CHIP NOISE FILTER NFZ32BW□□□HN11L REFERENCE SPECIFICATION

1. Scope

This reference specification applies to NFZ32BW_HN11L Series, Chip Noise Filter.

2. Part Numbering

(ex)	NF	Z	32	BW	1R0	H	N	1	1	L
	Product ID	Structure	Dimension (L×W)	Features	Impedance	Performance	Category	Numbers of Circuit	Other	Packaging L:Taping

3. Rating

・Operating Temperature Range.

(Ambient temperature; Self-temperature rise is not included) -40 to +105°C

(Product temperature; Self- temperature rise is included) -40 to +125°C

・Storage Temperature Range. -40 to +125°C

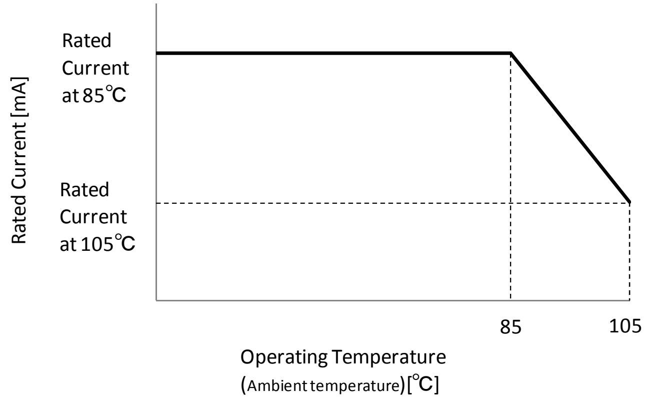
Customer Part Number	MURATA Part Number	Impedance at 1MHz		DC Resistance		∗1 Rated Current(mA)	
		(Ω)	Tolerance	(Ω)	Tolerance	∗2 Ambient temperature 85℃	∗3 Ambient temperature 105℃
	NFZ32BW3R3HN11L	3.3	±30%	0.024	±20%	2900	1490
	NFZ32BW6R8HN11L	6.8		0.036		2500	1380
	NFZ32BW8R4HN11L	8.4		0.048		2400	1360
	NFZ32BW9R8HN11L	9.8		0.053		2100	1110
	NFZ32BW120HN11L	12		0.064		1850	910
	NFZ32BW190HN11L	19		0.089		1800	900
	NFZ32BW210HN11L	21		0.100		1550	800
	NFZ32BW310HN11L	31		0.155		1200	610
	NFZ32BW520HN11L	52		0.220		1100	550
	NFZ32BW650HN11L	65		0.295		900	450
	NFZ32BW101HN11L	100		0.475		900	330
	NFZ32BW151HN11L	150		0.685		700	270

∗1 : As for the rated current, rated current derated as figure.1 depending on the operating temperature.

∗2 : When applied rated current to the Products, temperature rise caused by self heating will be 40°C or less.

∗3 : When applied rated current to the Products, temperature rise caused by self heating will be 20°C or less.

Fugure. 1



4. Testing Conditions

《Unless otherwise specified》

Temperature : Ordinary Temperature (15 to 35°C)

Humidity : Ordinary Humidity (25 to 85 % (RH))

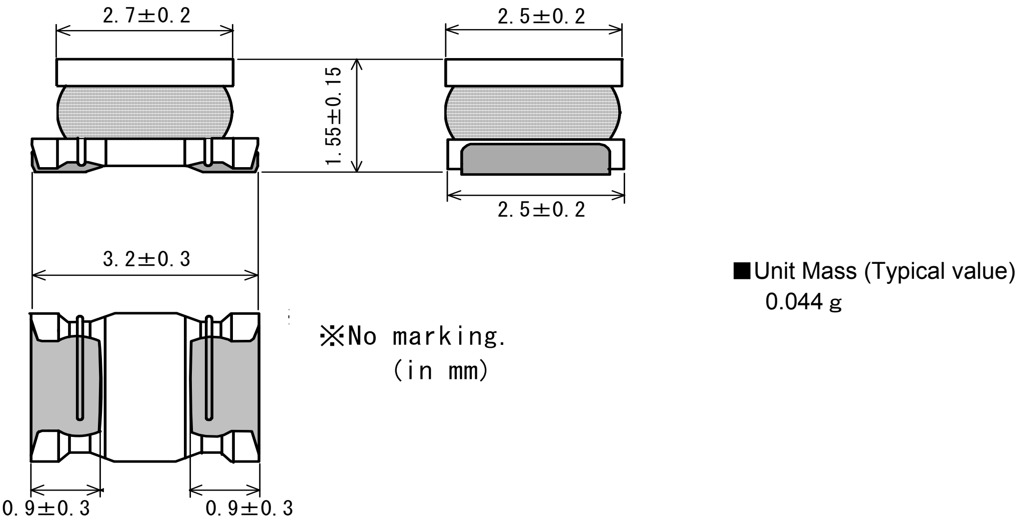
《In case of doubt》

Temperature : 20 ± 2°C

Humidity : 60 to 70 % (RH)

Atmospheric Pressure : 86 to 106 kPa

5. Appearance and Dimensions



■Unit Mass (Typical value)
0.044 g

6. Electrical Performance

No.	Item	Specification	Test Method
6.1	Impedance	Impedance shall meet item 3.	Measuring Equipment：KEYSIGHT 4192A or equivalent Measuring Frequency：1MHz
6.2	DC Resistance	DC Resistance shall meet item 3.	Measuring Equipment：Digital multi meter

7. Mechanical Performance

No.	Item	Specification	Test Method
7.1	Shear Test	Chip coil shall not be damaged.	Substrate：Glass-epoxy substrate Force：10N Hold Duration：5±1s F Substrate
7.2	Bending Test		Substrate：Glass-epoxy substrate (100×40×1.0mm) Speed of Applying Force：0.5mm / s Deflection：2mm Hold Duration：5s Pressure jig R230 F Deflection 45 45 Product (in mm)
7.3	Vibration	Chip Noise Filter shall not be damaged.	Oscillation Frequency：10 to 2000 to 10Hz for 20 min Total amplitude：1.5 mm or Acceleration amplitude 98 m/s^2 whichever is smaller. Testing Time：A period of 2 hours in each of 3 mutually perpendicular directions. (Total 6 hours)

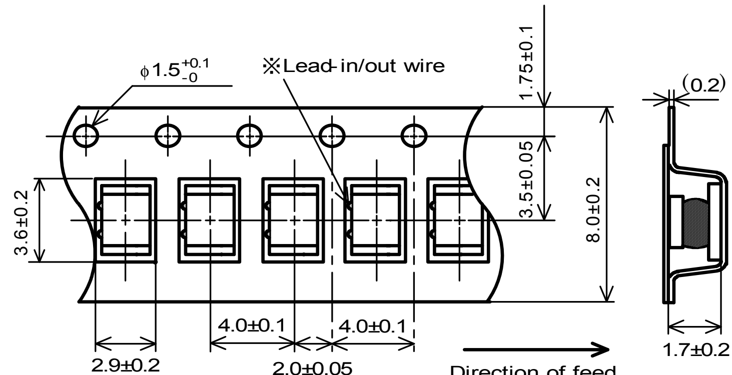
No.	Item	Specification	Test Method
7.4	Solderability	The wetting area of the electrode shall be at least 90% covered with new solder coating.	Flux：Ethanol solution of rosin,25(wt)% (Immersed for 5s to 10s) Solder：Sn-3.0Ag-0.5Cu Pre-Heating：150±10°C / 60 to 90s Solder Temperature：240±5°C Immersion Time：3±1 s
7.5	Resistance to Soldering Heat	Appearance：No damage Impedance Change：within ±10%	Flux：Ethanol solution of rosin,25(wt)% (Immersed for 5s to 10s) Solder：Sn-3.0Ag-0.5Cu Pre-Heating：150±10°C / 60 to 90s Solder Temperature：270±5°C Immersion Time：10±1 s Then measured after exposure in the room condition for 24±2 hours.

8. Environmental Performance (It shall be soldered on the substrate.)

No.	Item	Specification	Test Method
8.1	Heat Resistance	Appearance：No damage Impedance Change：within ± 10% DC Resistance Change：within ± 10%	Temperature：105±2°C Time：1000h (+48h , -0h) Then measured after exposure in the room condition for 24±2 hours.
8.2	Cold Resistance		Temperature：-40±2°C Time：1000h (+48h , -0h) Then measured after exposure in the room condition for 24±2 hours.
8.3	Humidity		Temperature: 40±2°C Humidity: 90~95%(RH) Time：1000h (+48h , -0h) Then measured after exposure in the room condition for 24±2 hours.
8.4	Temperature Cycle		1 cycle： 1 step：-40±2°C / 30±3 min 2 step：Ordinary temp. / 10 to 15 min 3 step：+105±2°C / 30±3 min 4 step：Ordinary temp. / 10 to 15 min Total of 100 cycles Then measured after exposure in the room condition for 24±2 hours.

9. Specification of Packaging

9.1 Appearance and Dimensions of plastic tape



Dimension of the Cavity is measured at the bottom side.

(in mm)

9.2 Specification of Taping

(1) Packing quantity (standard quantity)
2,000 pcs / reel

(2) Packing Method
Products shall be packed in the each embossed cavity of plastic tape and sealed by cover tape.

(3) Sprocket hole
The sprocket holes are to the right as the tape is pulled toward the user.

(4) Spliced point
Plastic tape and Cover tape has no spliced point.

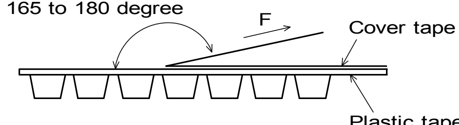
(5) Missing components number
Missing components number within 0.1 % of the number per reel or 1 pc., whichever is greater, and are not continuous. The specified quantity per reel is kept.

9.3 Pull Strength

Embossed carrier tape	10N min.
Cover tape	5N min.

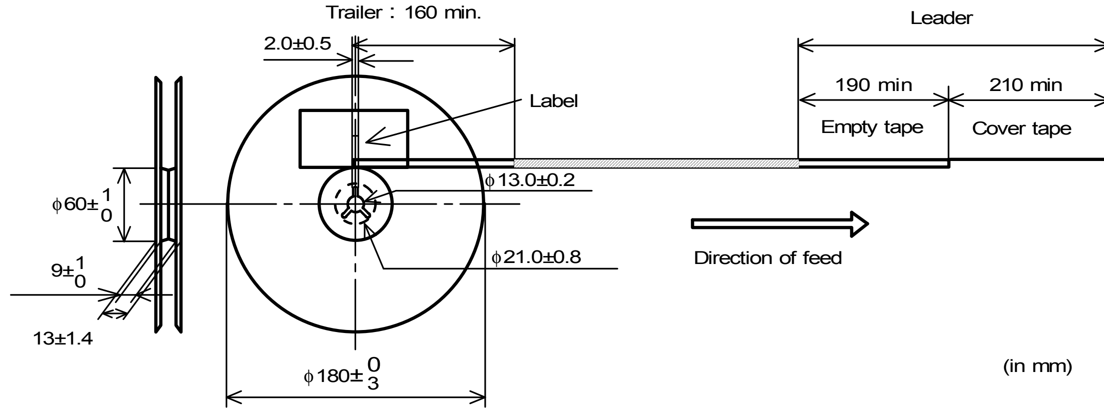
9.4 Peeling off force of cover tape

Speed of Peeling off	300mm/min
Peeling off force	0.2 to 0.7N (minimum value is typical)



9.5 Dimensions of Leader-tape, Trailer and Reel

There shall be leader-tape (cover tape) and trailer-tape (empty tape) as follows.



9.6 Marking for reel

Customer part number, MURATA part number, Inspection number(∗1), RoHS marking(∗2), Quantity etc ･･･

∗1) <Expression of Inspection No.> □□ OOOO ××× (1) (2) (3)

(1) Factory Code

(2) Date First digit : Year / Last digit of year
Second digit : Month / Jan. to Sep. → 1 to 9, Oct. to Dec. → O, N, D
Third, Fourth digit : Day

(3) Serial No.

∗2) « Expression of RoHS marking » ROHS – Y (△) (1) (2)

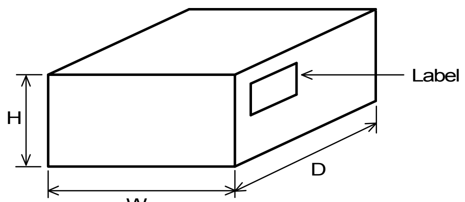
(1) RoHS regulation conformity

(2) MURATA classification number

9.7 Marking for Outside package (corrugated paper box)

Customer name, Purchasing order number, Customer part number, MURATA part number, RoHS marking (∗2) , Quantity, etc ･･･

9.8. Specification of Outer Case



Outer Case Dimensions (mm)			Standard Reel Quantity in Outer Case (Reel)
W	D	H	
186	186	93	5

*Above Outer Case size is typical. It depends on a quantity of an order.

10. ⚠ Caution

Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

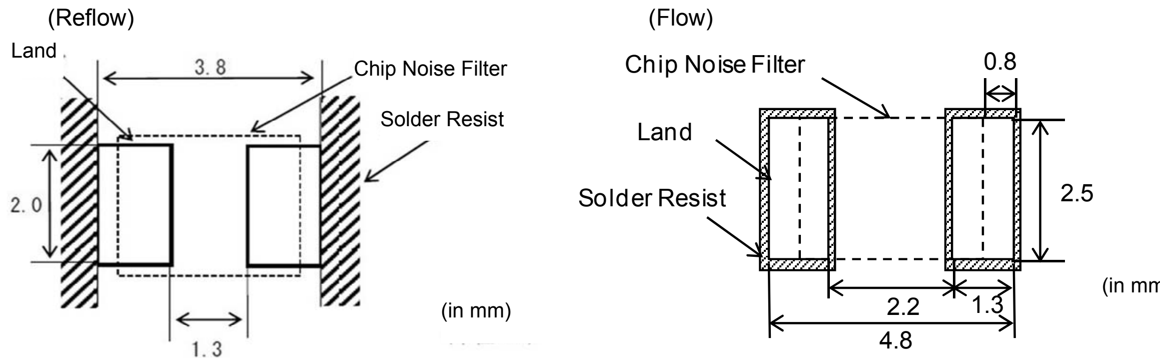
(1) Aircraft equipment
(2) Aerospace equipment
(3) Undersea equipment
(4) Power plant control equipment
(5) Medical equipment
(6) Transportation equipment (vehicles, trains, ships, etc.)
(7) Traffic signal equipment
(8) Disaster prevention / crime prevention equipment
(9) Data-processing equipment
(10) Applications of similar complexity and /or reliability requirements to the applications listed in the above

11. Notice

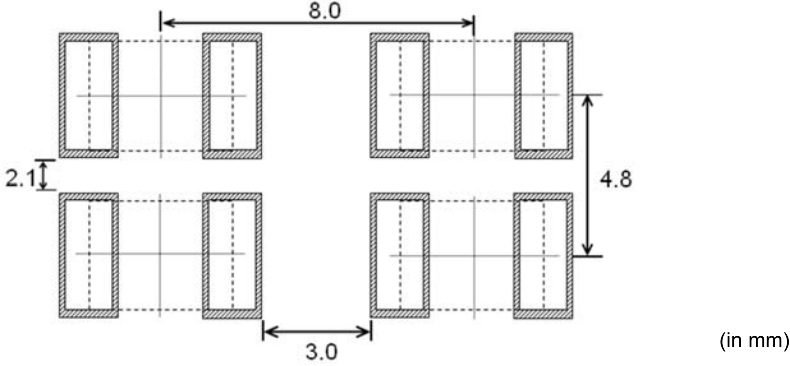
This product is designed for solder mounting.
Please consult us in advance for applying other mounting method such as conductive adhesive.

11.1 Land pattern designing

Recommended land pattern for flow and reflow soldering is as follows:
It has been designed for Electric characteristics and solderability.
Please follow the recommended patterns. Otherwise, their performance which includes electrical performance or solderability may be affected, or result to "position shift" in soldering process.



(Distance between the products for Flow)



11.2 Flux, Solder

Flux	・Use rosin-based flux. ・Don't use highly acidic flux with halide content exceeding 0.2(wt)% (chlorine conversion value). ・Don't use water-soluble flux.
Solder	・Use Sn-3.0Ag-0.5Cu solder ・Standard thickness of solder paste : 100 μ m to 150 μ m

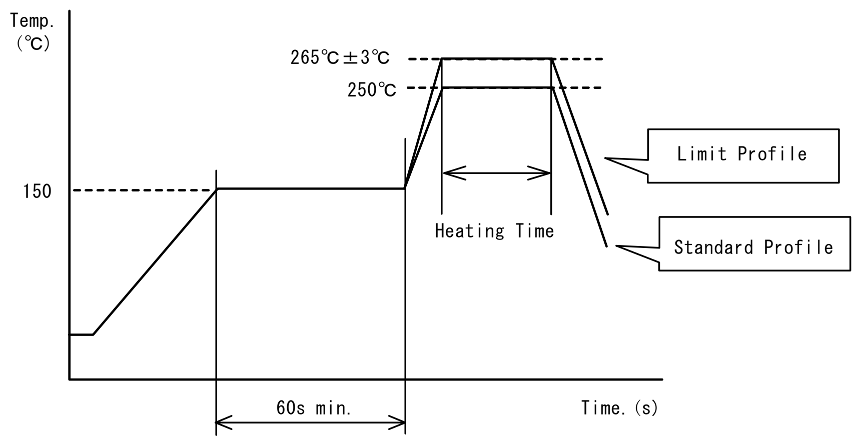
Other flux (except above) Please contact us for details, then use.

11.3 Flow soldering conditions / Reflow soldering conditions

・Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 100°C max. Cooling into solvent after soldering also should be in such a way that the temperature difference is limited to 100°C max.
Insufficient pre-heating may cause cracks on the product, resulting in the deterioration of product quality.

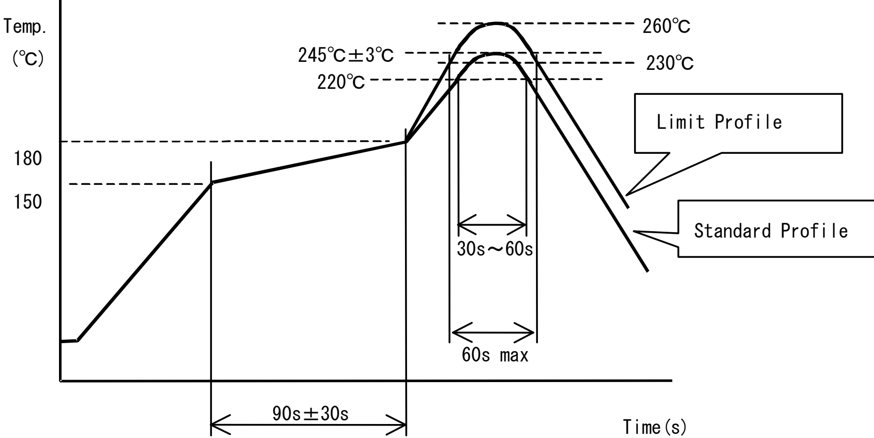
・Standard soldering profile and the limit soldering profile is as follows.
The excessive limit soldering conditions may cause leaching of the electrode and / or resulting in the deterioration of product quality.

(1)Flow soldering profile



	Standard Profile	Limit Profile
Pre-heating	150℃、60s min.	
Heating	250℃、4s～6s	265℃±3℃、5s
Cycle of flow	2 times	1 time

(2)Reflow soldering profile



	Standard Profile	Limit Profile
Pre-heating	150～180°C 、90s±30s	
Heating	above 220°C、30s～60s	above 230°C、60s max.
Peak temperature	245±3°C	260°C,10s
Cycle of reflow	2 times	2 times

11.4 Reworking with soldering iron.

The following conditions must be strictly followed when using a soldering iron.

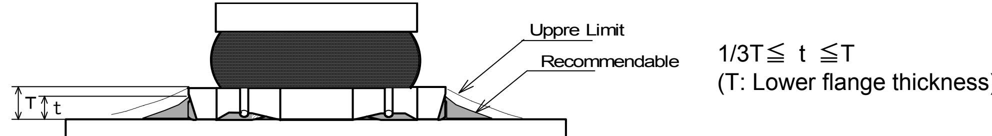
Pre-heating	150°C,1 min
Tip temperature	350°C max.
Soldering iron output	80W max.
Tip diameter	φ3mm max.
Soldering time	3(+1,-0)s
Times	2 times

Note : Do not directly touch the products with the tip of the soldering iron in order to prevent the crack on the products due to the thermal shock.

11.5 Solder Volume

・Solder shall be used not to be exceeded the upper limits as shown below.

・Accordingly increasing the solder volume, the mechanical stress to Chip is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance.



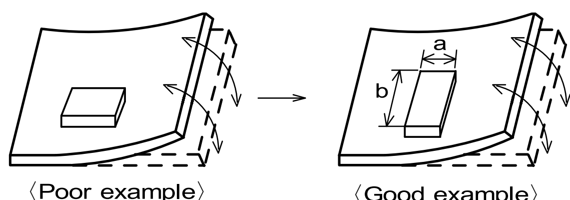
1/3T≦ t ≦T
(T: Lower flange thickness)

11.6 Product's location

The following shall be considered when designing and laying out P.C.B.'s.

(1) P.C.B. shall be designed so that products are not subject to the mechanical stress due to warping the board.

[Products direction]

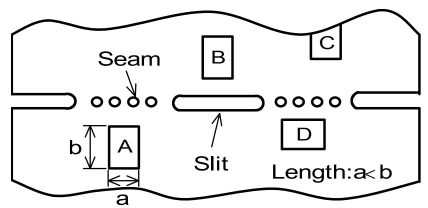


Products shall be located in the sideways direction (Length:a＜b) to the mechanical stress.

(2) Components location on P.C.B. separation.

It is effective to implement the following measures, to reduce stress in separating the board.
It is best to implement all of the following three measures; however, implement as many measures as possible to reduce stress.

Contents of Measures	Stress Level
(1) Turn the mounting direction of the component parallel to the board separation surface.	A ＞ D ∗1
(2) Add slits in the board separation part.	A ＞ B
(3) Keep the mounting position of the component away from the board separation surface.	A ＞ C



∗1 A > D is valid when stress is added vertically to the perforation as with Hand Separation.
If a Cutting Disc is used, stress will be diagonal to the PCB, therefore A > D is invalid.

(3) Mounting Components Near Screw Holes

When a component is mounted near a screw hole, it may be affected by the board deflection that occurs during the tightening of the screw. Mount the component in a position as far away from the screw holes as possible.