



## Power Inductor EBP06 A Series Product Specifications

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### ■ Power Inductor — EBP06 A Series



#### ■ Application

- DC/DC converter for CPU in Notebook PC.
- Thin type on-board power supply module for exchanger.
- VRM for server.
- Laptops and PCs
- Switch and servers
- Base stations
- Battery powered devices
- SSD modules

#### ■ Features

- High performance (Isat) realized by metal dust core.
- Low loss realized with low DCR.
- ROHS · Halogen Free and REACH compliance
- High rated current and high efficiency.
- Operating temperature maximum +125°C(Including self - temperature rise) .
- Low core loss
- Ultra low buzz noise due to molding construction

### ■ Parts Number Explanation

Example:

<b>EBP</b>	<b>0610</b>	<b>A</b>	<b>R47</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>Z</b>
<b>Product Type</b>	<b>Size (mm)</b>	<b>Application</b>	<b>Inductance (uH)</b>	<b>Tolerance</b>	<b>Package</b>	<b>Internal Code</b>	<b>Optional</b>
Molding Power Inductor	0610 0615 0618 0624 0630 0640 0650		R47 : 0.47uH R68 : 0.68uH	M : ±20%	T : Taping		Z : Default Code



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### ■ Standard Electrical Specifications

Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μH)	DCR (mΩ)	Isat (A)	Irms (A)
	±20 %, 100 kHz, 1V	MAX.	TYP.	TYP.
EBP0610A-4R7M-TWZ	4.7	172	2.8	2.2
EBP0610A-6R8M-TWZ	6.8	197	2.5	2.0
EBP0610A-100M-TWZ	10	310	2.1	1.6
EBP0615A-R47M-TWZ	0.47	8.5	16	10
EBP0615A-R56M-TWZ	0.56	11	14	9
EBP0615A-R68M-TWZ	0.68	12	12	8.5
EBP0615A-R82M-TWZ	0.82	17	10	8
EBP0615A-1R0M-TWZ	1.0	21	9	6
EBP0615A-2R2M-TWZ	2.2	54	7	3.8
EBP0615A-3R3M-TWZ	3.3	63	5.5	3.5
EBP0615A-4R7M-TWZ	4.7	85	5	3.2
EBP0615A-6R8M-TWZ	6.8	135	4	2.5
EBP0615A-100M-TWZ	10	175	3	2
EBP0618A-R10M-TWZ	0.1	2.3	38	25
EBP0618A-R22M-TWZ	0.22	3.5	24	22
EBP0618A-R47M-TWZ	0.47	8.4	18	11.5
EBP0618A-R68M-TWZ	0.68	12	16.5	9.5
EBP0618A-1R0M-TWZ	1.0	16	12	8.5
EBP0618A-1R5M-TWZ	1.5	26	9.2	8
EBP0618A-2R2M-TWZ	2.2	35	8	7
EBP0618A-3R3M-TWZ	3.3	50	6	4.5
EBP0618A-4R7M-TWZ	4.7	62	5	4
EBP0618A-6R8M-TWZ	6.8	110	4.5	3
EBP0618A-100M-TWZ	10	155	4	2.3
EBP0618A-220M-YWT	22	350	2.3	1.8
EBP0624A-R22M-TWZ	0.22	3	34	21
EBP0624A-R33M-TWZ	0.33	4.1	24.5	18
EBP0624A-R47M-TWZ	0.47	5.1	22	15
EBP0624A-R56M-TWZ	0.56	6.5	17	13



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Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μH)	DCR (mΩ)	Isat (A)	Irms (A)
	±20 %, 100 kHz, 1V	MAX.	TYP.	TYP.
EBP0624A-R68M-TWZ	0.68	7	16	12
EBP0624A-1R0M-TWZ	1.0	13.5	15	9
EBP0624A-1R5M-TWZ	1.5	20	13.5	8.2
EBP0624A-2R2M-TWZ	2.2	28	10	7
EBP0624A-3R3M-TWZ	3.3	39	8	5.5
EBP0624A-4R7M-TWZ	4.7	50	6.5	5
EBP0624A-6R8M-TWZ	6.8	70	6	4
EBP0624A-100M-TWZ	10	101	4	3.1
EBP0624A-150M-TWZ	15	160	3.3	2.5
EBP0624A-220M-TWZ	22	230	2.5	2
EBP0630A-R22M-TWZ	0.22	3	34	24
EBP0630A-R33M-TWZ	0.33	3.5	25	21
EBP0630A-R47M-TWZ	0.47	4.1	20	18
EBP0630A-R56M-TWZ	0.56	4.5	18	16.5
EBP0630A-R68M-TWZ	0.68	5.3	17	16
EBP0630A-R82M-TWZ	0.82	6.0	16	14
EBP0630A-1R0M-TWZ	1.0	7.4	15	12
EBP0630A-1R5M-TWZ	1.5	12.1	12	12
EBP0630A-2R2M-TWZ	2.2	15	10	9.5
EBP0630A-3R3M-TWZ	3.3	22	9.5	8.5
EBP0630A-4R7M-TWZ	4.7	33	9	6
EBP0630A-5R6M-TWZ	5.6	42	6.5	5.5
EBP0630A-6R8M-TWZ	6.8	48	6	5
EBP0630A-8R2M-TWZ	8.2	60	5.5	5
EBP0630A-100M-TWZ	10	68	5.5	4.5
EBP0630A-150M-TWZ	15	113	4.0	3
EBP0630A-220M-TWZ	22	170	3	2.5
EBP0630A-330M-TWZ	33	270	2.5	2
EBP0630A-470M-TWZ	47	385	2	1.5



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Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μH)	DCR (mΩ)	Isat (A)	Irms (A)
	±20 %, 100 kHz, 1V	MAX.	TYP.	TYP.
EBP0640A-R68M-TWZ	0.68	4.8	19	17
EBP0640A-1R0M-TWZ	1.0	6.6	16	13.5
EBP0640A-1R5M-TWZ	1.5	10	12.5	12.4
EBP0640A-2R2M-TWZ	2.2	14	11	10
EBP0640A-3R3M-TWZ	3.3	20	9.5	8.5
EBP0640A-4R7M-TWZ	4.7	30	9	6.5
EBP0640A-6R8M-TWZ	6.8	45	6.5	5.5
EBP0640A-8R2M-TWZ	8.2	55	6	5.2
EBP0640A-100M-TWZ	10	65	6	4.8
EBP0640A-150M-TWZ	15	95	4.5	3.7
EBP0640A-220M-TWZ	22	125	4	3.3
EBP0640A-330M-TWZ	33	240	3	2.2
EBP0640A-470M-TWZ	47	320	2.5	1.8
EBP0650A-R47M-TWZ	0.47	3.9	21	20
EBP0650A-R68M-TWZ	0.68	4.5	18	16.5
EBP0650A-1R0M-TWZ	1.0	6.6	16	12
EBP0650A-1R5M-TWZ	1.5	10	13	9.5
EBP0650A-2R2M-TWZ	2.2	12.5	11	9
EBP0650A-3R3M-TWZ	3.3	22	10	8.5
EBP0650A-4R7M-TWZ	4.7	29	8	6
EBP0650A-6R8M-TWZ	6.8	41	6.3	5.8
EBP0650A-8R2M-TWZ	8.2	48	5.5	5.5
EBP0650A-100M-TWZ	10	60	5.3	4.5
EBP0650A-150M-TWZ	15	90	4	3.1
EBP0650A-220M-TWZ	22	140	3.5	2.6
EBP0650A-330M-TWZ	33	190	3	2.3
EBP0650A-470M-TWZ	47	230	2.6	2



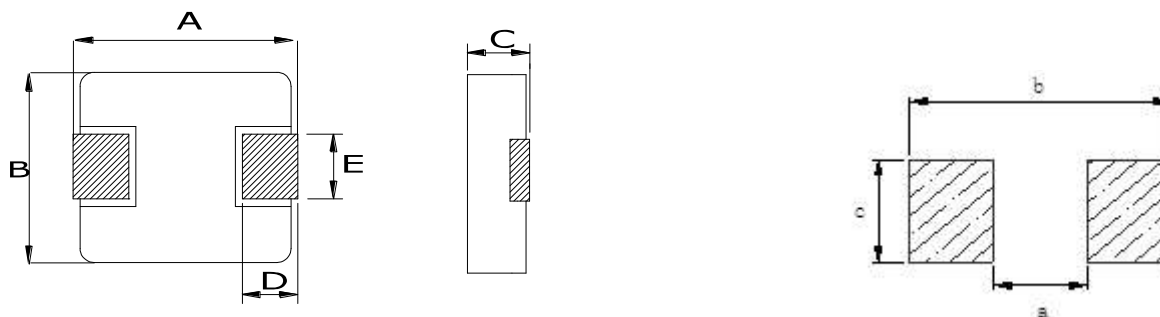
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## Notes:

1. All test data is referenced to 25 °C ambient
2. Operating temperature range - 55 °C to + 125 °C
3. I<sub>rms</sub>(A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25 °C)
4. I<sub>sat</sub>(A):DC current (A) that will cause L<sub>0</sub> to drop approximately 30 %
5. The part temperature (ambient + temp rise) should not exceed 125 °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



Recommend Land Pattern

Unit: mm

Type	A	B	C	D	E	a typ	b typ	c typ
EBP0610A	6.1±0.3	6.1±0.3	0.8±0.2	1.75±0.3	4.0±0.3	2.8	7.5	4.5
EBP0615A	7.0±0.3	6.6±0.2	1.3±0.2	1.6±0.2	3.0±0.3	3.7	8.4	3.5
EBP0618A	7.0±0.3	6.6±0.2	1.6±0.2	1.6±0.3	3.0±0.3	3.7	8.4	3.5
EBP0624A	7.0±0.3	6.6±0.2	2.2±0.2	1.6±0.2	3.0±0.3	3.7	8.4	3.5
EBP0630A	7.0±0.3	6.6±0.2	2.8±0.2	1.6±0.2	3.0±0.3	3.7	8.4	3.5
EBP0640A	7.0±0.3	6.6±0.2	3.8±0.2	1.6±0.2	3.0±0.3	3.7	8.4	3.5
EBP0650A	7.0±0.3	6.6±0.2	4.8±0.2	1.6±0.2	3.0±0.3	3.7	8.4	3.5



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### ■ Marking

- The inductor is marked with a 3-digit code

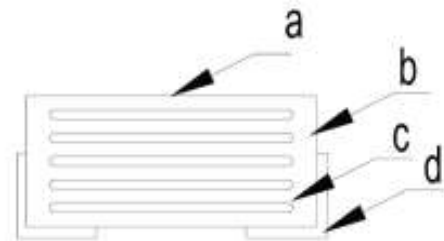
Nominal Inductance	
Example	Nominal Value
1R0	1.0 $\mu$ H
100	10 $\mu$ H
101	100 $\mu$ H



Note : Using Ink for marking

### ■ Structure and Components

Symbol	Components	Material
a	MARKING	Ink (black)
b	CORE	Alloy Sponge Powder
c	WIRE	Polyurethane copper wire
d	TERMINAL	Copper plated with Sn





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### ● Reliability test and requirement

Mechanical Reliability		
Item	Specification and Requirement	Test Method
Solderability	1. No case deformation or change in appearance 2. New solder coverage More than 95%	1. Preheat: 155°C ± 5°C , 60S ± 2S 2. Tin: lead-free. 3. Temperature: 240°C ± 5°C , flux 3.0S ± 0.5S.
Mechanical shock	1. No case deformation or change in appearance 2. $\Delta L/L_0 \leq \pm 10\%$	1. Acceleration: 100G 2. Pulse time: 6ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions
Mechanical vibration	1. No case deformation or change in appearance 2. $\Delta L/L_0 \leq \pm 10\%$	1. Reflow: 2 times 2. Frequency: 10HZ ~ 55HZ ~ 10HZ, 20 Min/Cycles 3. Amplitude: 1.52 mm 4. Directions: X, Y, Z 5. Time: 12 cycle / direction
Endurance Reliability		
Item	Specification and Requirement	Test Method
Thermal Shock	Inductance change: Within ± 10% Without distinct damage in appearance	1. First -55°C for 30 minutes, last 125°C for 30 minutes as 1 cycle. Go through 1000 cycles. 2. Max transfer time is 3 minutes. 3. Measured at room temperature after placing for 24 ± 2 hours
Humidity Resistance	Inductance change: Within ± 10% Without distinct damage in appearance	1. Reflow 2 times, 2. 85°C, 85%RH, 1000 hours 3. Measured at room temperature after placing for 24 ± 2 hours
Low temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature: -55 ± 2°C 2. Time: 1000 hours 3. Measured at room temperature after placing for 24 ± 2 hours
High temperature storage	Inductance change: Within ± 10% Without distinct damage in appearance	1. Temperature: +125 ± 2°C 2. Time: 1000 hours 3. Measured at room temperature after placing for 24 ± 2 hours



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### Recommended Soldering Technologies:

#### (1) Re-flowing Profile

Preheat condition: 150 ~200°C/60~180sec.

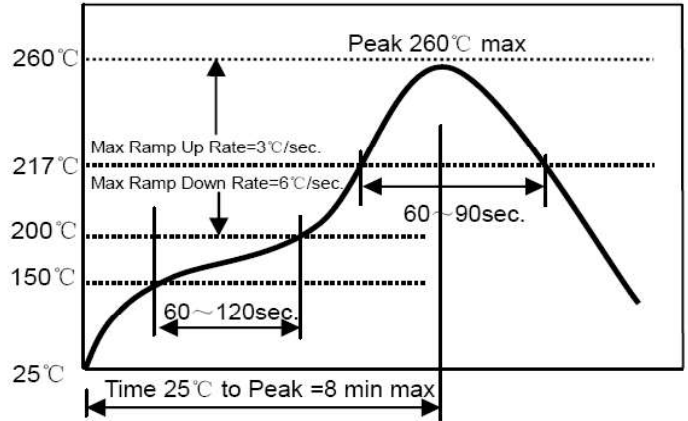
Allowed time above 217°C: 80~120sec.

Max temp: 260°C

Max time at max temp: 5 sec.

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2x max



#### (2) Iron Soldering Profile

Iron soldering power: Max. 30W

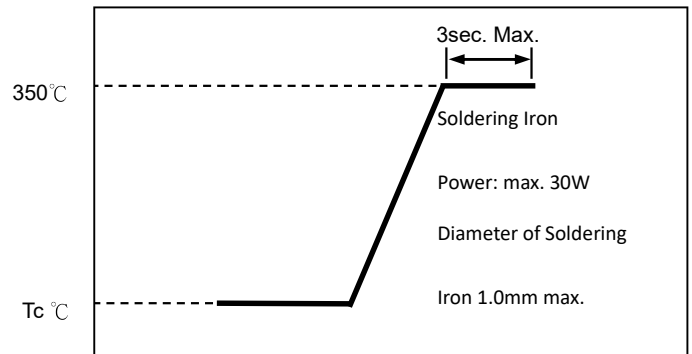
Pre-heating: 150°C/60sec.

Soldering Tip temperature: 350°C Max.

Soldering time: 3sec. Max.

Solder paste: Sn/3.0Ag/0.5Cu

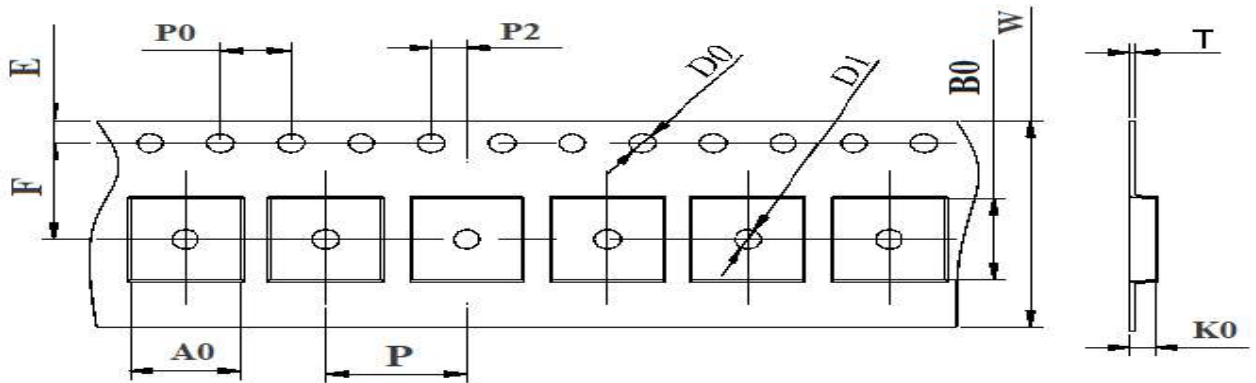
Max.1 times for iron soldering





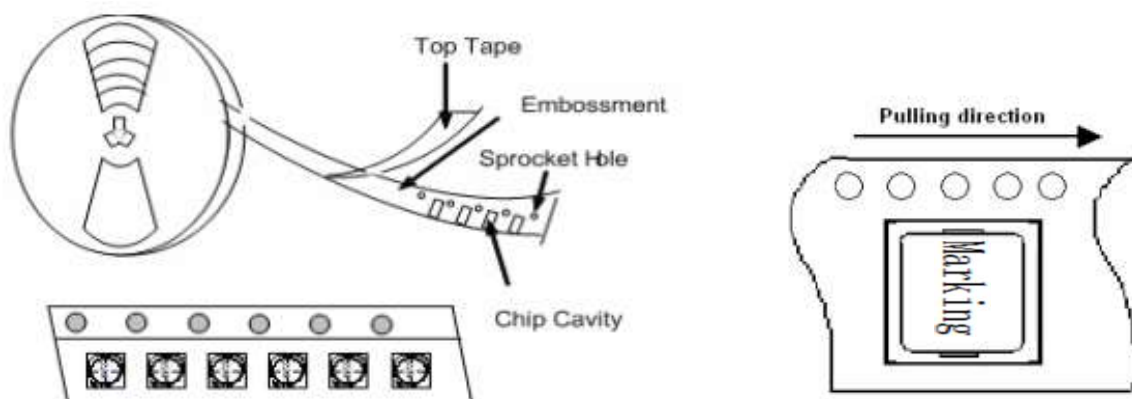
## ■ Packaging Information

### (1) Tape Packaging Dimensions (Unit : mm)



Type	Tape dimensions (mm)											
	W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F
EBP0610A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.4±0.1	6.5±0.1	1.1±0.1	1.75±0.1	7.5±0.1
EBP0615A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.9±0.1	7.5±0.1	1.7±0.1	1.75±0.1	7.5±0.1
EBP0618A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.9±0.1	7.5±0.1	2.1±0.1	1.75±0.1	7.5±0.1
EBP0624A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.9±0.1	7.5±0.1	2.7±0.1	1.75±0.1	7.5±0.1
EBP0630A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.9±0.1	7.5±0.1	3.3±0.1	1.75±0.1	7.5±0.1
EBP0640A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.4±0.05	6.9±0.1	7.5±0.1	4.3±0.1	1.75±0.1	7.5±0.1
EBP0650A	16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.4±0.05	6.9±0.1	7.5±0.1	5.4±0.1	1.75±0.1	7.5±0.1

### (2) Taping Drawings (Unit : mm)

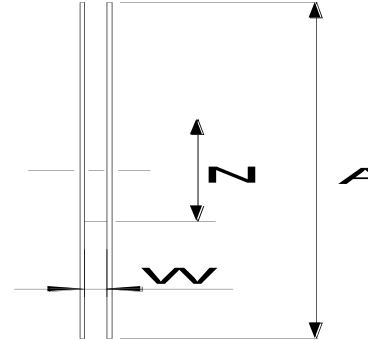
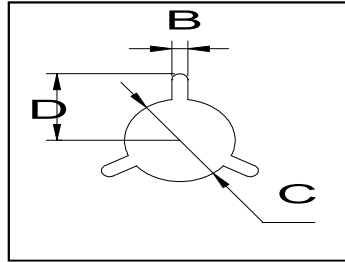
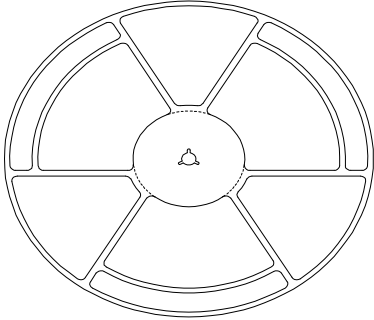




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### (3) Reel Dimensions (Unit : mm)



Type	Reel dimensions (mm)					
	A	W	N	B	C	D
EBP0610A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0615A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0618A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0624A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0630A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0640A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25
EBP0650A	330+2.0	16.8±0.2	97±0.5	2.2+0.5	13.2±0.2	10.75±0.25

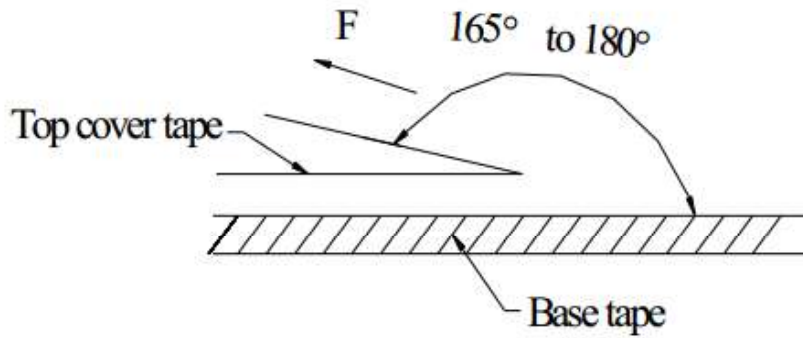
### (4) Packaging Quantity (PCS)

Type	Standard Quantity		
	Reel	Inner box	Carton box
EBP0610A	3,000 pcs / reel	3Reel / box (9,000 pcs)	4 Middle boxes, (36,000 pcs)
EBP0615A	2,000 pcs / reel	3Reel / box (6,000 pcs)	4 Middle boxes, (24,000 pcs)
EBP0618A	2,000 pcs / reel	3Reel / box (6,000 pcs)	4 Middle boxes, (24,000 pcs)
EBP0624A	1,500 pcs / reel	3Reel / box (4,500 pcs)	4 Middle boxes, (18,000 pcs)
EBP0630A	1,500 pcs / reel	3Reel / box (4,500 pcs)	4 Middle boxes, (18,000 pcs)
EBP0640A	1,000 pcs / reel	3Reel / box (3,000 pcs)	4 Middle boxes, (12,000 pcs)
EBP0650A	1,000 pcs / reel	3Reel / box (3,000 pcs)	4 Middle boxes, (12,000 pcs)

### (5) Peel force of top cover tape

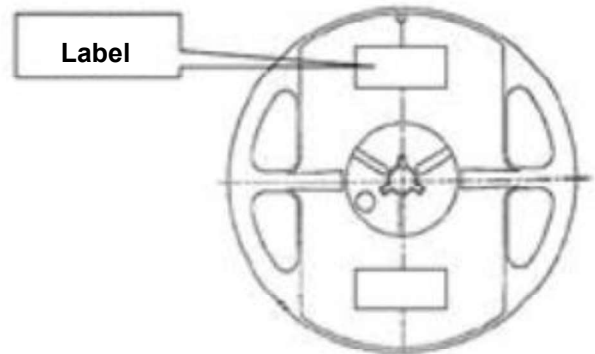
The peel speed shall be about 300mm/minute

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



### (6) Reel Label

- Label on the reel
  - Everohms part Number.
  - Lot Number
  - Quantity
  - Description
- Shipping Label
  - Customer's part Number
  - Manufacturer's part Number
  - Quantity
  - date code

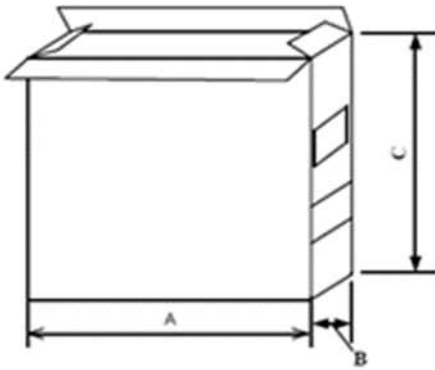




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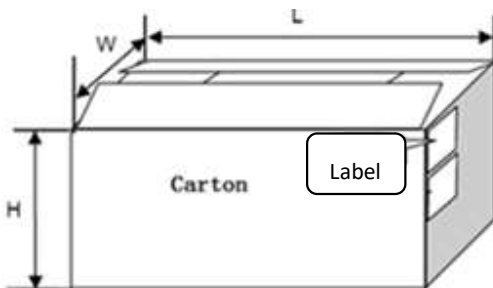
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## (7) Inner Box



Packaging Type	A (mm)	B (mm)	C (mm)
Inner box	335	70	340

## (8) Carton



Packaging Type	L (mm)	W (mm)	H (mm)
Carton	360	360	360