



REVISION					
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
A0	Initial Release	2023/05/25	Nina	Pool	Darren
A1	Add 1R0 Spec	2024/05/29	Nina	Pool	Darren
A2	Add 1R5 Spec	2024/11/25	Nina	Pool	Darren
A3	Add R24,R47 Spec	2025/09/15	Nina	Pool	Darren
A4	Add R33 Spec	2026/01/14	Nina	Pool	Darren

High Current, Power Inductors

MATB-201610-XXX-M-5A Power Choke



Description

- AEC-Q200 qualified
- Halogen Free
- 155°C maximum total temperature operation
- 2.2 x 1.8 x 1.0mm 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														
MATB-201610-R24-M-5A						0.24μH			±20 %					
Model						Inductance Value			Inductance Tolerance					
Global Part Number														
M	A	T	B	2	0	1	6	1	0	R	2	4	M	5A
Product Series				Dimensions						Inductance Value			Tolerance	Automotive



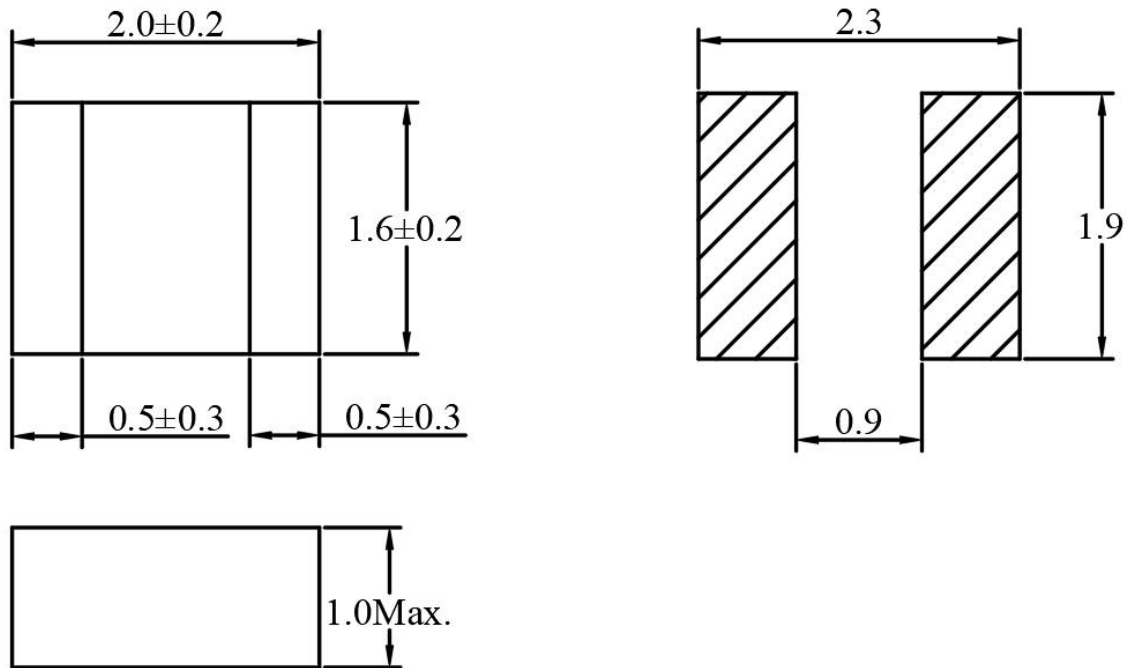
昆山玛冀电子有限公司

Part No.	Inductance	DC Resistance		Heating Rating Current		Saturation Current	
	L0 (μH)	DCR (mΩ)		Idc (A)		Isat (A)	
	±20 %, 1MHz, 1V	TYP.	MAX.	TYP.	MAX.	TYP.	MAX.
MATB-201610-R24-M-5A	0.24	20.0	25.0	5.5	5.0	7.2	6.3
MATB-201610-R33-M-5A	0.33	23.0	28.0	5.0	4.5	6.5	5.7
MATB-201610-R47-M-5A	0.47	26.0	32.0	4.6	4.0	5.3	4.8
MATB-201610-1R0-M-5A	1.0	62.0	69.0	2.6	2.4	2.9	2.7
MATB-201610-1R5-M-5A	1.5	98.0	110.0	2.3	2.2	2.5	2.4
MATB-201610-2R2-M-5A	2.2	115.0	138.0	2.1	1.9	2.3	2.1

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.

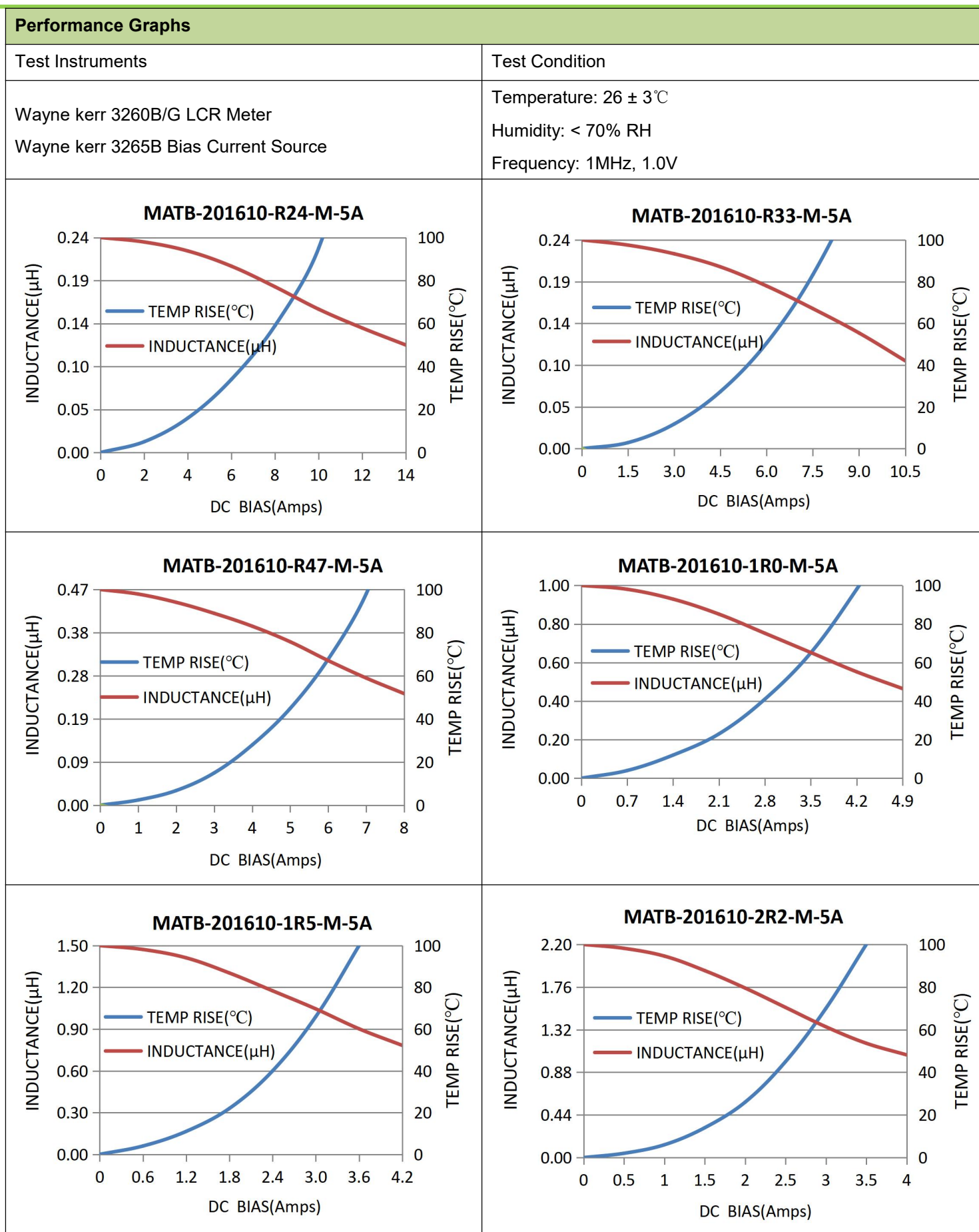
•Dimensions-mm



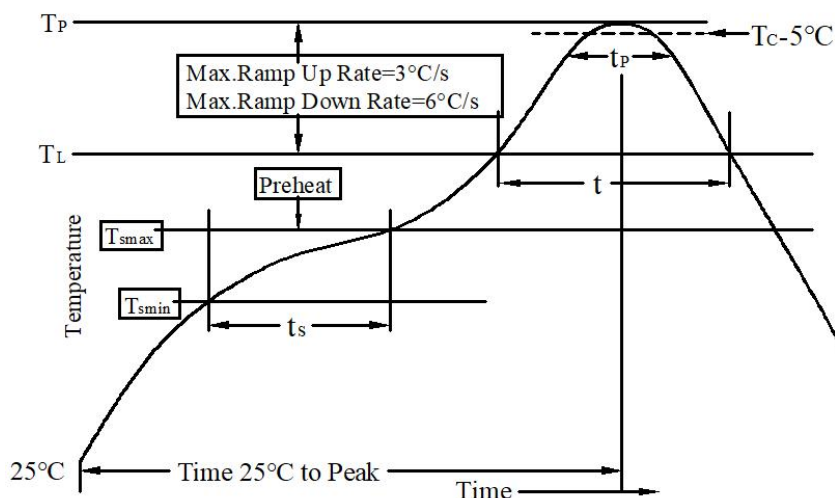
Notes

1. Tolerances are ± 0.1 millimeters unless stated otherwise
2. Dimensions of recommended PCB layout are reference only.
3. Do not route traces nor place vias underneath the inductor. Proper layout is required.

• NO Marking



• Solder Reflow Profile


Table 1-Standard SnPb Solder(T_C)

Package Thickness	Volume mm^3 <350	Volume mm^3 <350
<2.5mm	235°C	220°C
$\geq 2.5mm$	220°C	220°C

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

Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >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

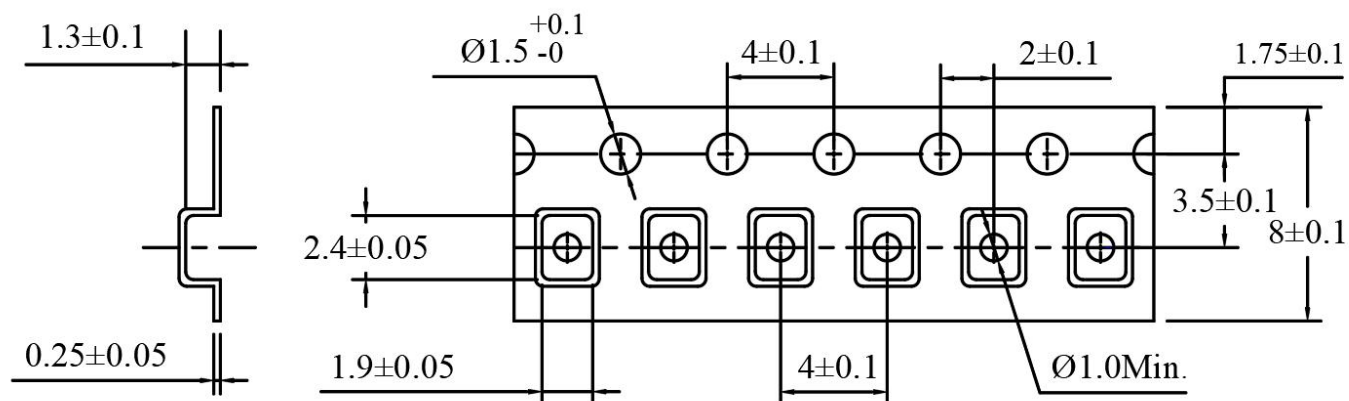
Reference JDEC J-STD-020

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak		
• Temperature min. (T_{smin})	100°C	150°C
• Temperature max. (T_{smax})	150°C	200°C
• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_P	3°C/Second Max.	3°C/Second Max.
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60-150 Seconds	60-150 Seconds
Peak package body temperature (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 T_{smax})	6°C/Second Max.	6°C/Second Max.
Time 25°C to Peak Temperature	6 Minutes Max.	8 Minutes Max.

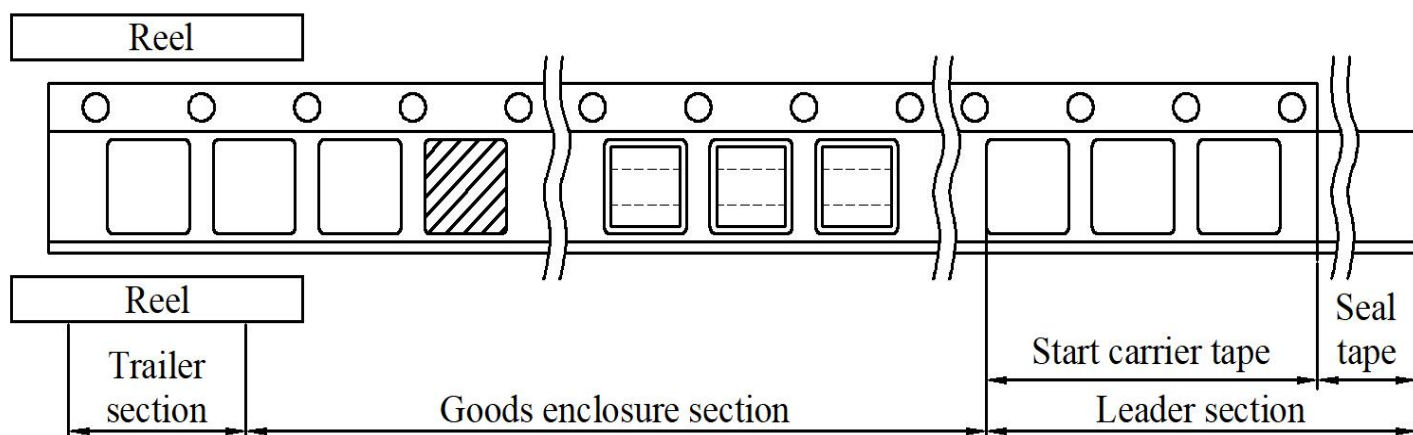
* Tolerance for peak profile temperature (T_P) is defined as a supplier minimum and a user maximum.

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

Tape Packaging Dimensions-mm

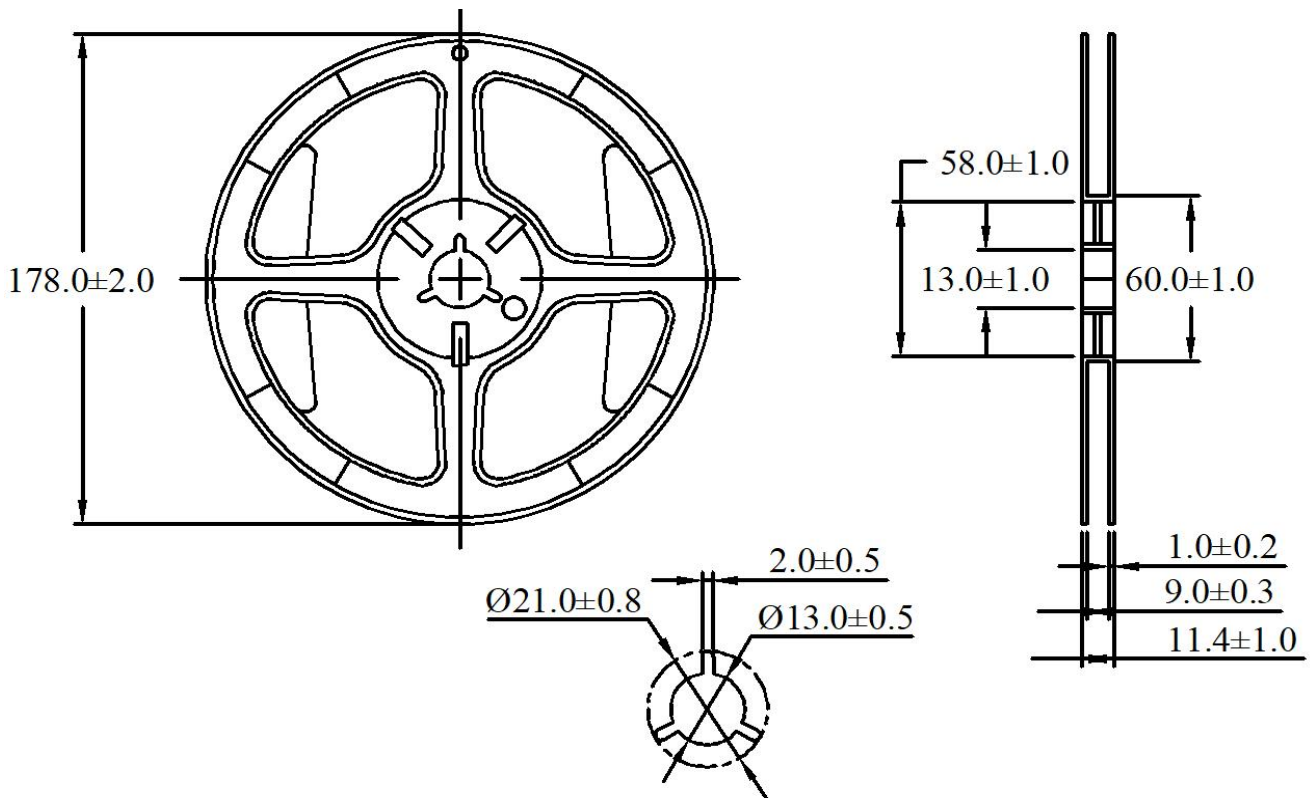


Taping dimension and tape direction,Leader ,Trailer,section dimension



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

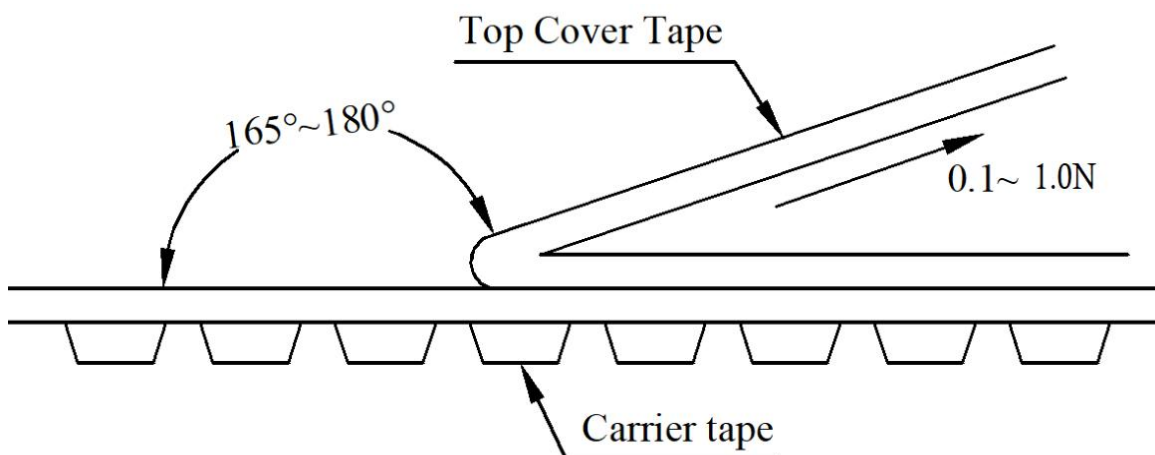
Reel Dimensions-mm



• 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 1.0 N



• Numbers of taping

3000pieces/reel