0.05 mm	P ₂	2.0±0.1 mm
D ₀	1.5+0.1/-0 mm	G	0.75 mm (min.)	T	0.2±0.05 mm
D ₁	1.5 mm (min.)	K ₀	1.5±0.1 mm	W	12.0+0.3/-0.1 mm
E ₁	1.75±0.1 mm	P ₀	4.0±0.1 mm		

Table 1: Tape dimensions.

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9.2 Reel with diameter of 180 mm

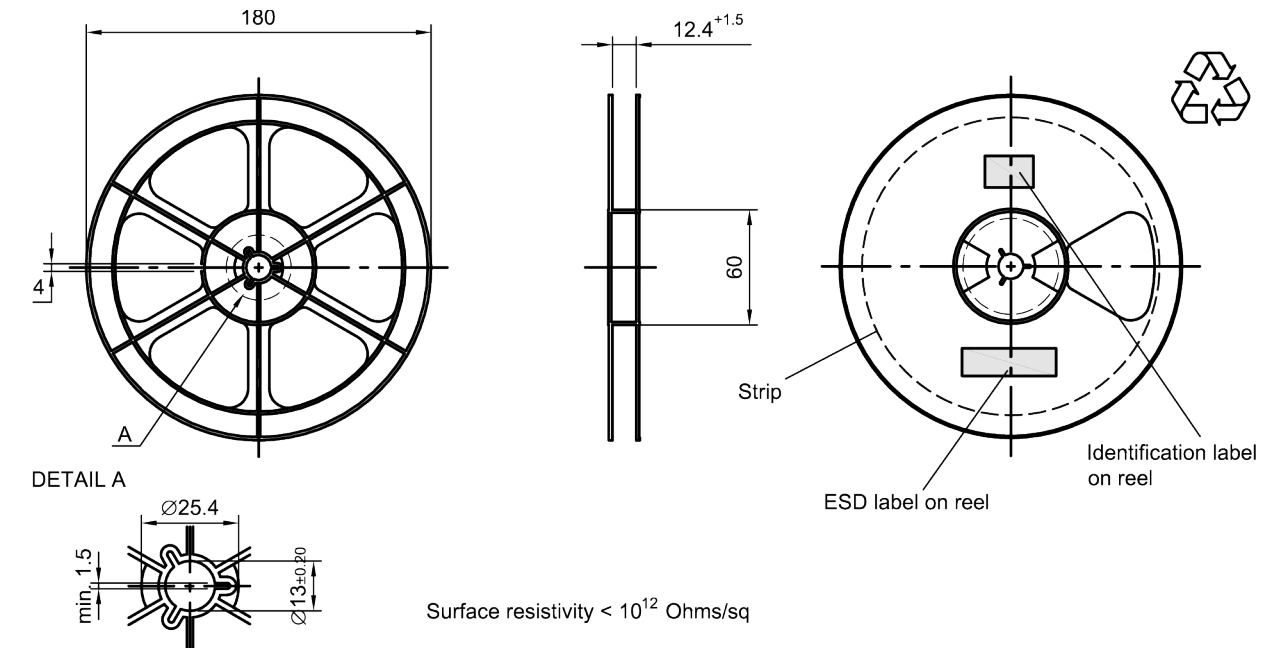


Figure 6: Drawing of reel (first-angle projection) with diameter of 180 mm.

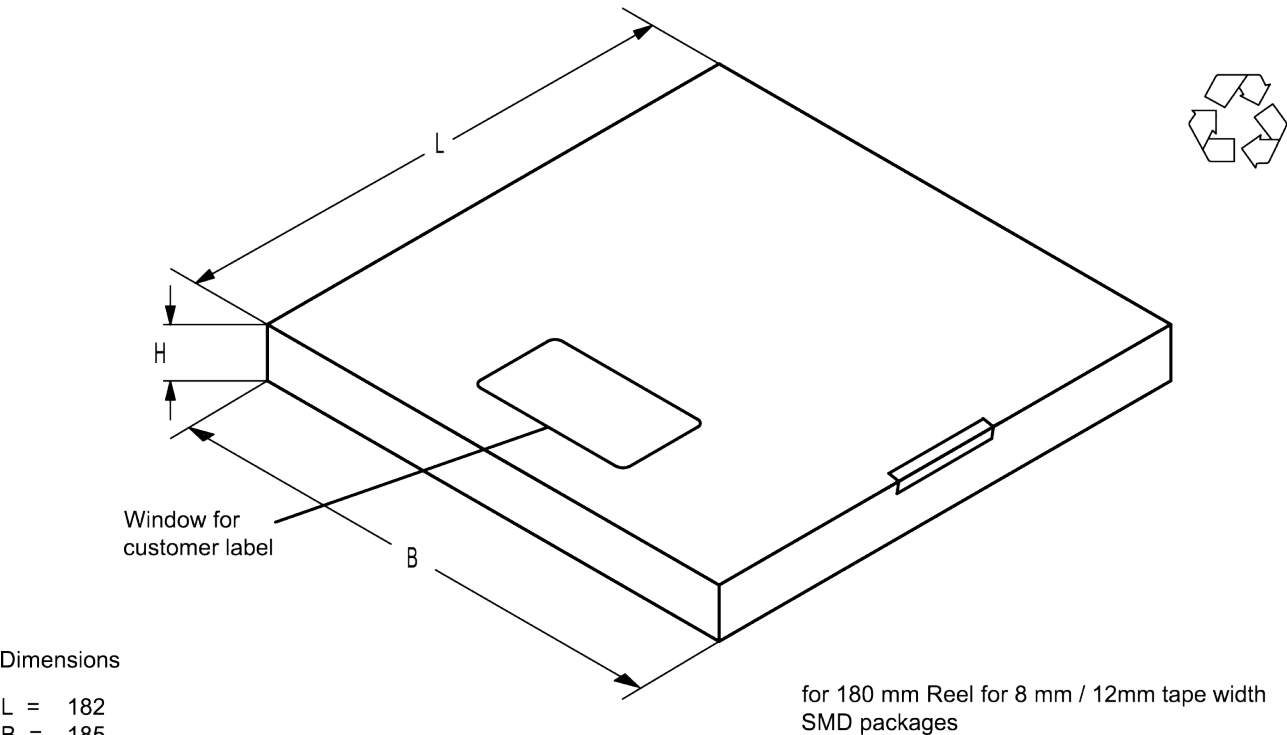


Figure 7: Drawing of folding box for reel with diameter of 180 mm.

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9.3 Reel with diameter of 330 mm

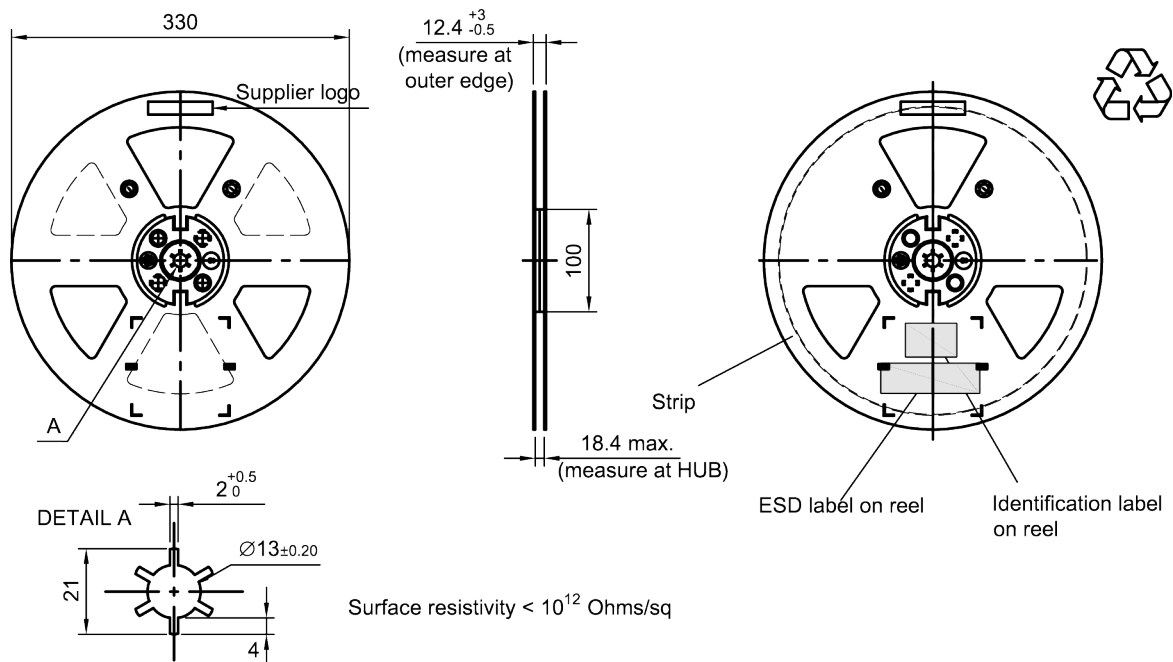
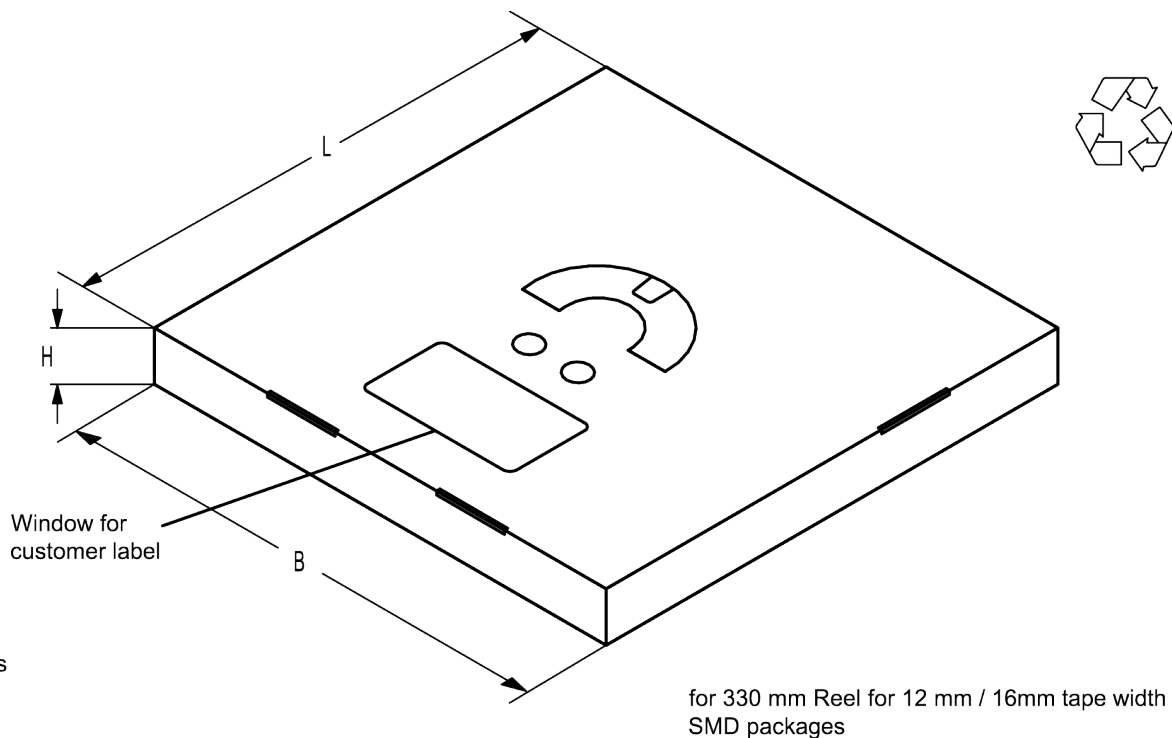


Figure 8: Drawing of reel (first-angle projection) with diameter of 330 mm.



Dimensions

L = 340
B = 340
H = 25

Figure 9: Drawing of folding box for reel with diameter of 330 mm.

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10 Marking

Products are marked with device designation, lot number, as well as production location and date code.

- Device designation: The 4-character device designation of the ordering code is used for the marking.

Example for 4-character device designation: B3xxxxB1234xxxx

- Lot number: The last 5 digits of the lot number are used for the marking.

Example: 12345

- Production location and date code: The production location is Wuxi (encoded in the first character 'C'). The production date code is encoded in the last three characters according to Table 2.

1 st digit (day)						2 nd digit (year)				3 rd digit (month)			
Day	Code	Day	Code	Day	Code	Year	Code	Year	Code	Month	Code	Month	Code
1	1	11	A	21	M	2010	A	2022	P	Jan	1	Jul	7
2	2	12	B	22	N	2011	B	2023	R	Feb	2	Aug	8
3	3	13	C	23	P	2012	C	2024	S	Mar	3	Sep	9
4	4	14	D	24	R	2013	D	2025	T	Apr	4	Oct	0
5	5	15	E	25	S	2014	E	2026	U	May	5	Nov	N
6	6	16	F	26	T	2015	F	2027	V	Jun	6	Dec	D
7	7	17	H	27	U	2016	H	2028	W				
8	8	18	J	28	V	2017	J	2029	X				
9	9	19	K	29	W	2018	K	2030	Z				
10	0	20	L	30	X	2019	L	2031	A				
				31	Z	2020	M	2032	B				
						2021	N	and so on					

Table 2: Production date code.

Example of how to decode production location and date code:

Code: **C T F 6**

Location: C → Wuxi

Day: T → 26th

Year: F → 2015

Month: 6 → June

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11 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).

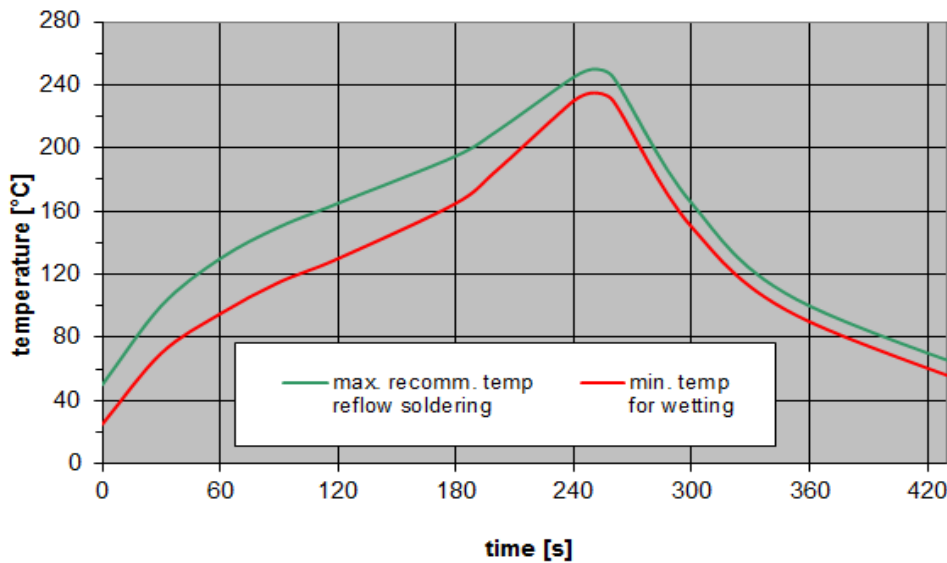


Figure 10: Recommended reflow profile for convection and infrared soldering – lead-free solder.

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12 Annotations**12.1 Matching coils**

See TDK inductor pdf-catalog <http://www.tdk.co.jp/tefe02/coil.htm#aname1> and Data Library for circuit simulation <http://www.tdk.co.jp/etvcl/index.htm>.

12.2 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.

12.3 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.

Data sheet

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.

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.

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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3. **The warnings, cautions and product-specific notes must be observed.**
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