APPROVAL SHEET

WLFM2012
WLFM2520
Multi-Layer Power Inductors

*Contents in this sheet are subject to change without prior notice.

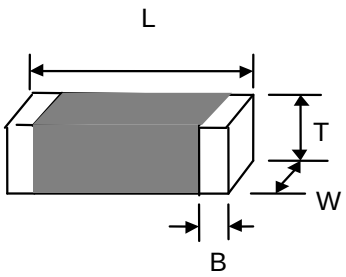
Features

1. General purpose chip ferrite power inductor for high integration electronics device.
2. Ceramic structure provides high reliability、high productivity.
3. Low DC resistance with high current.
4. RoHS compliance.

Applications

1. DC line filter, DC/DC inductor.
2. EMI solution for I/O ports.
3. RF choke for DC power supplying to LNA or external antenna.

Shape and Dimension



Unit: mm (inches)

WLFM Series	L	W	T	B (Min/Max)
WLFM2012	2.0±0.2	1.25±0.2	1.0 ma	0.5±0.3
WLFM2520	2.5±0.2	2.0±0.2	1.0 max	0.5±0.3

Ordering Information

WL	FM	2012	Z0	M	R47	P	B
Product Code WL: Inductor	**Series** Multilayer power inductor.	**Dimensions** 2012:EIA 0805 2520:EIA 1008	**Series Extension** Z0:STD	**Tolerance** M: ± 20%	**Value** R47=0.47uH 2R2=2.2uH	**Packing Code** P=7” Reeled (Embossed tape)	B:STD

Electrical Characteristics

● WLFM2012 series (EIA 0805)

Walsin Part Number	L(uH)	Tolerance	Measuring Frequency (MHz)	RDC (Ω) Max.	Rated Current [A] (max.)
WLFM2012Z0MR47PB	0.47	M	1	0.08	1.2
WLFM2012Z0MR50PB	0.50	M	1	0.08	1.2
WLFM2012Z0M1R0PB	1.0	M	1	0.14	1.0
WLFM2012Z0M1R5PB	1.5	M	1	0.20	0.8
WLFM2012Z0M2R2PB	2.2	M	1	0.20	0.8
WLFM2012Z0M3R3PB	3.3	M	1	0.24	0.7
WLFM2012Z0M4R7PB	4.7	M	1	0.28	0.7

● WLFM2520 series (EIA 1008)

Walsin Part Number	L(uH)	Tolerance	Measuring Frequency (MHz)	RDC (Ω) Max.	Rated Current [A] (max.)
WLFM2520Z0MR47PB	0.47	M	1	0.05	1.80
WLFM2520Z0M1R0PB	1.0	M	1	0.08	1.40
WLFM2520Z0M1R5PB	1.5	M	1	0.09	1.30
WLFM2520Z0M2R2PB	2.2	M	1	0.09	1.30
WLFM2520Z0M3R3PB	3.3	M	1	0.12	1.20
WLFM2520Z0M4R7PB	4.7	M	1	0.15	1.10

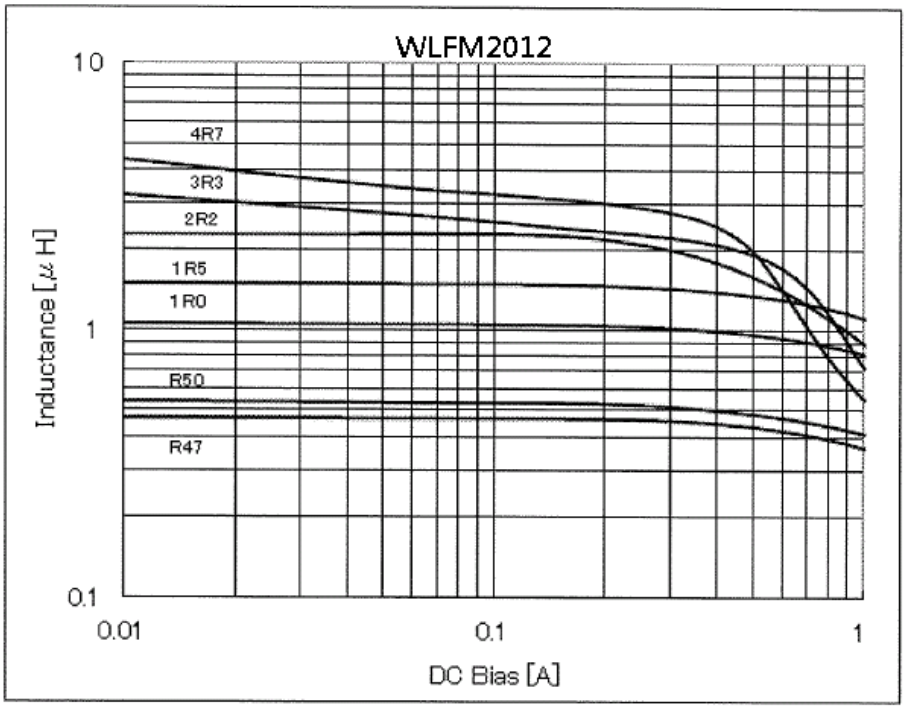
TEST INSTRUMENT：HP4285A

Rated current specifies that self-heat generation is below 40℃during DC loaded.(at 20℃)

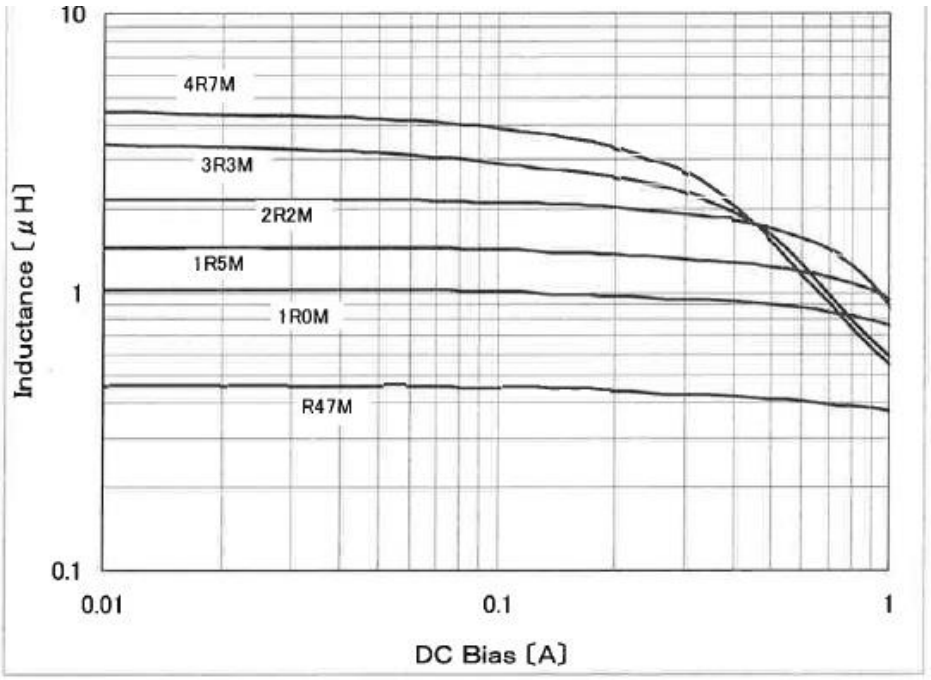
Components shall be used within operating temperature. When inductors are mounted, heat dispersion and product surface temperature (including self heating) change much by land pattern
Therefore inductors shall be used in condition that self heating temperature is within 40℃.
Operating temp: -40℃ to +85℃

DC Bias Current vs Inductance (Typical)：

WLFM2012 series



WLFM2520 series



Test Condition & Requirements (WLFM2012/2520 series)

<table>
<tr><th></th><th>Test Item</th><th>Standard</th><th>Test method</th></tr>
<tr><td rowspan="5">RELIABILITY TEST</td><td>Solderability</td><td>More than 75% of terminal electrode shall be covered with fresh solder.</td><td>Test sample shall be immersed into molten solder under the conditions shown in Table 1 after immersed into flux.
After this, test samples shall be taken out and visually checked.
The speed for immersion and taking out shall be 25 mm/s.

Table 1 (Eutectic solder)
<table><tr><td>Solder temperature</td><td>230℃±5%</td></tr><tr><td>Immersion time</td><td>4s±1s</td></tr></table>
Table 1 (Pb-free solder Sn/3.0Ag/0.5Cu)
<table><tr><td>Solder temperature</td><td>245℃±3%</td></tr><tr><td>Immersion time</td><td>4s±1s</td></tr></table></td></tr>
<tr><td>Resistance to soldering heat</td><td>No mechanical damage.
Remaining terminal electrode: 70% min.
Inductance change rate: Within±30%</td><td>Test sample shall be immersed into molten solder after immersed into flux and preheated under the conditions shown in Table 2.
After this, test samples shall be taken out and measured after kept at room temperature for 2 to 3 hours.(Note 1)
The speed for immersion and taking out shall be 25mm/s.

Table 2
<table><tr><td>Preheating</td><td>150 to 180℃
2 to 3min.</td></tr><tr><td>Resistance to soldering heat</td><td>260℃±5℃</td></tr><tr><td>Immersion time</td><td>10s±0.5s</td></tr></table></td></tr>
<tr><td>Thermal shock</td><td>No mechanical damage.
Inductance change rate: Within±30%</td><td>Steps 1 to4 shown in Table 3 as one cycle shall be repeated 5 times.
After the test, keep the test sample at a normal temperature with a normal humidity for 2 to3 hours, then measurement shall be conducted. (Note 1)

Table 3
<table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>-40℃±3℃</td><td>30min.±3min.</td></tr><tr><td>2</td><td>Normal temp</td><td>2min. to 3min.</td></tr><tr><td>3</td><td>+80℃±2℃</td><td>30min.±3min.</td></tr><tr><td>4</td><td>Normal temp</td><td>2min. to 3min.</td></tr></table></td></tr>
<tr><td>Resistance to humidity</td><td>No mechanical damage.
Inductance change rate: Within±30%</td><td>Test board shall be kept in a thermo hygrostat with temperature of 40℃±2℃ and relative humidity of 90% to 95% for 500+24/-0 hours.
After the test, keep the test sample at a normal temperature with a normal humidity for 2 to 3 hours, then measurement shall be conducted. (Note 1)</td></tr>
<tr><td>High temperature load life test.</td><td>No mechanical damage.
Inductance change rate: Within±30%</td><td>Test board shall be kept in a thermostatic oven with temperature of 85℃±2℃ and the rated current shall be continuously applied for 500+24/-0 hours.
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<tr><td>Thermal shock</td><td>No mechanical damage.
Inductance change rate: Within±30%</td><td>Steps 1 to4 shown in Table 3 as one cycle shall be repeated 5 times.
After the test, keep the test sample at a normal temperature with a normal humidity for 2 to3 hours, then measurement shall be conducted. (Note 1)

Table 3<table><tr><th>Step</th><th>Temperature</th><th>Time</th></tr><tr><td>1</td><td>-40℃±3℃</td><td>30min.±3min.</td></tr><tr><td>2</td><td>Normal temp</td><td>2min. to 3min.</td></tr><tr><td>3</td><td>+80℃±3℃</td><td>30min.±3min.</td></tr><tr><td>4</td><td>Normal temp</td><td>2min. to 3min.</td></tr></table></td></tr>
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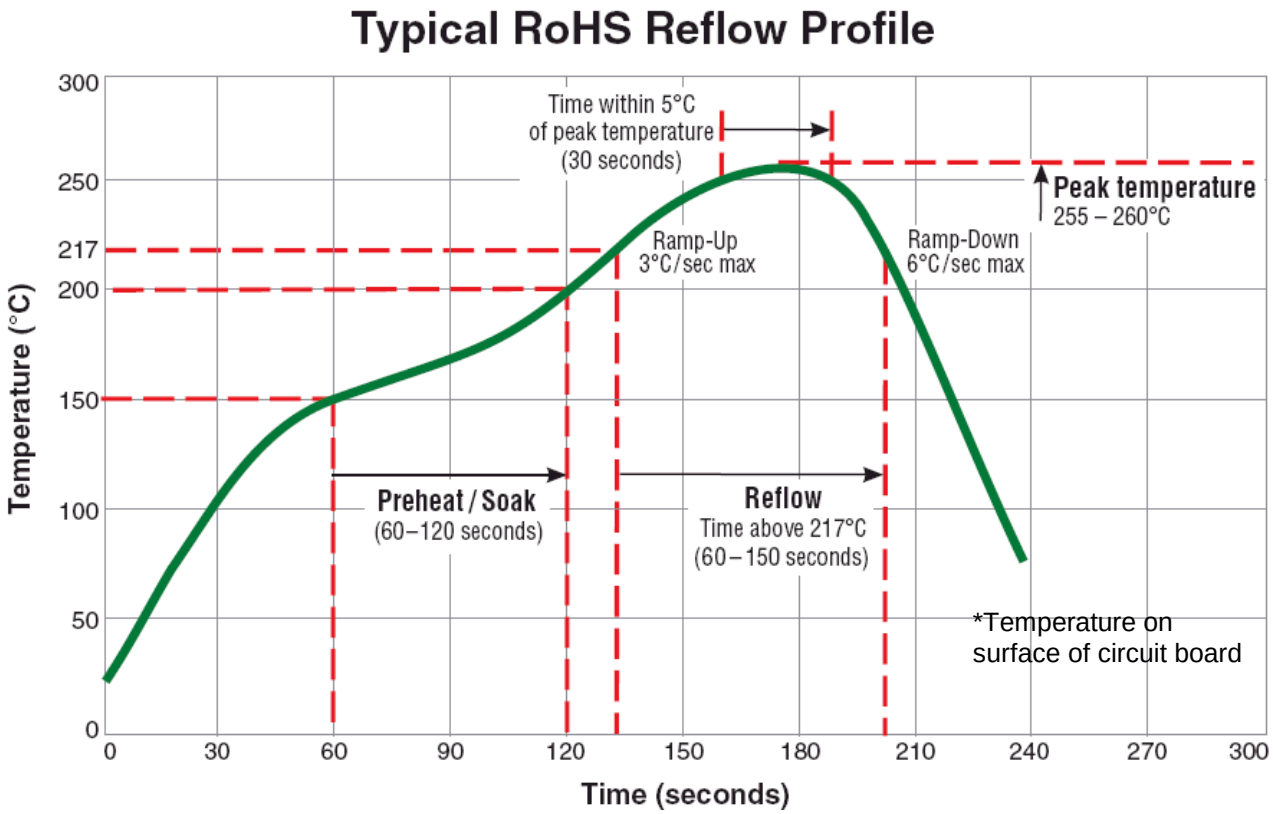
</table>

(Note 1) If a question is found in the result of measurement, another measurement shall be conducted after test samples shall be kept for 48±2 hours.

Reflow Profile Chart (Reference)

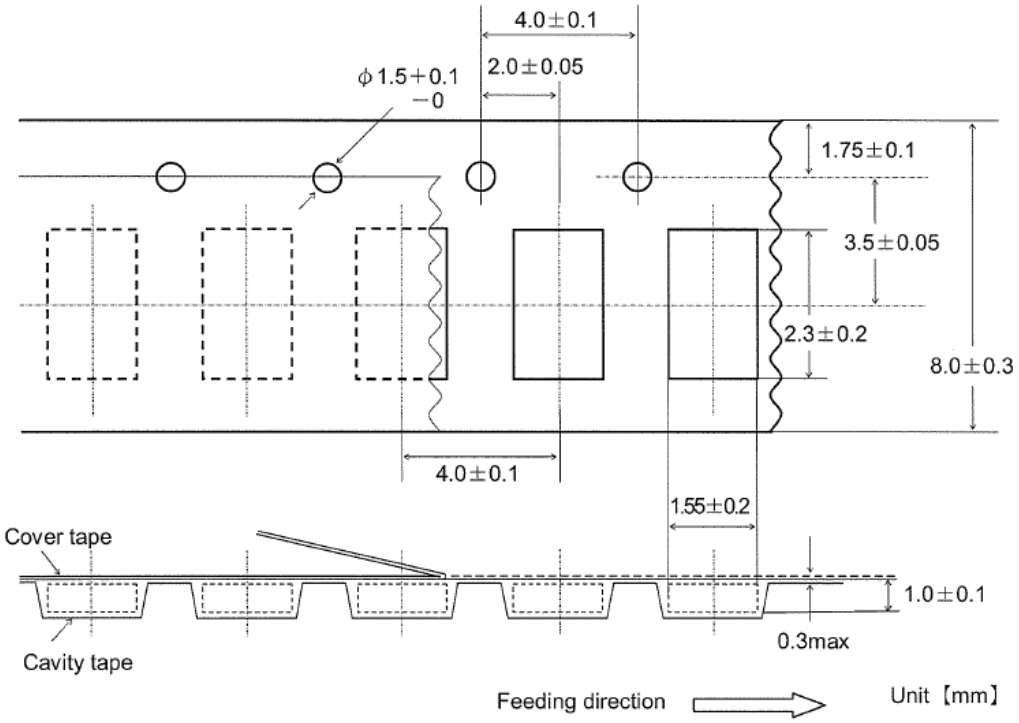


The products may be exposed to reflow soldering process of above profile up to two times.

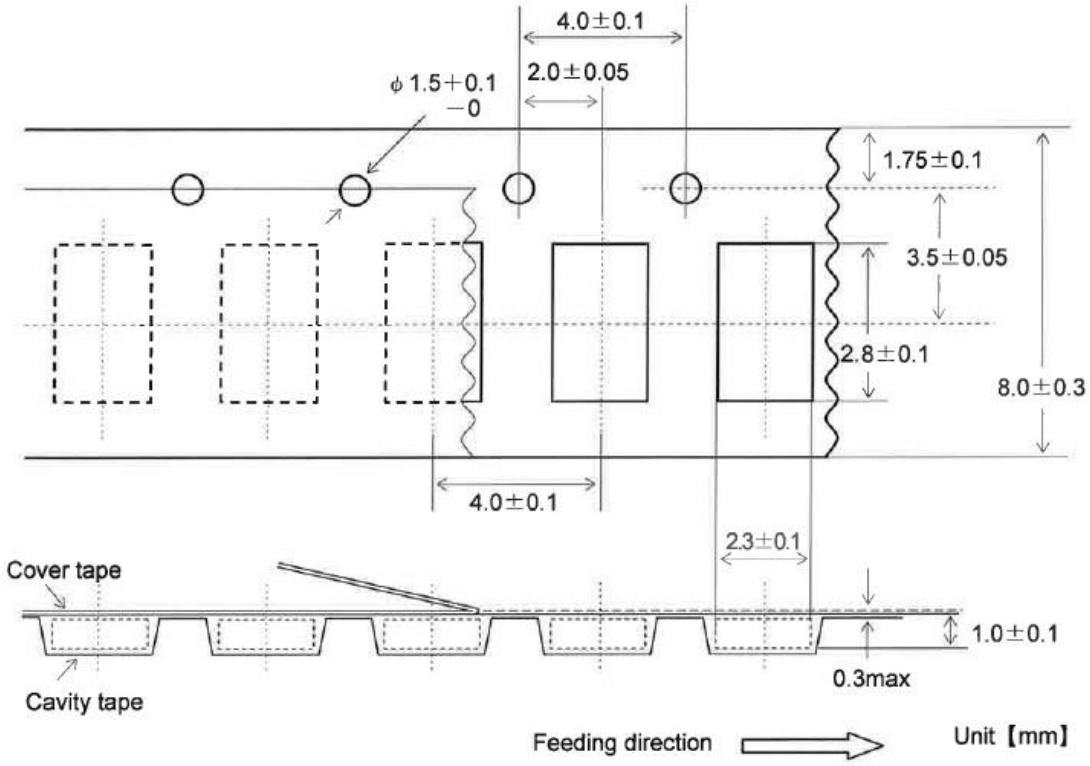
Packaging Specification

External Dimension of Plastics Tape

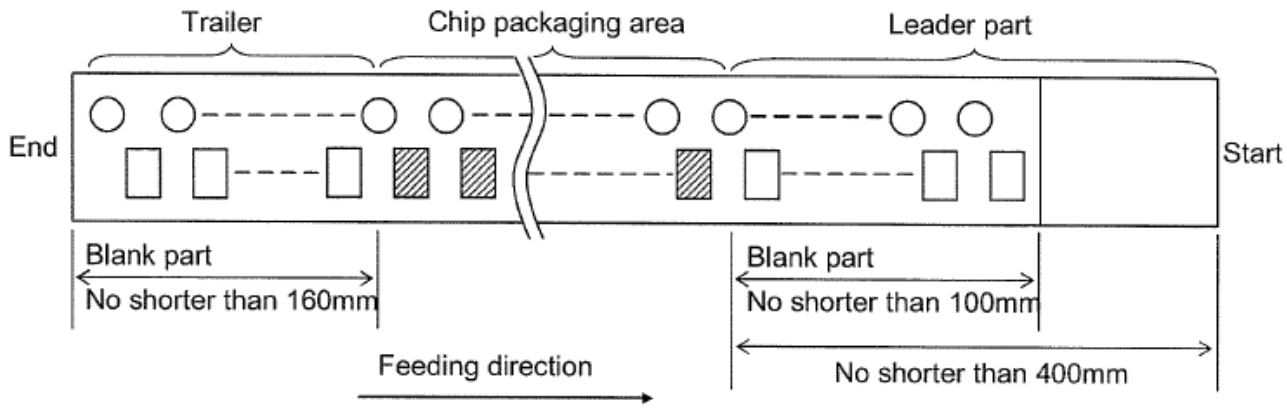
WLFM2012



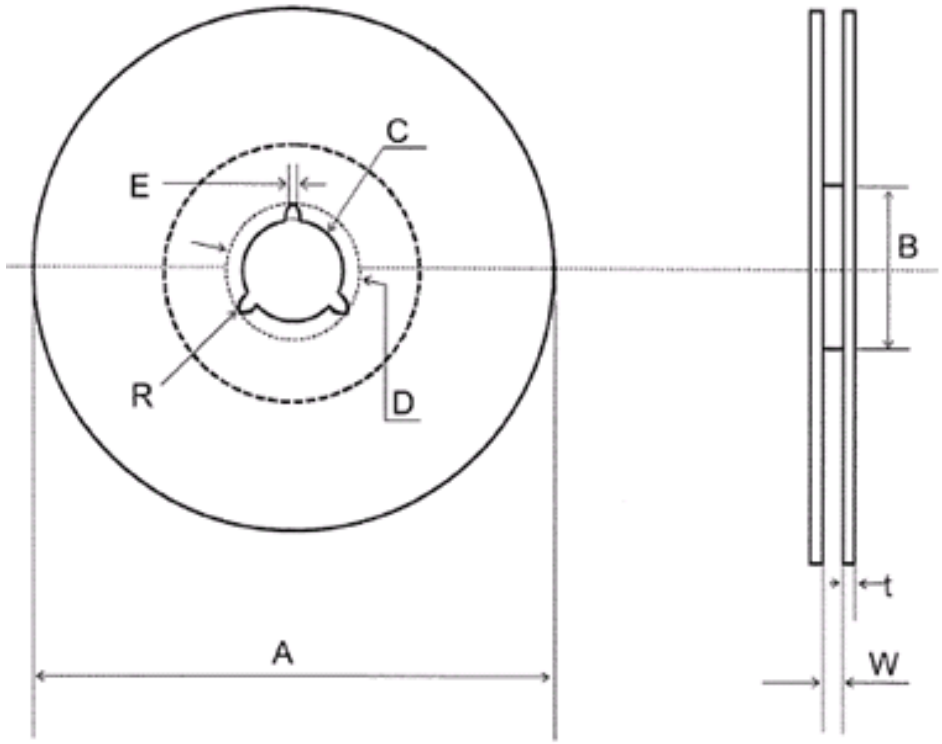
WLFM2520



Packaging



Reel



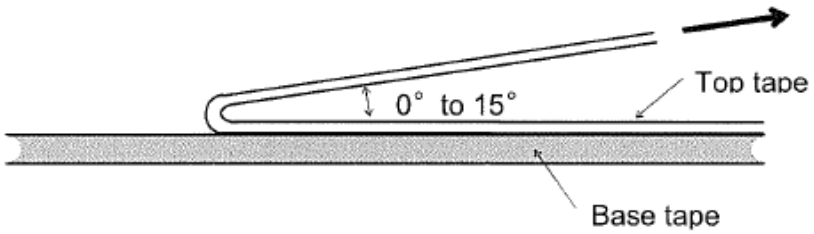
Code	ϕA	ϕB	ϕC	ϕD
Dimension	178±2.0	50 min	13±0.2	21±0.8

Code	E	W	t	R
Dimension	2.0±0.5	10±1.5	2.5 max	1.0

Unit【mm】

Top tape strength

Top tape requires peeling strength of 0.1N to 0.7N in the arrow direction as shown below.



Quantity per reel

WLFM2012：3K pcs/reel
WLFM2520：3K pcs/reel