Product Identification

GMPA - 252005 - R33 M A1

① ② ③ ④ ⑤

① : Product Code

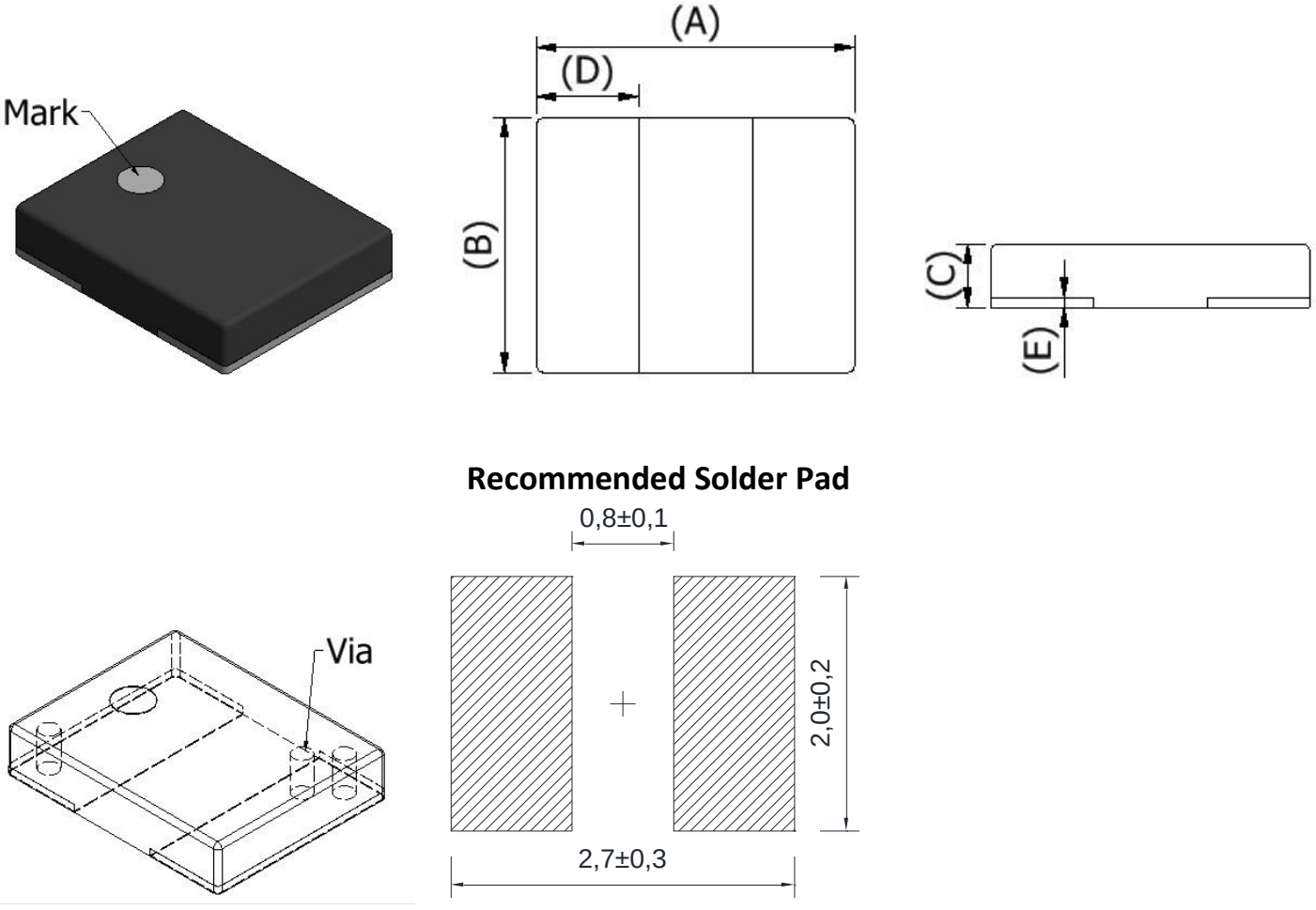
② : Dimension Code (mm)

③ : Inductance

④ : Tolerance Code :N = ±30%,M = ±20%

⑤ : Code for Special Specification

Product Dimension



(Unit : mm)

A	B	C	D	E
2.5 ± 0.2	2.0 ± 0.2	0.5 max.	0.8 ± 0.2	0.1 max.

Electrical Characteristics

Part Number	Inductance @ 1MHz	DC Resistance	Saturation Current*@typ.	Rated Current**@typ.
GMPA-252005-R33MA1	0.33µH ± 20%	0.06Ω Max.	1400mA	2800mA
GMPA-252005-R47MA1	0.47µH ± 20%	0.14Ω Max.	1100mA	2100mA

* Inductance change should be less than ±30% when rated current is applied.
**Temperature rise should be less than 40℃.

Test Conditions

Unless otherwise specified, the measuring conditions temperature shall be 5~35℃, the relative humidity RH shall be 45~85%.

Electrical Characteristics Measuring Condition

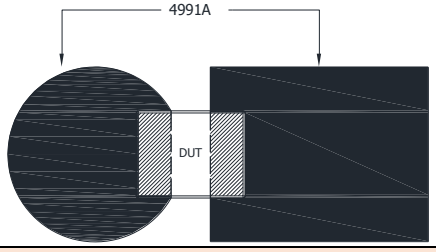
Impedance

Equipment：Agilent E4991A + 16197A Test Fixture or equivalent system

Inductance

Set the OSC 0.5mA @ 1MHz.

Place the DUT on test fixture and measure Ls value.



IDC

Equipment：Agilent 4285A + 42841A or equivalent system

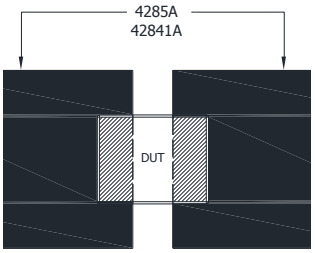
Set the OSC 0.5mA @ 1MHz.

Measure the initial inductance in the above circuit when IDC=0.

Rated current will be determined by the current which makes the inductance change to 30% lower than the initial inductance.

Set the test chip in a close chamber to avoid the effect of air flow.

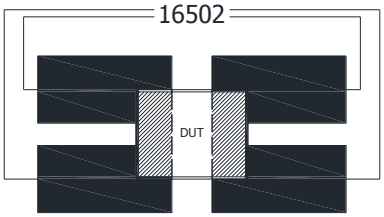
Measure the temperature on the surface of chip at current 0A. Increase applied current step by step and measure the value when the temperature is stable.



DC Resistance

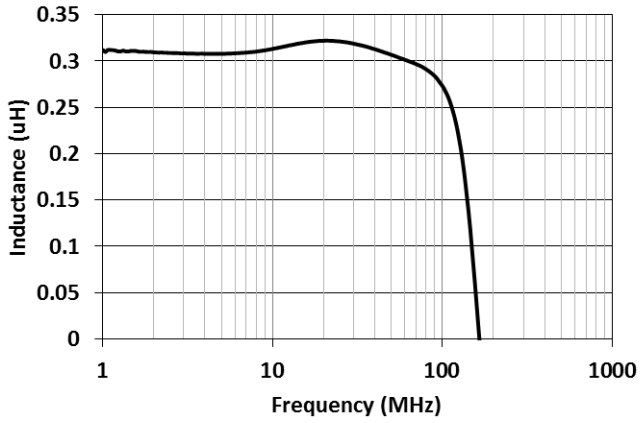
Equipment：Chroma 16502 or equivalent system

Place the sample in the test fixture then measure the value.



Typical Electrical Characteristics (T=25℃)

GMLA-252005-R33MA1



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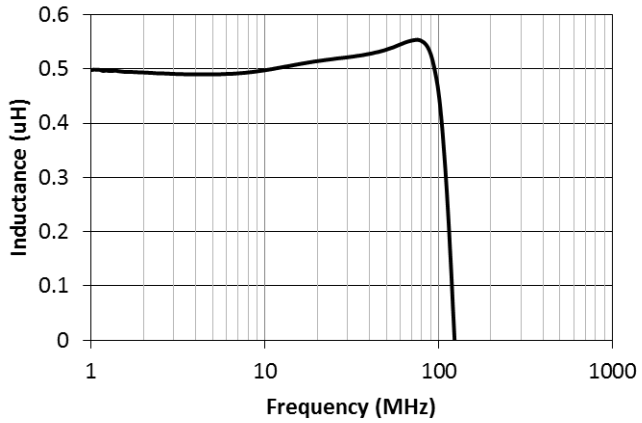

Typical Bias Characteristics

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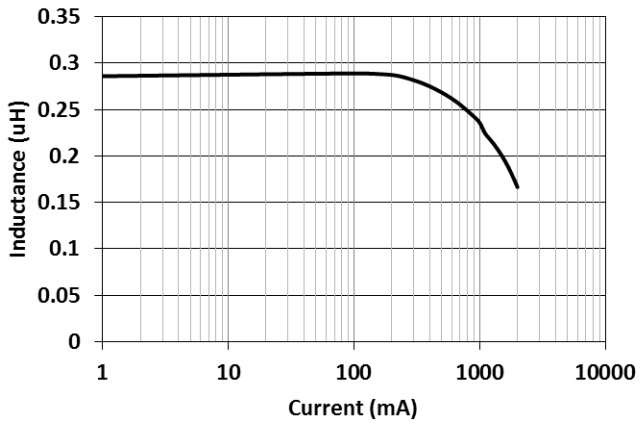

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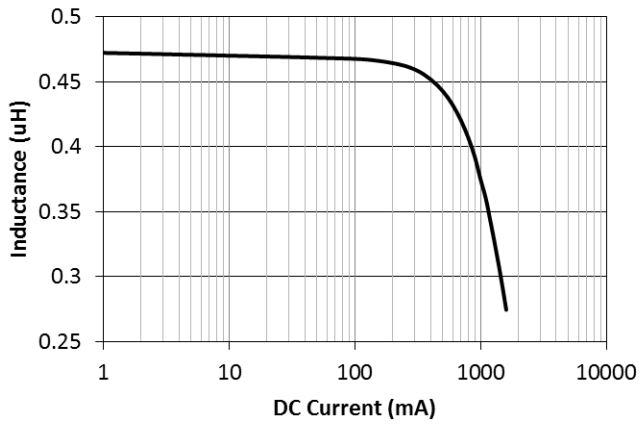

Typical Temperature Characteristics

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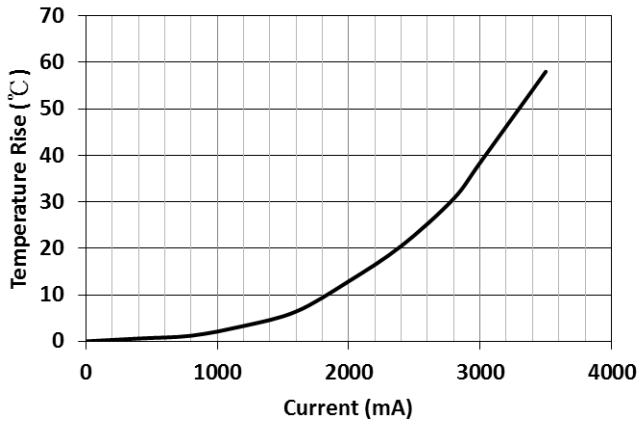

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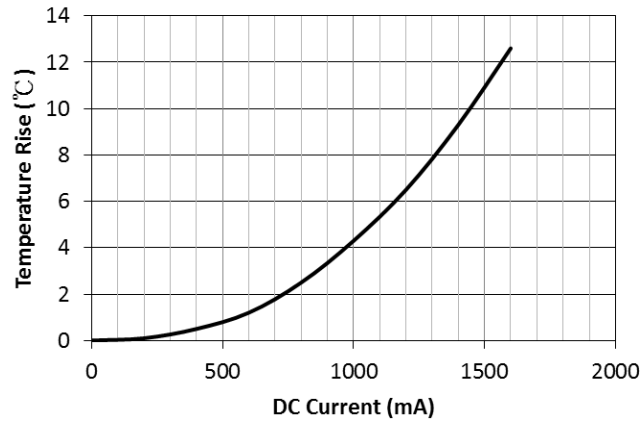


Operating Temperature Range

-55℃ to +125℃

Storage Condition

To maintain good solder ability of chips, care must be taken to control temperature and humidity in the storage environment.

Recommend condition：

Ambient temperature shall be at or under 40℃and keeping the humidity RH at or below 70%.

The products shall be stored in a place isolated from harmful gas like sulfur or chlorine.

The products shall be used within 6 months from the time of delivery. If the period is exceeded, please check solder ability before using the chips.

Green Products

This product meets green environmental protection rules on RoHS.

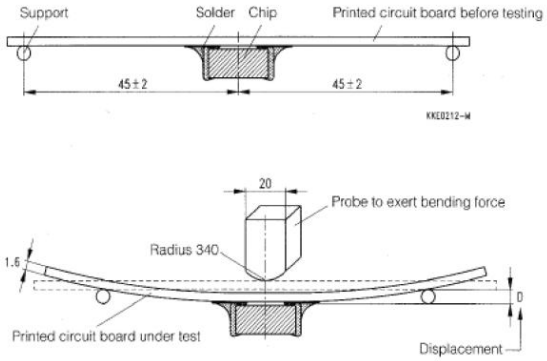
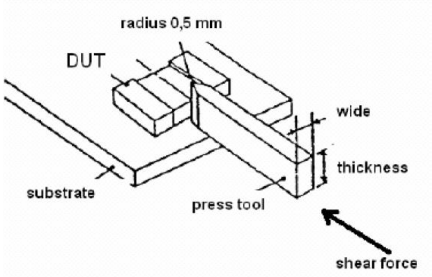
RoHS compliance/HF free and EU Directive 2011/65/EU

Important Notice

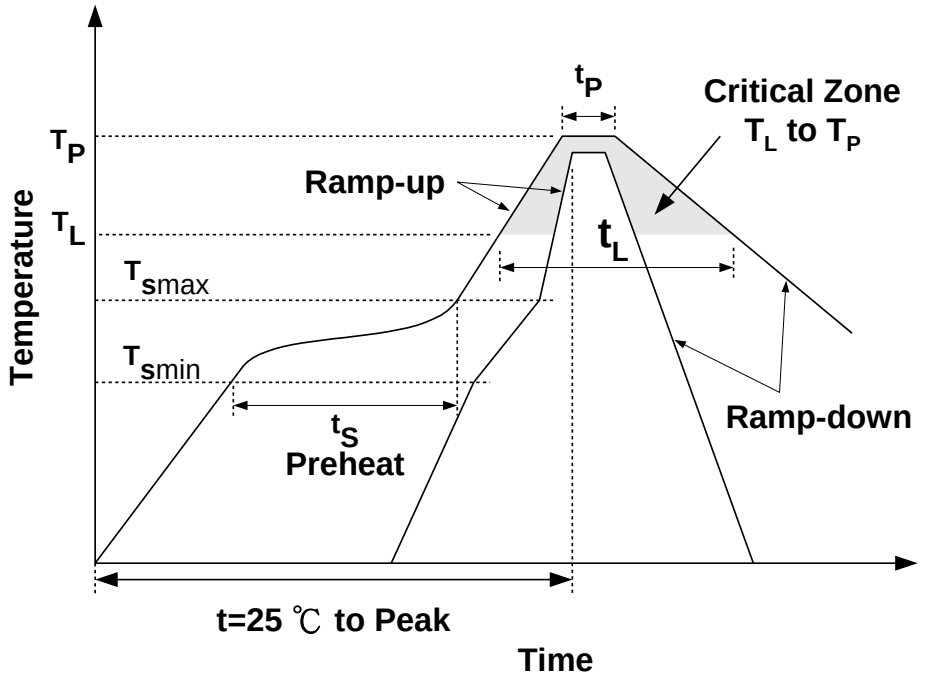
The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

Reliability Test

Item	Specification	Test Condition
High Temperature Exposure(Storage)	Inductance change to be within 20% to the initial value.	1000 hrs@ 125°C. Unpowered. Measurement at 24±4 hours after test conclusion.
Temperature Cycling	Inductance change to be within 20% to the initial value.	1000 cycles (-40°C to +125°C) Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.
Biased Humidity	Inductance change to be within 20% to the initial value.	1000 hours 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.
Resistance to Solvents	No apparent damage	Note: It is applicable to marked and/or coated components. Add Aqueous wash chemical OKEMCLEAN (A 6% concentrated Oakite cleaner) or equivalent. Do not use banned solvents.
Mechanical Shock	Inductance change to be within 20% to the initial value.	peak acceleration ：100 g's Duration of pulse：6 ms Waveform ：Half-sine Velocity change ：12.3 ft/sec Direction：X，Y，Z（ 3axes/3 times）
Vibration	Inductance change to be within 20% to the initial value.	Frequency and Amplitude: 10-2000 Hz. 5g's for 20 minutes, 12 cycles each of 3 orientations.
Resistance to Soldering Heat	The chip shall not crack. More than 75% of the terminal electrode shall be covered with solder.	Solder：Sn-3.0Ag-0.5Cu Flux：Rosin After pre-heat for 2~3minutes at 150℃~180℃. Immerse the test sample into a methanol solvent of rosin. Dip the sample into a solder bath at 260±5℃ for 10±1sec.
Solder Ability	More than 95% area of terminal electrode shall be covered with fresh solder	Solder：Sn-3.0Ag-0.5Cu Flux：Rosin After pre-heat for 2~3minutes at 150℃~180℃. Immerse the test sample into a methanol solvent of rosin. Dip the sample into a solder bath at 245±5℃ for 3±1sec.

Item	Specification	Test Condition
Flammability		Burning stops within 10 seconds on a vertical specimen; Drips of particles allowed as long as they are not inflamed.
Bending Test	No apparent damage.	Substrate：PCB(100mm×40mm×1.6mm) Solder：Reflow Speed of Applying Force：0.5mm / s Deflection：2mm Hold Duration：60 s 
Terminal Strength(SMD)	The terminal electrode shall not be broken off nor the ferrite damaged.	Force of 1.8 Kg for 60±1 seconds. 
Operational Life	Inductance change to be within 20% to the initial value.	1000 hrs. @ 105°C. Measurement at 24±4 hours after test conclusion.

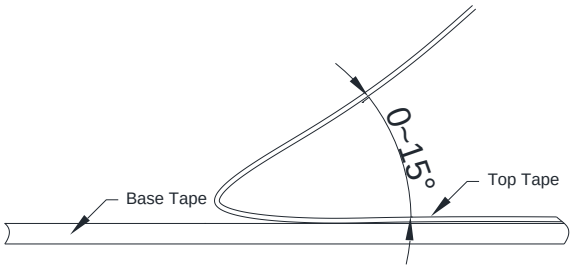
Recommended Soldering Profiles

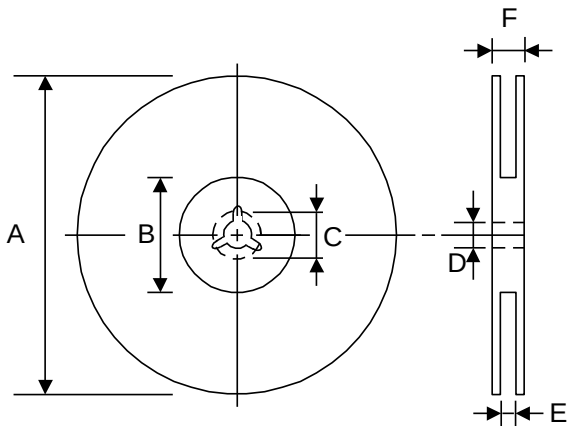


Profile Feature		Sn-Pb	Pb-Free
Preheat	t_s	60~120 seconds	60~180 seconds
	T_{smin}	100℃	150℃
	T_{smax}	150℃	200℃
Average ramp-up rate ($T_{smax}$to T_P)		3℃/second max.	3℃/second max.
Time main above	Temperature (T_L)	183℃	217℃
	Time (t_L)	60~150 seconds	60~150 seconds
Peak temperature (T_P)		230℃	250~260℃
Time within 5℃ of actual peak temperature (t_P)		10 seconds	10 seconds
Ramp-down rate		6℃/sec max.	6℃/sec max.
Time 25℃ to peak temperature		6 minutes max.	8 minutes max.

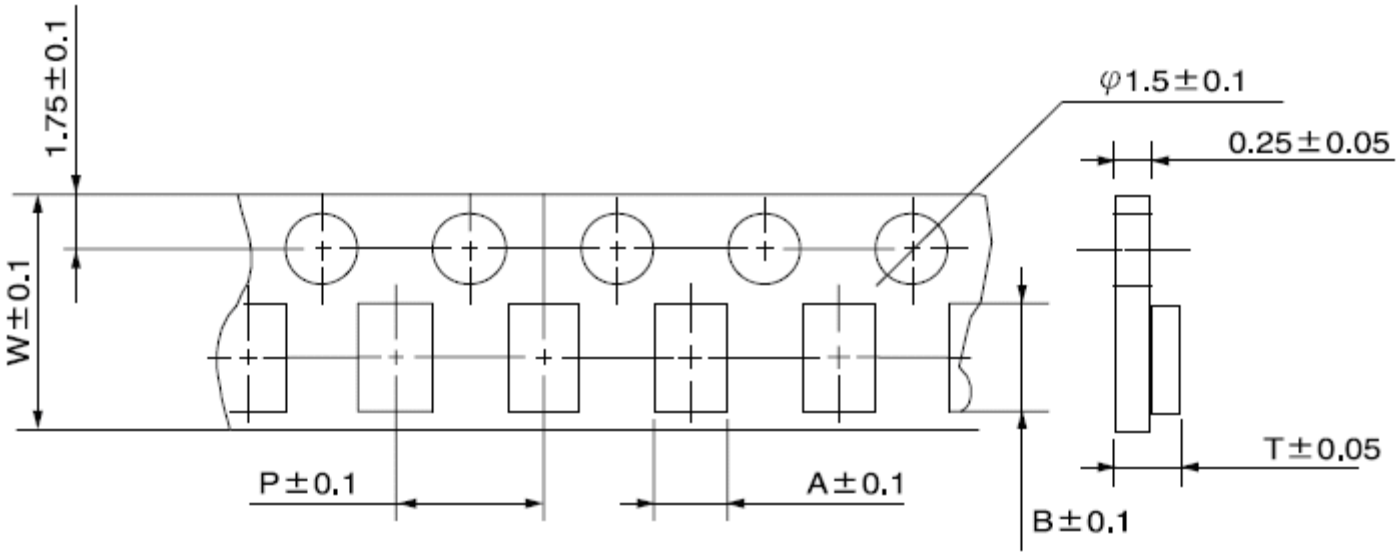
Tap Specification

The force for peeling off cover tape is 10 grams in the arrow direction.



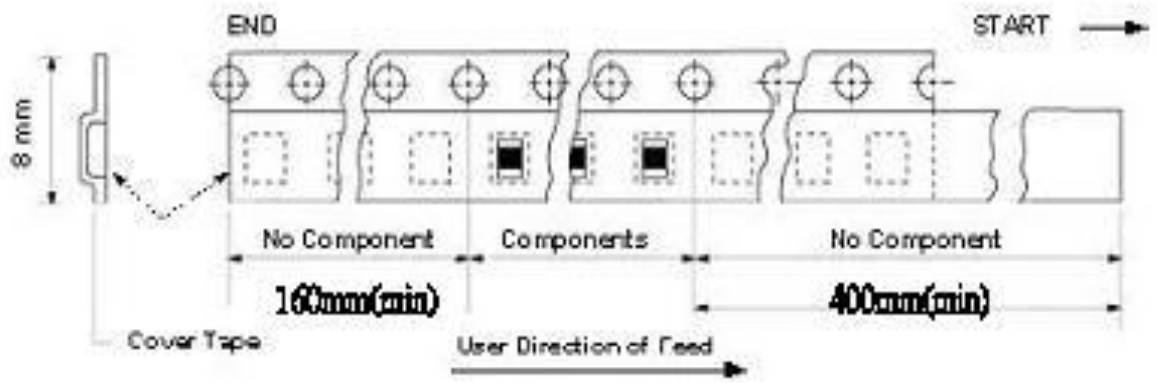


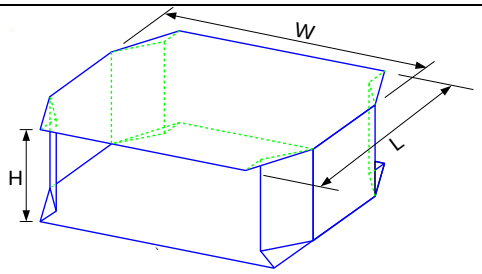
TYPE	A	B	C	D	E	F
8 mm	178±1	$60^{+0.5}_{-0}$	21±0.8	13±0.2	9±0.5	12±0.5



A	B	W	P	T	Chips/Reel
2.4±0.1	2.75±0.1	8.0±0.2	4±0.1	0.95±0.15	4000

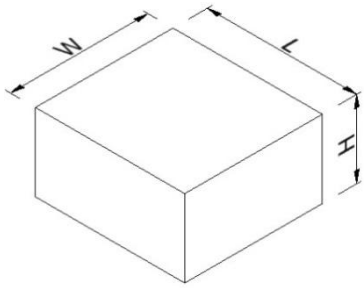
Packaging





Inside Box

No. of Reels	W (cm)	L (cm)	H (cm)	Chips/Box
3	18	18	3.6	12,000
5	18	18	6.0	20,000



Carton

No. of Box	W (cm)	L (cm)	H (cm)	Chips/Carton
2	14.6	19.2	19.8	40,000
5	34.7	19.2	19.8	100,000
10	35.2	38.2	19.8	200,000