MAGICSTRAP® Preliminary Data Sheet
LXMS21NCNH-147

1, General Descriptions

Murata MAGICSTRAP® is an innovative RFID module which complies EPCglobal C1G2 standard.
This product can be used as an ultra small tag and this can be fit on any metal objects, non-metal objects, as well as embedding into any objects by glue or adhesive and so on.
This can be used globally with high performance and reliability.

[Features]

1-1. Compliant to EPC global Class1 Gen2
1-2. Ultra small package (2.0 x 1.25 x 0.5mm typ)
1-3. Supports wide frequency range from 865MHz to 920MHz, allowing to cover all globally relevant UHF frequency bands
1-4. 100% green material for RoHS compliance
1-5. Internal 512bit user memory available.

2, MAGICSTRAP® Block Diagram

Figure.1 shows MAGICSTRAP® block diagram.

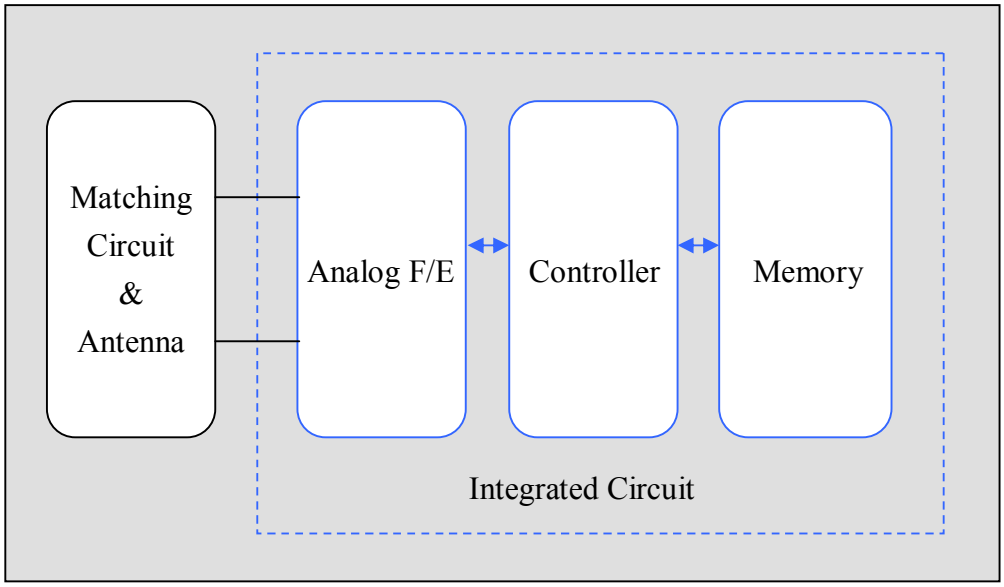

Fig.1 MAGICSTRAP®Block Diagram

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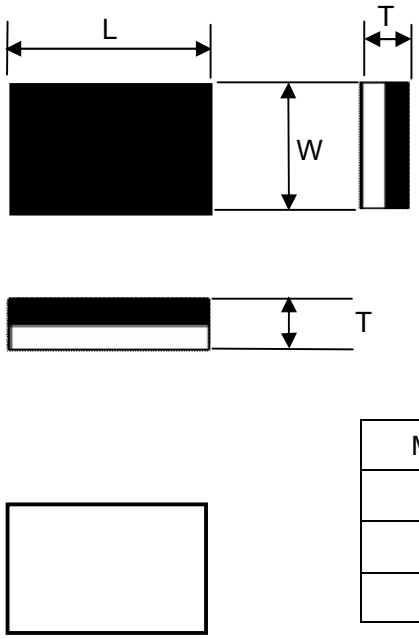
3, Mechanical Information

[Dimension]

<Top View>

<Side View>

<Bottom View>



Unit:mm

Mark	Dimensions
L	2.00±0.20
W	1.25±0.20
T	0.6max.

Fig.2 MAGICSTRAP® Package Dimension

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4. Electrical Performance

4-1. Frequency range

865 – 928 MHz

Ta=25℃, Unit: Ohm

4-2. Memory size

Part number	IC	TID	EPC	User
LXMS21NCNH-147	NXP UCODE G2iM	96 bit	256 bit	512 bit

4-3. Memory characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
t_{ret}	Retention time	$T_{amb} \leqq 55℃$	20	-	-	Year
$N_{endu(W)}$	Write endurance		1000	10000*	-	cycle

*$T_{amb} \leqq 25℃$

5. Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T_{stg}	Storage temperature	-55	+125	℃
T_a	Operating temperature	-40	+85	℃

6. RoHS compliance

This product is compliant with RoHS directive

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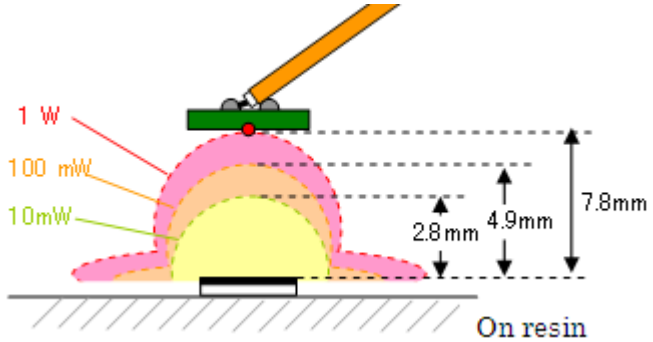
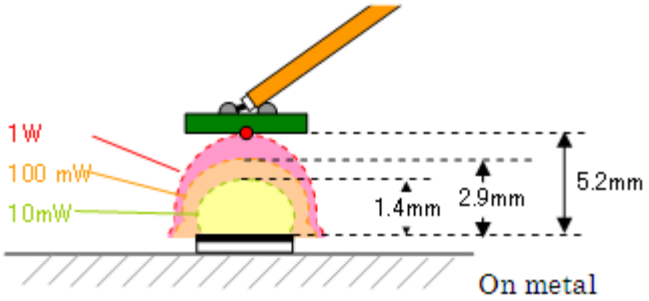
7, Reading range (reference only)

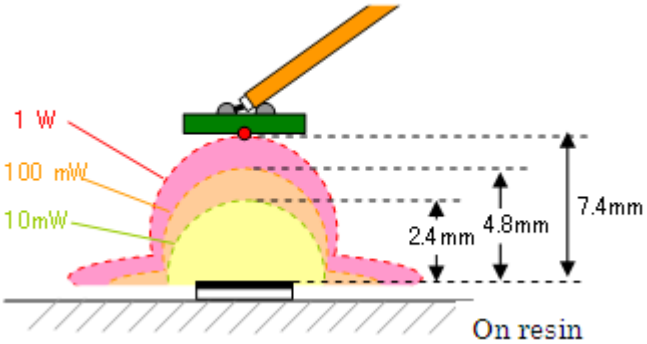
Reading range varies with Output Power of Reader/Writer and reading range hereafter is measured with matched Reader/Writer antenna in 4-3.

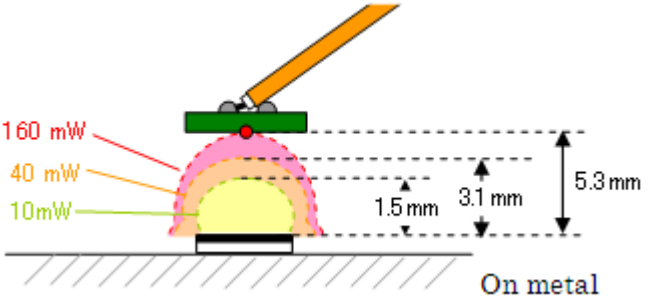
7-1. EU band





7-2. US band





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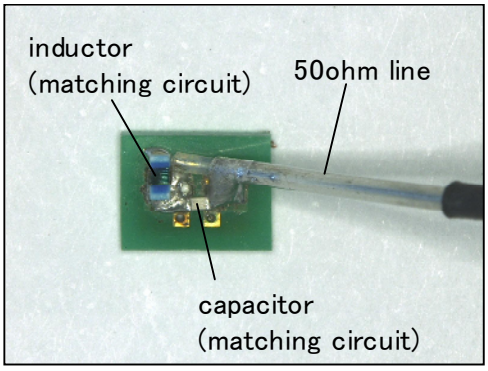
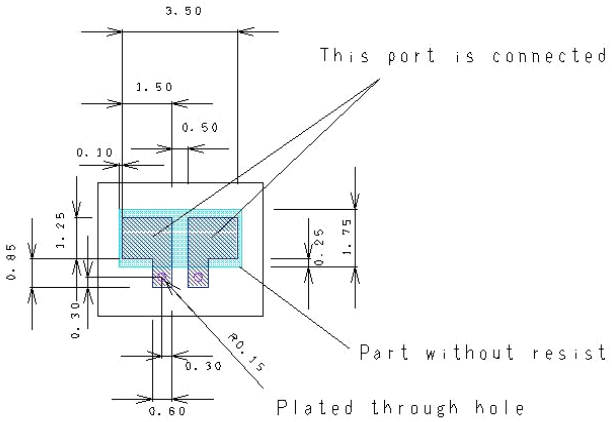
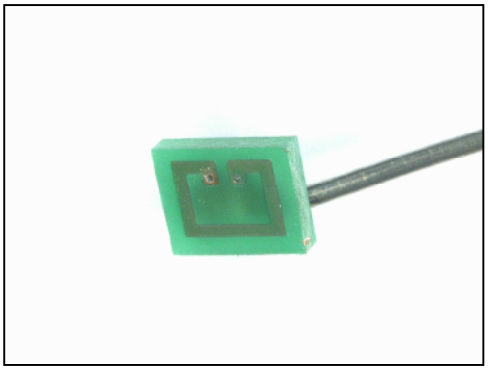
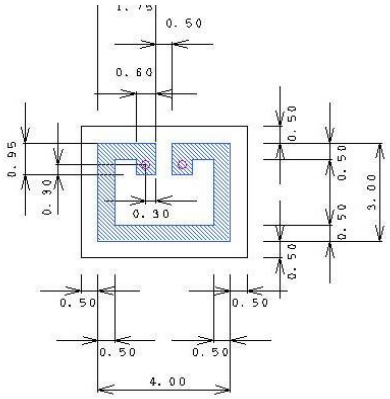
7-3. Reference design of reader/writer antenna

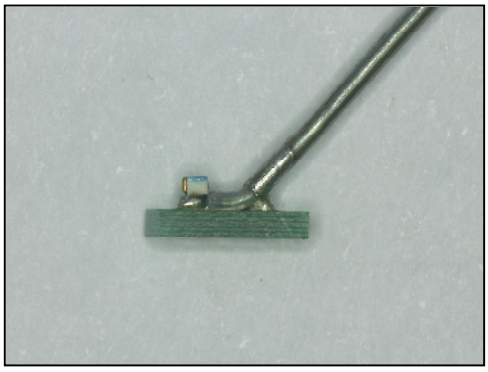
7-3-1. Dimension

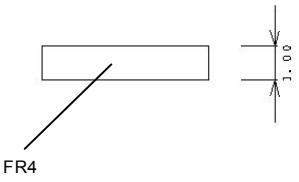












[mm]

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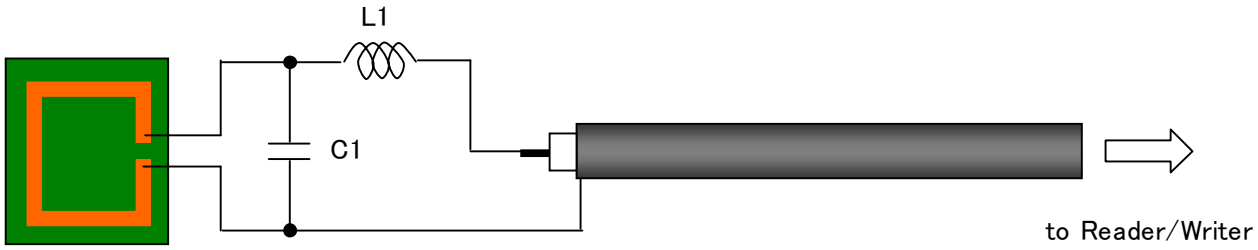
7-3-2. Matching circuit



Frequency	C1	L1
866.5MHz EU	6.8pF	39nH
915MHz US	6.0pF	39nH

Above C1 & L1 are just for references. In actual setting, these values are recommended to be adjusted according to actual antenna characteristics. The best tuning balance will show the minimum return from antenna.

7-3-3. Demo video

Demo video is available from our Web below:-

http://www.murata.com/products/rfid/demonstration/index.html

8. RoHS compliance

This product is compliant with RoHS directive

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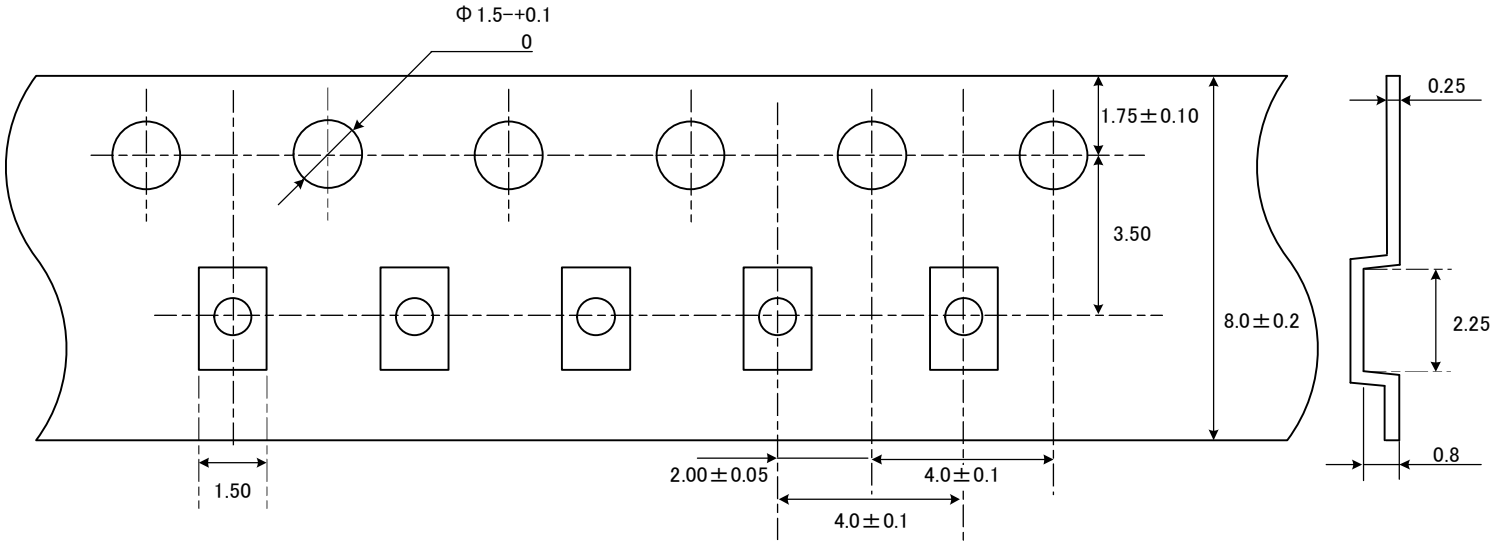
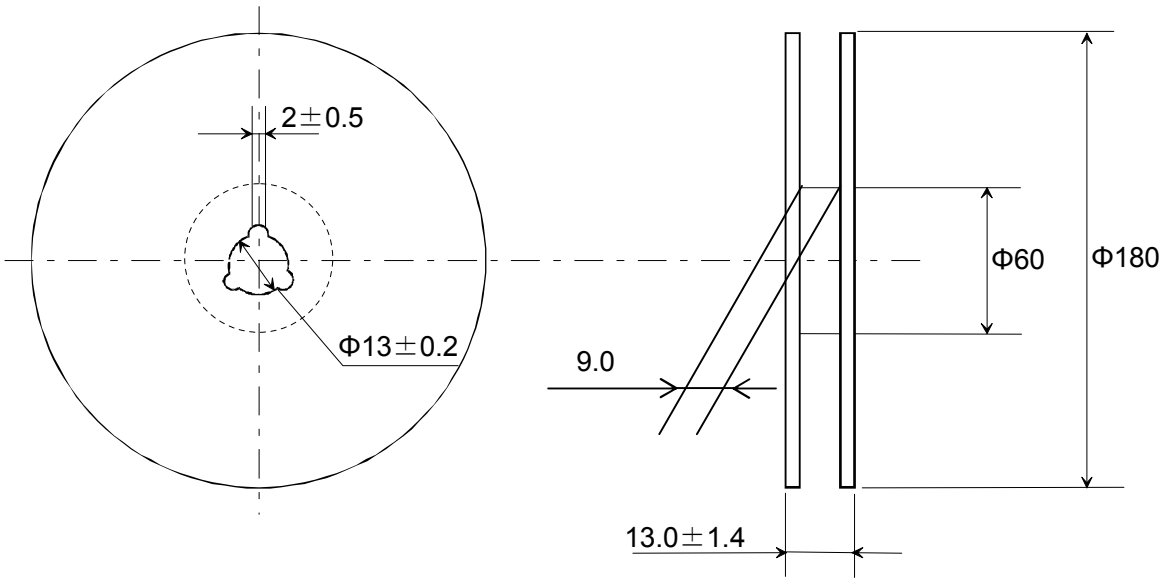
10. Packaging

10-1. Dimensions of tape (plastic tape)



10-2. Dimensions of reel

Unit: mm



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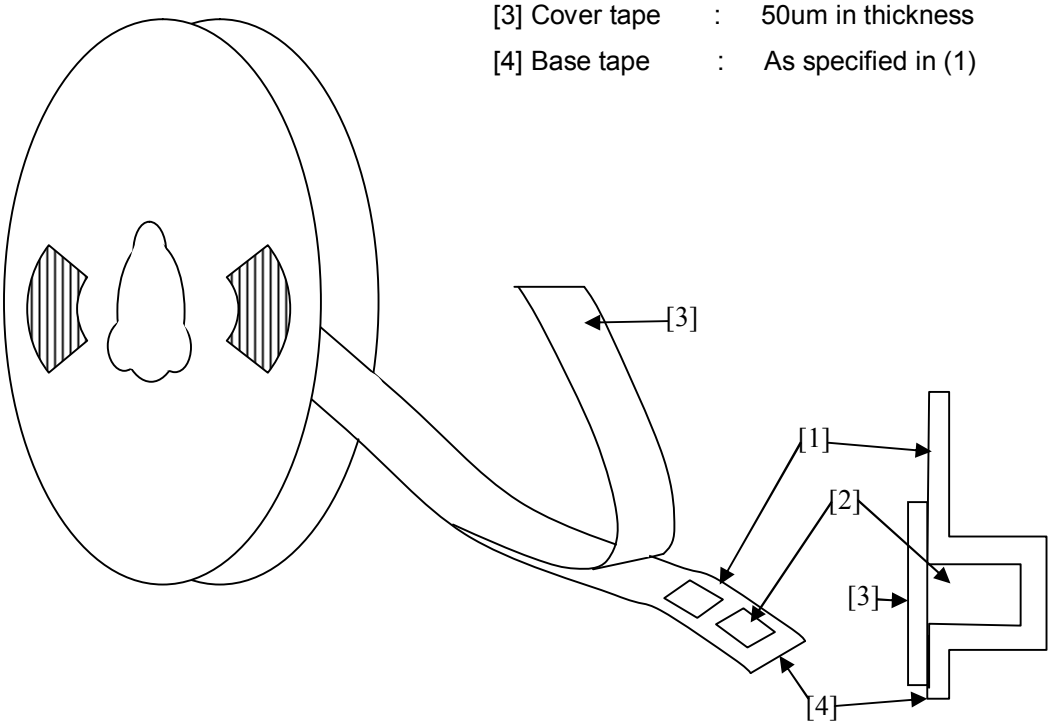
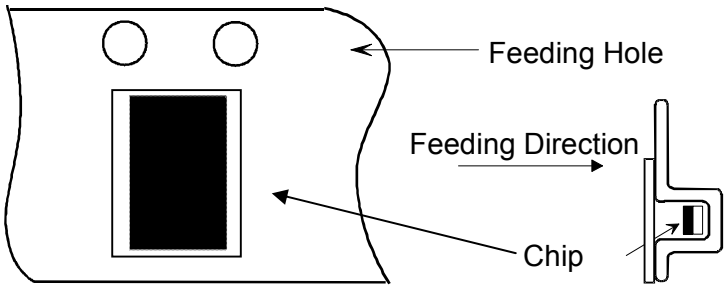
10-3.Taping Diagrams

[1] Feeding Hole : As specified in (1)
[2] Hole for chip : As specified in (1)
[3] Cover tape : 50um in thickness
[4] Base tape : As specified in (1)





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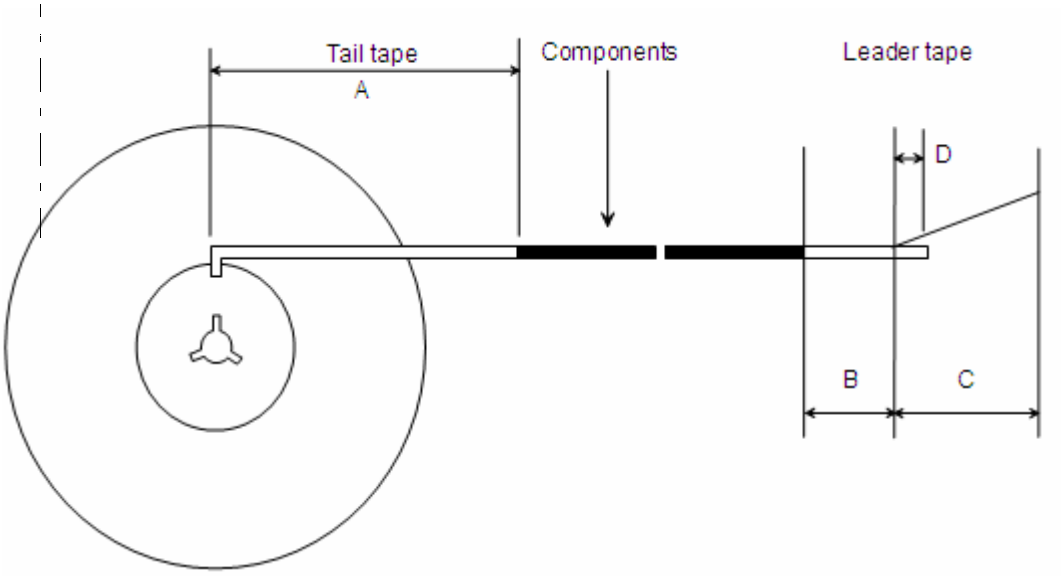
10-4. Leader and Tail tape



[mm]

Tail tape Part	A	No components	160 ~ 190
Leader tape part	B	No components (adhered cover tape)	150 ~ 200
	C	Cover tape part (including D)	250 ~ 300
	D	Not adhered cover tape	20 ~ 40

10-5. Taping direction

The tape for chips are wound clockwise, the feeding holes to the right side as the tape is pulled toward the user.

10-6. Quantity per reel

5,000pcs

10-7. Minimum order quantity

5,000pcs

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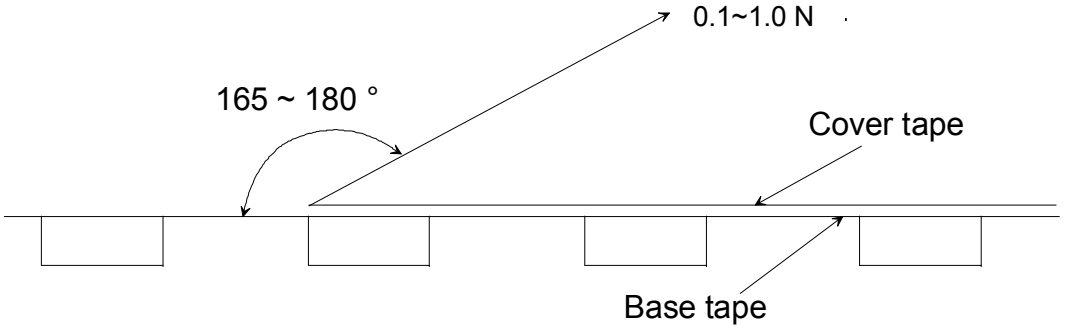
10-9. Peeling force

0.1~1.0 N in the direction of peeling as shown below.



11. Contact window / the latest data about MAGICSTRAP®

Email : magicstrap@ml.murata.co.jp
URL : http://www.murata.com/products/rfid/index.html

<Note>
This document is tentative version. The content is under development for improvement and may subject to change without notice. When we submit specification and/or approval sheet, these document should replace this technical data.

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