Crystal Bridge to the Future

RoHS Compliant
Directive 2011/65/EU

SPECIFICATION

Customer:

Item:	SAW Filter
Type:	WFD92A1575CH
Nominal Frequency:	1575.42 MHz
Customer's Spec. No.:	
NDK Spec. No.:	WFD92A

Receipt

Charge:

Sales	NDK Europe Ltd. Italy Office Paola Bandera	Tel.: +39-02-96702920 e-Mail: bandera@it.ndk.com
Engineer	Engineering dept.7 Yasuhiro Watanabe	Tel.: +81-3-5453-6727 e-Mail: ywatana@ndk.com

Revision Record

Rev.	Date	Items	Contents	Approved	Checked	Drawn
---	12th.May.2014	Issue	(Revised from ESS11B-00540)	Y.Takahashi	R.Kajihara	Y.Watanabe
		4-1 Operateing temperature range	It is revised to -40 ~+85degC			
		4-2 Storage temperature range	It is revised to -40 ~+85degC			
		6-1 Specification Amplitude ripple	It is revised to 0.5dB Max.			
		6-1 Specification VSWR	It is revised to 1.6 Max.			

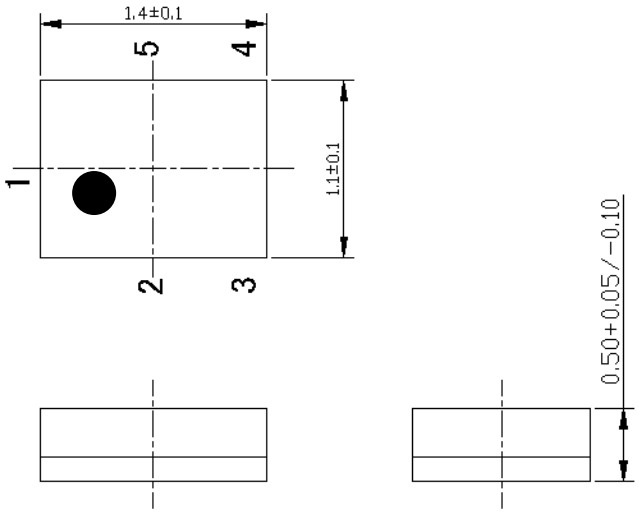
1. Scope

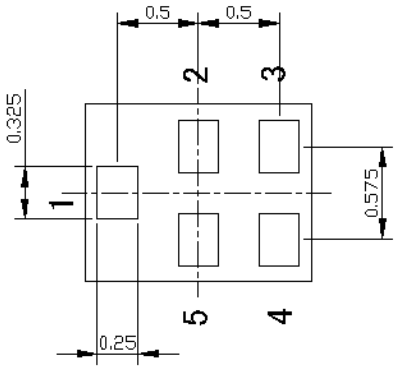
This document contains specifications which apply to GPS SAW filter.
This product is not compliant to AEC-Q200.

2. Type

Type	Nominal Frequency	Shipment
WFD92A1575CH	1575.42 MHz	Tape and reel

3. Dimensions

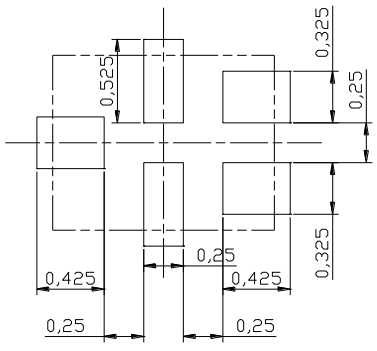




Terminal land connection	
1	INPUT
4	OUTPUT
2,3,5	GND

Unit [mm]
Tolerance -/+ 0.1mm

Land pattern (recommended)



4. Maximum Ratings

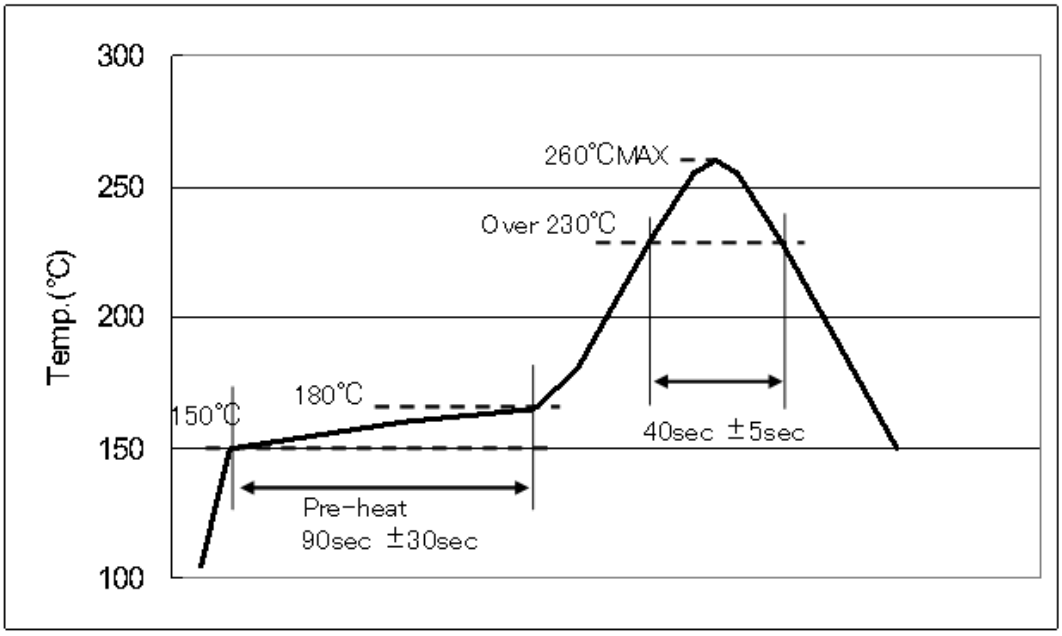
4-1 Operating temperature range: -40degC ~ +85degC

4-2 Storage temperature range: -40degC ~ +85degC

4-3 Input RF power: Continuous wave 17dBm max., 50 ºC, 2000hours

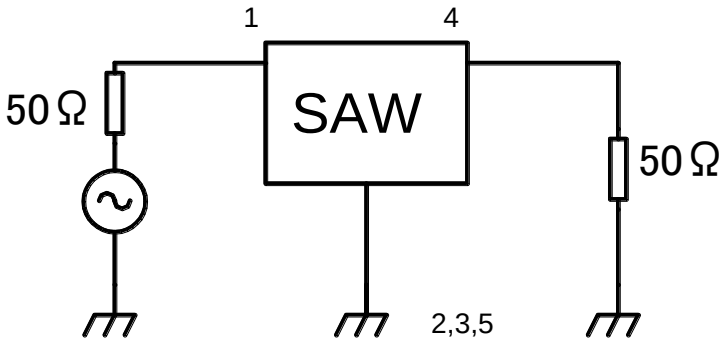
4-4 Moisture Sensitivity Level: MSL3

4-5 Reflow condition (recommended)



1. Ramp1 : typ2.5degC /sec, max 3.0degC /sec to 150degC
2. Pre-heat : 150~180degC for 60~120sec, typ90sec
3. Ramp2 : typ2.5degC /sec, max 3.0degC /sec to 230degC
4. Over Melting Pt : Liquids time 35～ 45sec, typ40sec
5.Peak Duration : max temp 260degC
6. Ramp3 : typ-2.5degC /sec to room temp

5. Test Circuit



6. Electrical Characteristics

6-1 Specification

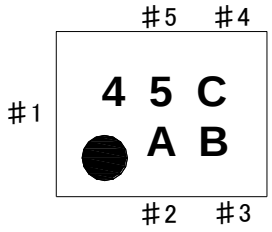
Parameter		Unit	Specifications		
			Min.	Typ.	Max.
Nominal frequency (fn)		MHz	-	1575.42	-
Pass band		MHz	1573.92	-	1576.92
Insertion loss (1573.92 ~ 1576.92 MHz)		dB	-	1.1	1.6
Amplitude ripple (1573.92 ~ 1576.92 MHz)		dB	-	0.1	0.5
VSWR (1573.92 ~ 1576.92 MHz)			-	1.2	1.6
Attenuation / absolute value					
1	40 ~ 1453 MHz	dB	38	41	-
2	1453 ~ 1525.42 MHz	dB	25	29	-
3	1525 ~ 1560 MHz	dB	1.1	1.8	-
4	1625 ~ 1710 MHz	dB	20	39	-
5	1710 ~ 2170 MHz	dB	40	43	-
6	2170 ~ 3000MHz	dB	30	33	-
7	3000 ~ 6000 MHz	dB	15	20	-

7. Reliability

No	Test Item	Test Methods	Specification
1	High Temperature	Temperature: +85degC Duration: 500H	*
2	Low Temperature	Temperature: -40degC Duration: 500H	
3	High Temperature, High Humidity	Temperature:+85degC Humidity:85%RH Duration: 500H	
4	Thermal shock	Temperature: -40degC to 85degC Dwell time: each 30min (1H/cycle) Number of cycles: 200 cycles	
5	Vibration	Frequency :10 to 2000Hz, Sweep time: 20 minute Amplitude : 1.52mm, Direction : XYZ Duration : 4 hours in each direction	
6	Drop	Pasted on a object(150g) 6 directions each 3 time from 1.8mm height	
7	Bending test	Bend a PCB which a part is mounted on by 3mm for 5sec.	
8	ESD	HBM: ±100V(each pin), MM:±50V(each pin)	
9	Resistance to Soldering heat	Exposed to the recommended reflow profile(Peak temperature : 260+/-5degC) by 2 times	
10	Solderbility	95% of each pad should be covered with solder after recommended reflow	

* Electrical characteristic of 6-1 is satisfied.

8. Marking (at mass producing)



Display	explanation
AB	Product code
45C	Lot number 4 : The last letter of year 5 : Month(refer to below table) C : Day(refer to below table)

Table: Month code of manufacturing

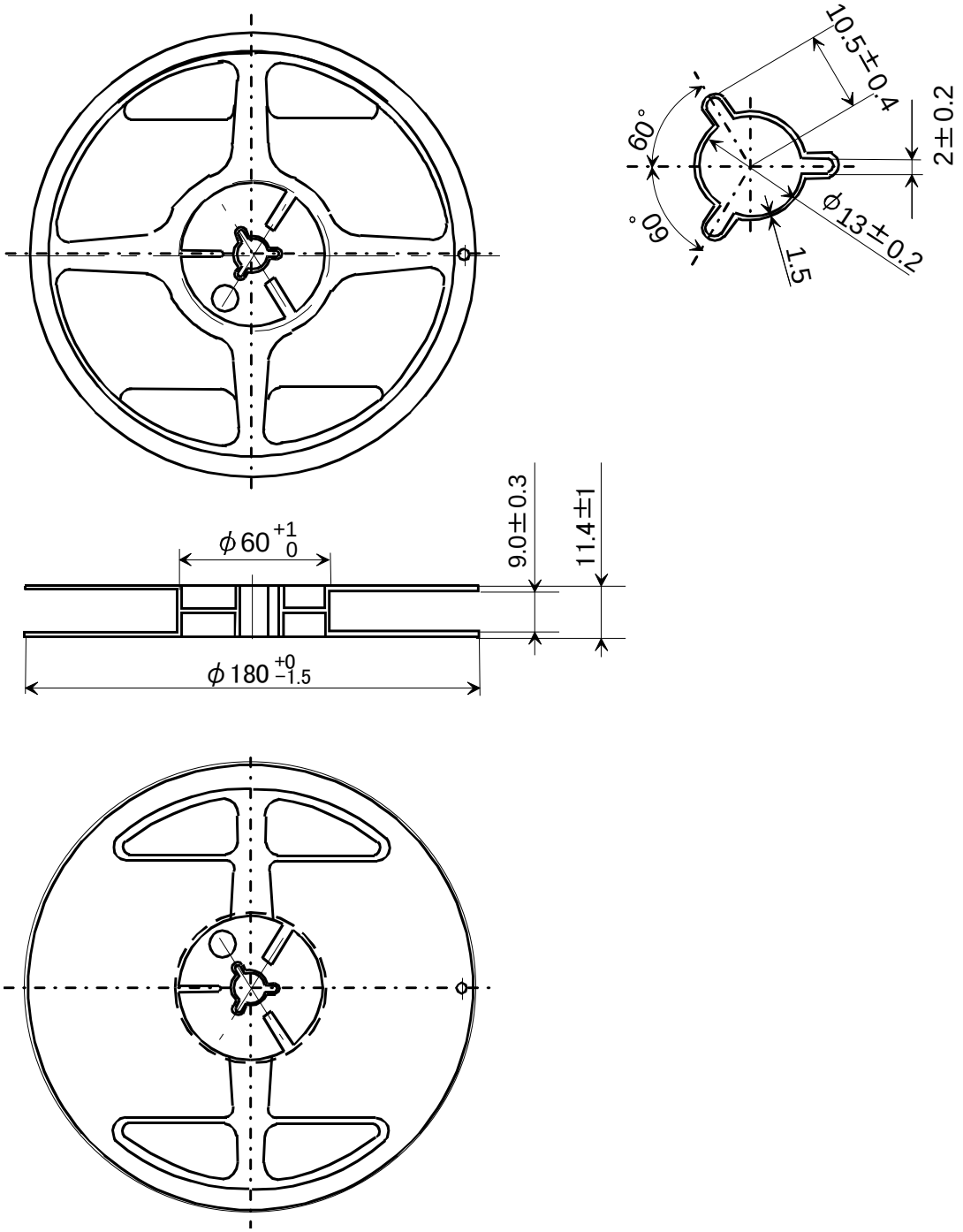
Month	Jan	Feb	Mar	Apr	May	Jun
Code	1	2	3	4	5	6
Month	Jul	Aug	Sep	Oct	Nov	Dec
Code	7	8	9	O	N	D

Table: Day code of manufacturing

Day	1	2	3	4	5	6	7	8
Code	1	2	3	4	5	6	7	8
Day	9	10	11	12	13	14	15	16
Code	9	A	B	C	D	E	F	G
Day	17	18	19	20	21	22	23	24
Code	H	J	K	L	M	N	P	Q
Day	25	26	27	28	29	30	31	
Code	R	S	T	V	W	X	Y	

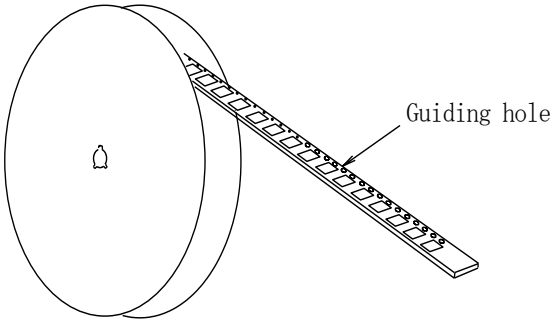
9. Tape and Reel

9-1 Dimension



9-2 Pulling direction of tape

Guiding holes are on the right side of a carrier-tape when a tape is pulled off from upper side of the reel toward this side.

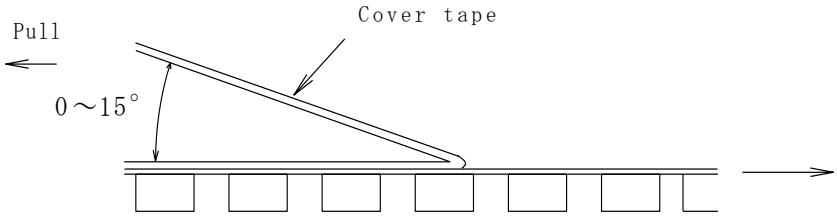


9-3 Quantity of components

Standard quantity: 2000 pcs / reel

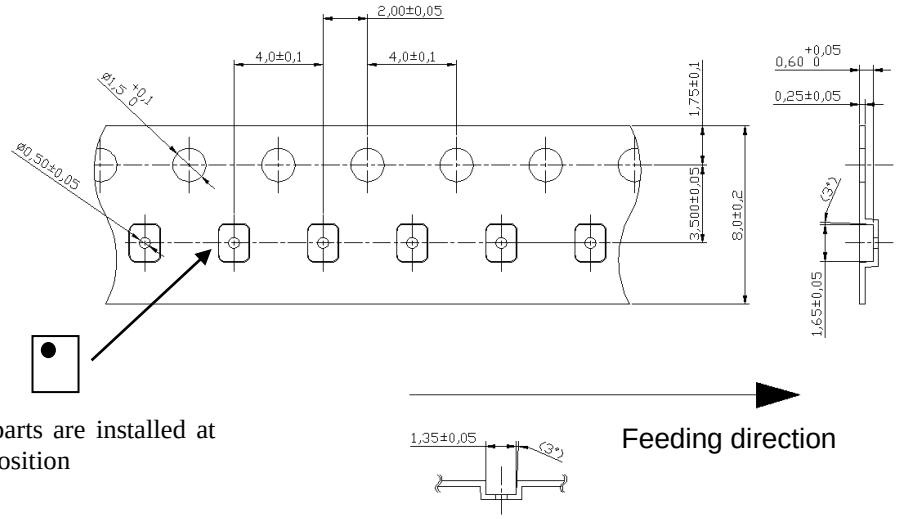
9-4 Cover tape

Pulling Force: 0.2N to 0.8N, Velocity: 300±10 mm/min



Cover tape is not to be torn while being pulled off

9-5 Tape dimension



10. Usage Conditions

10-1 Static electricity: Static electricity between signal terminals and grounds may cause degradation or destruction of this component. Please avoid the static electricity when you treat this component.

10-2 Cleaning method: If you clean this device, you have to soak it in the isopropyl alcohol within 90 seconds at the normal temperature. As the ultrasonic cleansing might cause the breakdown, avoid it, please.

10-3 Blower (hot jet): The use of the heat blower is not recommended. When the temperature of the device is heated up to 300 degC or more, it might cause the breakdown. Please note the temperature rise of the device if you use the heat blower.

10-4 Soldering iron method: If you would use a soldering iron, please pay attention for soldering condition with the tip temperature of 280 to 300 degC/ 3sec max. However, it takes care that the tip of soldering iron cannot touch the lid (cap).

10-5 Keeping condition: When you store this device for long time, please keep it packing at the normal temperature 25 -/+ 10 degC and humidity 60%RH or less, and we recommend you using within six months. When you unpack, you have to keep with the normal temperature 25 -/+ 10 degC and humidity 60%RH or less and use it within seven days.

10-6 Baking condition: Please use this device after the baking of the following conditions if eight days or more have passed after unpacking.
High temperature baking (Unit) : 125 -/+ 5 degC 2 H
Low temperature baking (Reel) : 55 to 60 degC 72H to 96H

11. Notice

11-1 Order items are manufactured according to specification. As to conditions, which are not indicated in this specification and unpredictable such as applied condition and oscillation margin, please check them beforehand.

11-2 Unless we receive request for modification within 3 weeks from the issue date of this NDK specification sheet, we will supply products according to this specification. Also, if you'd like to modify specification of order, which has been placed with delivery request within 3 weeks from the issue data of this specification sheet, we would like to discuss with you separately.

11-3 In no event shall the company be liable for any product failure resulting from an inappropriate handling or operation of the product beyond the scope of its guarantee.

11-4 Where any change to the process condition is made due to the change(s) in the production line, inform personnel of the specifications.

11-5 Should this specification data give rise to any disputes relating to any intellectual property rights or any other rights of a third person, the company shall not indemnify anyone for any damage. Their disclosure must not be construed as the grant of a license to use any of the intellectual property rights owned by the company.

11-6 If you intend to use products listed on this specification for applications that may result in loss of life or assets (controls relating to safety, medical equipment, aeronautical equipment, space equipment, etc.), please do not fail to advise us of your intention beforehand.

11-7 In the company's production process whatever amount of ozone depleting substances (ODS) as specified in the Montreal protocol is not used.

11-8 Information contained in this specification must not be quoted, reproduced or used for other purposes including processing either in part or in full without obtaining prior approval from the company.

11-9 The appearance color and so on have a different case by purchasing it more than 2 suppliers of the component, but characteristic and reliability are guaranteed.