REVISION					
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
A0	Initial Release	2019/04/29	Lemon	Bowen	Darren
A1	Add 2R2 Spec 100: Idc 8.7→7.8 Isat 11.5→10.9 150: Idc 7.6→6.8 Isat 8.8→7.9 220: Idc 6.0→5.4 330: Idc 4.8→4.3 470: Idc 4.1→3.6	2025/08/21	Kalyn	WangKai	Darren
A2	Add 4R7 Spec Marking: Ink→Laser	2025/10/14	Kalyn	WangKai	Darren

High Current, Power Inductors

MAWH-1054-XXX-M-5A Power Choke

Description

- AEC-Q200 qualified
- Halogen Free
- 155°C maximum total temperature operation
- 11.5x10.3x 5.4mm maximum surface mount package
- Magnetically shielded, low EMI
- High current carrying capacity, Low core losses
- RoHS compliant

Applications

- Automotive applications

Environmental Data

- Storage temperature range: -55°C to +155°C
- Operating temperature range: -55°C to +155°C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 compliant

Description		
MAWH-1054-150-M-5A	15.0μH	±20%
Model	Inductance Value	Inductance Tolerance

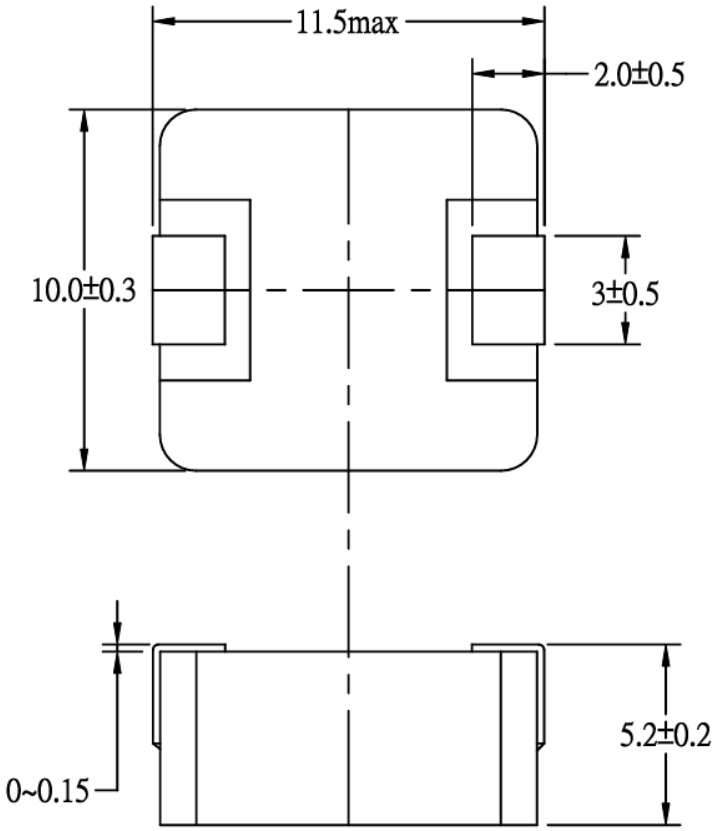
Global Part Number										
M	A	W	H	1	0	5	4	1	5	0	M	5A
Product Series				Dimensions				Inductance Value			Tolerance	155°C

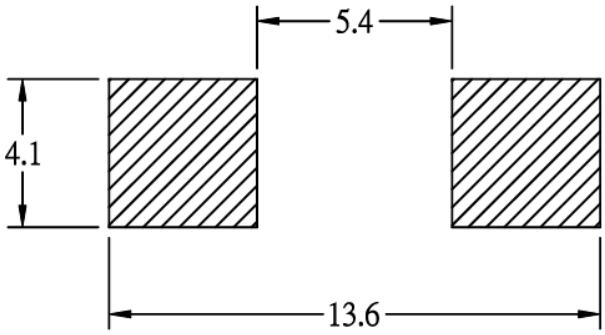
Part No.	Inductance	DC Resistance		Heating Rating Current	Saturation Current
	L0 (μH)	DCR (mΩ)		Idc (A)	Isat (A)
	±20%, 100kHz, 1V	TYP.	MAX.	TYP.	TYP.
MAWH-1054-2R2-M-5A	2.2	4.1	4.9	20.7	21.4
MAWH-1054-4R7-M-5A	4.7	8.3	10.0	13.0	13.5
MAWH-1054-100-M-5A	10.0	21.0	24.2	7.8	10.9
MAWH-1054-150-M-5A	15.0	27.2	31.3	6.8	7.9
MAWH-1054-220-M-5A	22.0	43.5	50.0	5.4	6.8
MAWH-1054-330-M-5A	33.0	65.5	75.3	4.3	4.8
MAWH-1054-470-M-5A	47.0	89.0	103.0	3.6	4.2

Notes

1. All test data is referenced to 25°C ambient
2. Operating temperature range - 55 °C to + 155°C
3. Idc(A): DC current (A) that will cause an approximate ΔT of 40°C (reference ambient temperature is 25°C)
4. Isat(A): DC current (A) that will cause L0 to drop approximately 30%
5. The part temperature (ambient + temp rise) should not exceed 155°C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

• Dimensions-mm





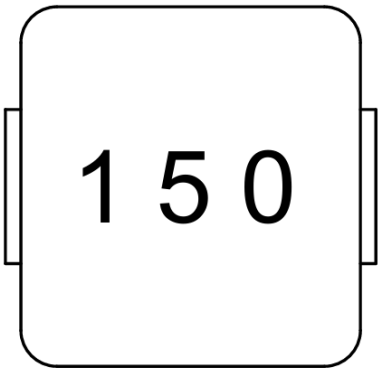
Recommend Land Pattern Dimensions

• Marking

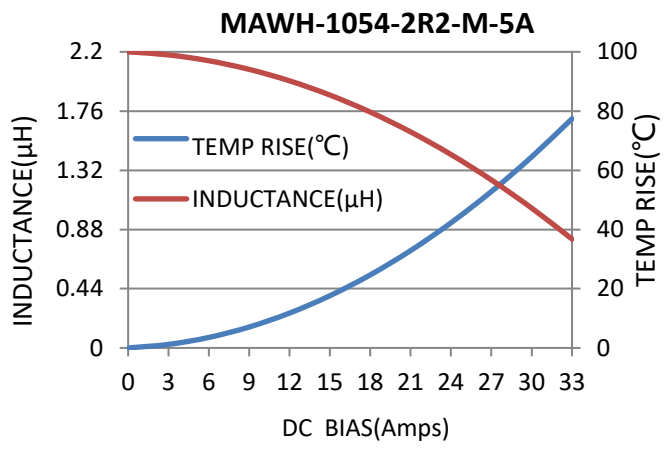
The inductor is marked with a 3-digit code

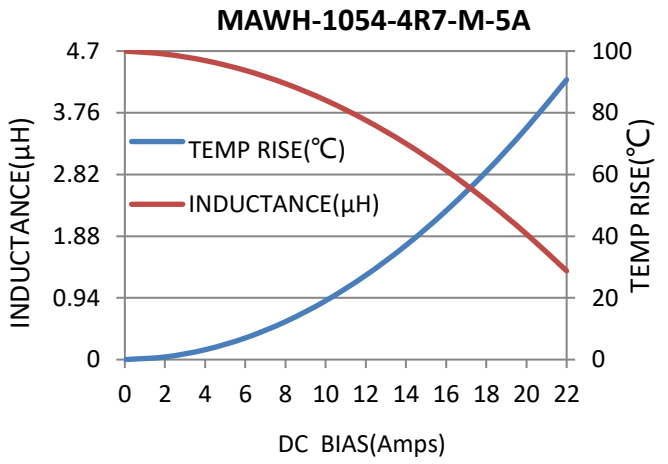
Example - -15.0→150

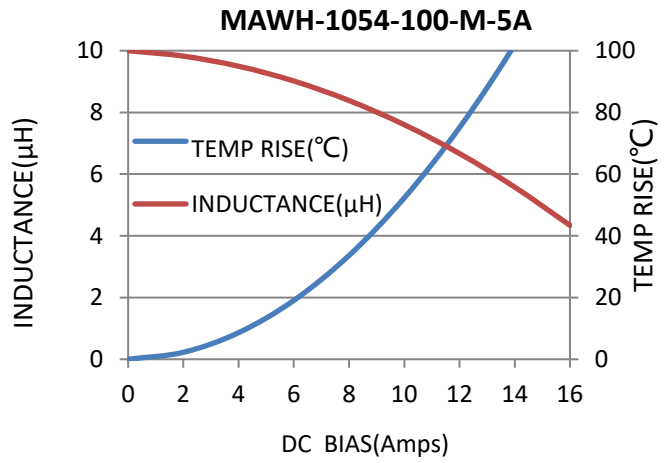
Note: Using Laser for marking

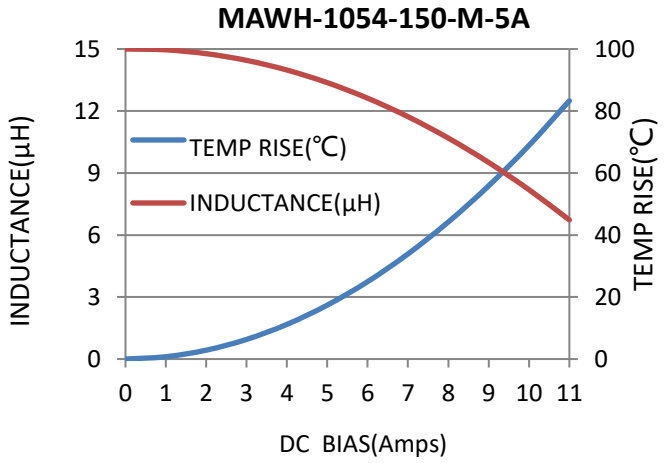


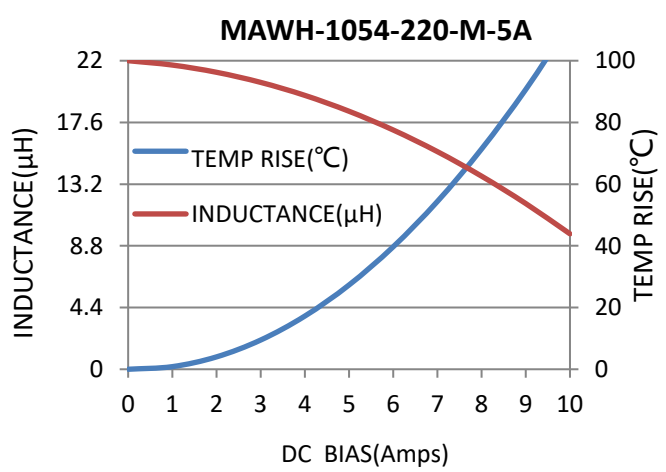
Test Instruments	Test Condition
Wayne kerr 3260B/G LCR Meter Wayne kerr 3265B Bias Current Source	Temperature: 26 ± 3°C Humidity: < 70% RH Frequency: 100kHz, 1.0V

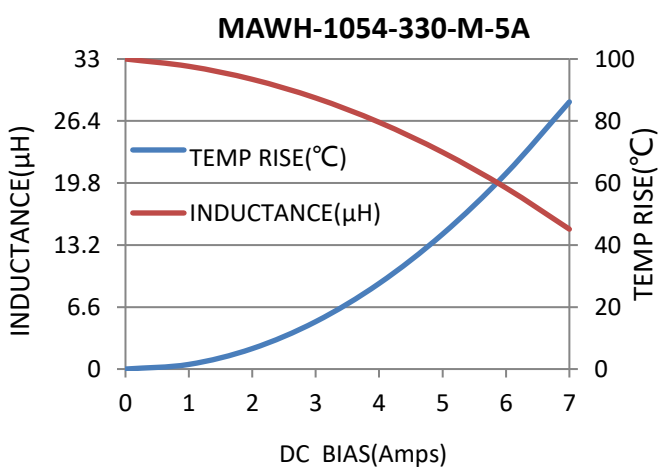


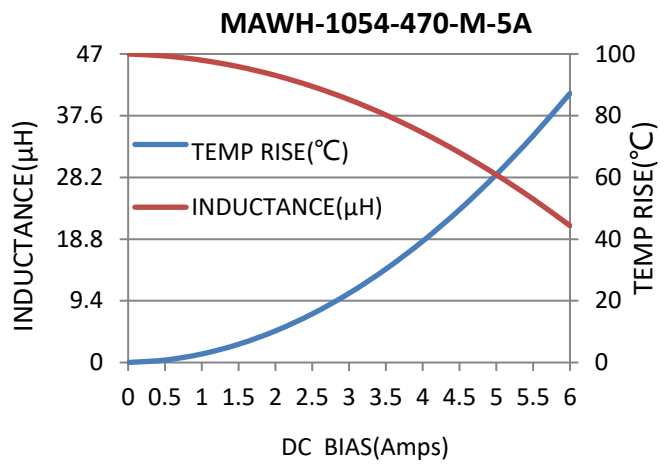











MAWH-1054-470-M-5A
47
37.6
28.2
18.8
9.4
0
100
80
60
40
20
0
TEMP RISE(℃)
INDUCTANCE(μH)
INDUCTANCE(μH)
TEMP RISE(℃)
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6
DC BIAS(Amps)

• **Solder Reflow Profile**

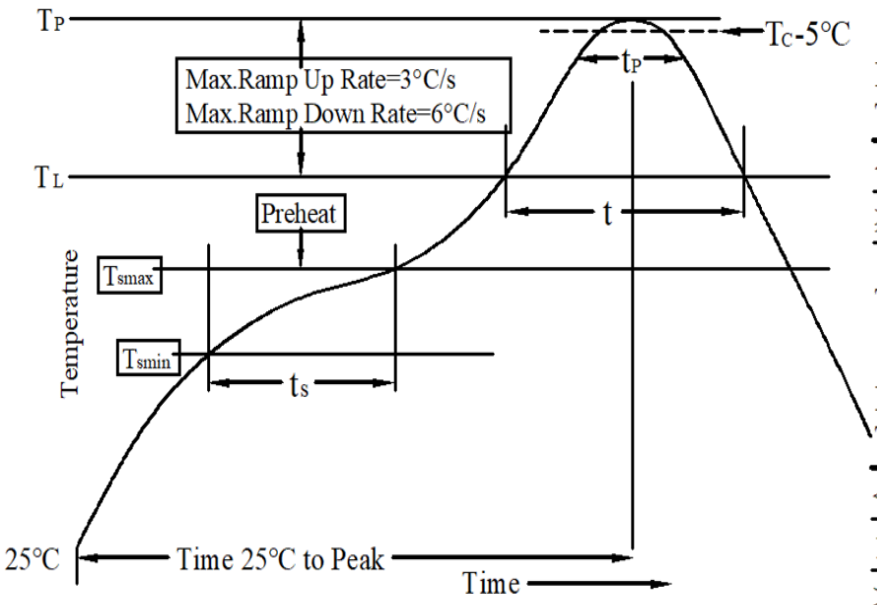


Table 1-Standard SnPb Solder(T_C)

Package Thickness	Volume mm³ <350	Volume mm³ <350
<2.5mm	235°C	220°C
⩾2.5mm	220°C	220°C

Table 2-Lead(Pb) Free Solder(T_C)

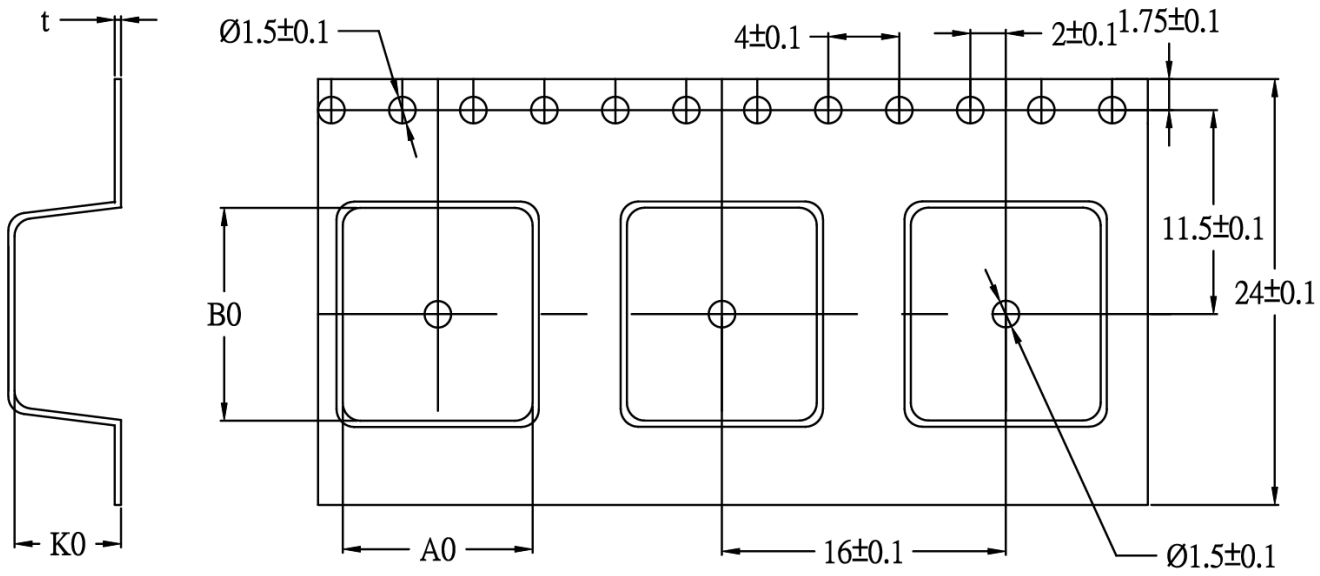
Package Thickness	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >2000
<1.6mm	260°C	260°C	260°C
1.6-2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference JDEC J-STD-020

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. (Tsmin)	100°C	150°C
	• Temperature max.(Tsmax)	150°C	200°C
	• Time (Tsmin to Tsmax)(t_S)	60-120 Seconds	60-120 Seconds
Average ramp up rate Tsmax to Tp		3°C/Second Max.	3°C/Second Max.
Liquidous temperature (T_L) Time at liquidous(t_L)		183°C 60-150 Seconds	217°C 60-150 Seconds
Peak package body temperaure (T_P)*		Table 1	Table 2
Time (t_p)** within 5°C of the specified classification temperature(T_C)		20 Seconds**	30 Seconds**
Average ramp-down rate (T_P to Tsmax)		6°C/Second Max.	6°C/Second Max.
Time 25°C to Peak Temperature		6 Minutes Max.	8 Minutes Max.

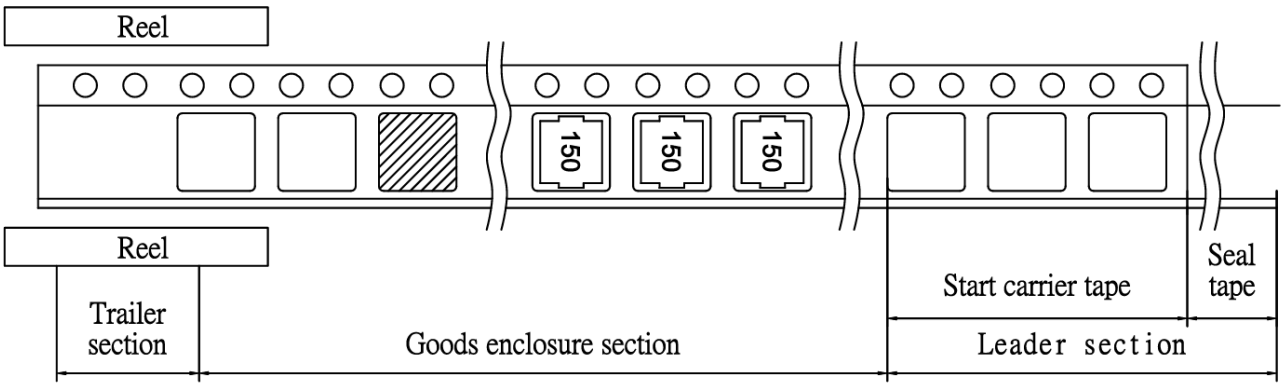
* Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.
** Tolerance for time at peak profile temperature (tp) is defined as a spplier minimum and a user maximum.

Tape Packaging Dimensions



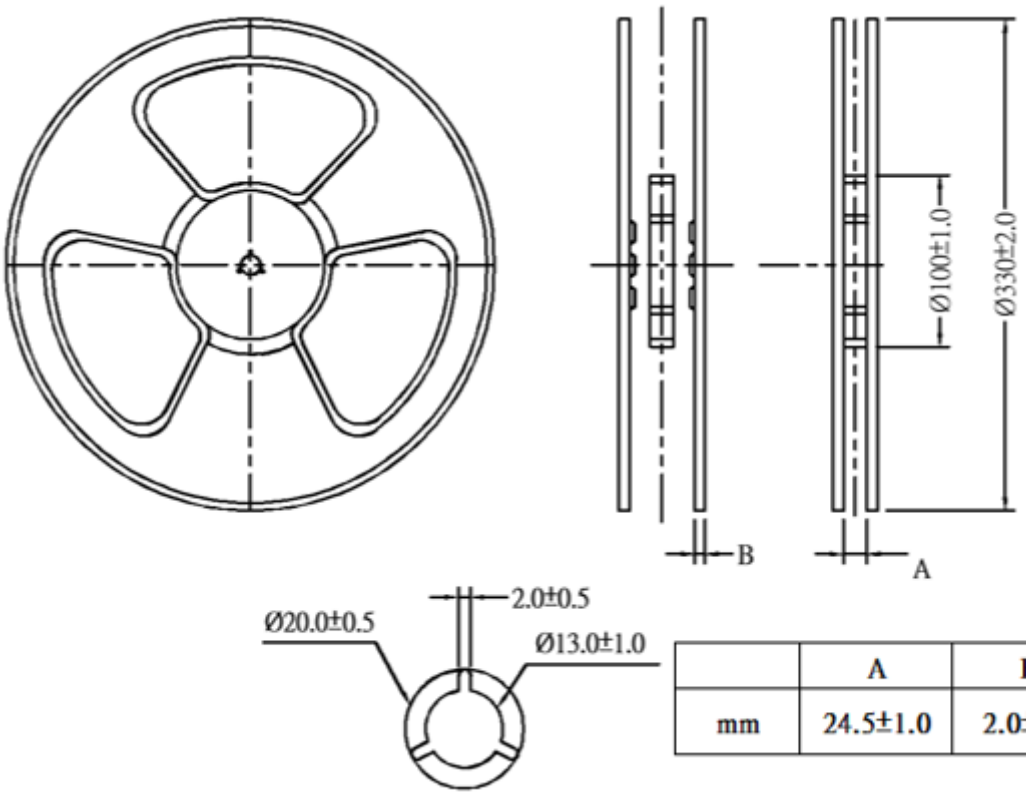
A0	B0	K0	t
10.7 ± 0.10	12.0 ± 0.10	5.5 ± 0.1	0.35 ± 0.025

Taping dimension and tape direction,Leader, Trailer, section dimension



Leader section	Min.400mm
Carrier tape start size	Min.100mm
Trailer seetion size	Min.160mm

Reel Dimensions-mm

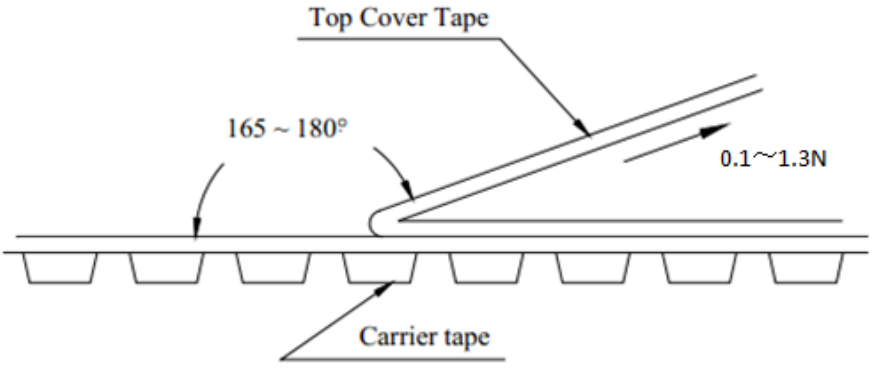


	A	B
mm	24.5±1.0	2.0±0.2

• Peel force of top cover tape

The peel speed shall be about 300mm/minute

The peel force of top cover tape shall be between 0.1 to 1.3 N



• Numbers of taping

500pieces/reel