■ Power Inductor — EBP04 P Series

■ Application

— Note PC power system.

— DC/DC converters.

■ Features

— 100% Lead (Pb)-Free and RoHS compliant.

— High current, low DCR, high efficiency.

— Magnetically shielded structure to accomplish high resolution in EMC protection.

— Operating temperature -40℃~+125℃(Including self - temperature rise).

— High reliability by original structure.

— Low core loss.

— Ultra low buzz noise due to molding construction.

— For general electronic equipment.

■ Parts Number Explanation

Example:

EBP	0420	P	–	R47	M	–	T	W	Z
Product Type	**Size (mm)**	**Application**		**Inductance (uH)**	**Tolerance**		**Package**	**Internal Code**	**Optional**
Molding Power Inductor	0420			R47 : 0.47uH R68 : 0.68uH	M : ±20%		T : Taping		Z : Default Code

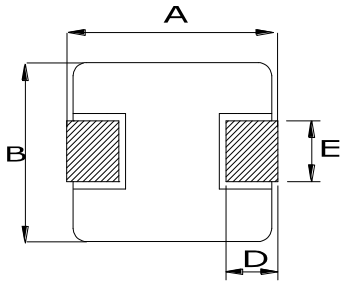
Standard Electrical Specifications

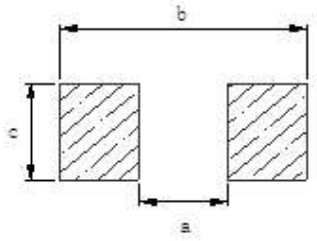
Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μH)	DCR (mΩ)	Isat (A)	Irms (A)
	±20 %, 100 kHz, 1V	MAX.	TYP.	TYP.
EBP0420P-R33M-TWZ	0.33	8.6	18	10
EBP0420P-R47M-TWZ	0.47	14	12	8
EBP0420P-R68M-TWZ	0.68	19	10	7
EBP0420P-1R0M-TWZ	1.0	27	8.5	5
EBP0420P-1R5M-TWZ	1.5	42	7	4.5
EBP0420P-2R2M-TWZ	2.2	61	6	4
EBP0420P-3R3M-TWZ	3.3	76	4	3.5
EBP0420P-4R7M-TWZ	4.7	105	3.5	2.6
EBP0420P-6R8M-TWZ	6.8	172	2.8	2.1
EBP0420P-100M-TWZ	10	243	2.3	1.8
EBP0420P-150M-TWZ	15	374	1.9	1.5

Notes:

1. All test data is referenced to 25 °C ambient
2. Operating temperature range - 40 °C to + 125 °C
3. Irms (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 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
EBP0420P	4.4±0.35	4.2±0.25	1.8±0.2	0.8±0.3	2.0±0.3	2.2	5.2	2.5

■ Marking

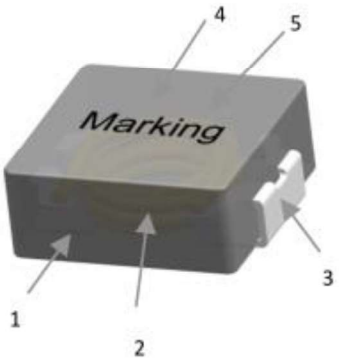
- The inductor is marked with a 3-digit code

Nominal Inductance	
Example	Nominal Value
1R0	1.0 μH
100	10 μH
101	100 μH

Note：Using Ink for marking

■ Structure and Components

No.	Components	Material
1	CORE	Carbonyl Powder
2	WIRE	Polyester Wire or equivalent.
3	Clip	100% Pb free solder (Ni + Sn---Plating)
4	Paint	Epoxy resin
5	Ink	Halogen-free ketone



● 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℃±5℃ ，60S±2S 2.Tin: lead-free. 3.Temperature:240℃±5℃，flux 3.0S±0.5S.
Mechanical shock	1. No case deformation or change in appearance 2. △L/Lo≦±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. △L/Lo≦±10%	1. Reflow: 2times 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 -40℃ for 30 minutes，last 125℃ 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℃,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：-40 ± 2℃ 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℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours

■ Recommended Soldering Technologies:

(1) Re-flowing Profile

Preheat condition: 150 ~200℃/60~180sec.

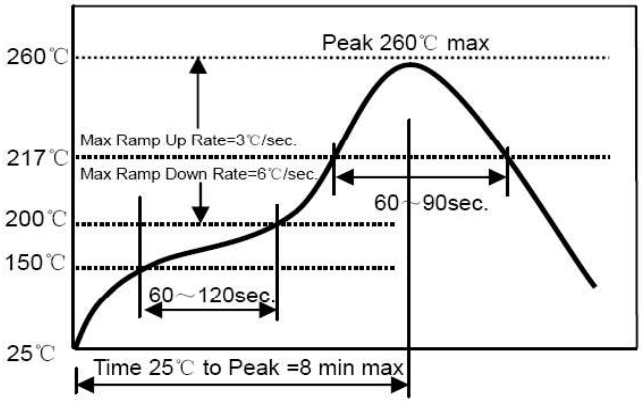
Allowed time above 217℃: 80~120sec.

Max temp: 260℃

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

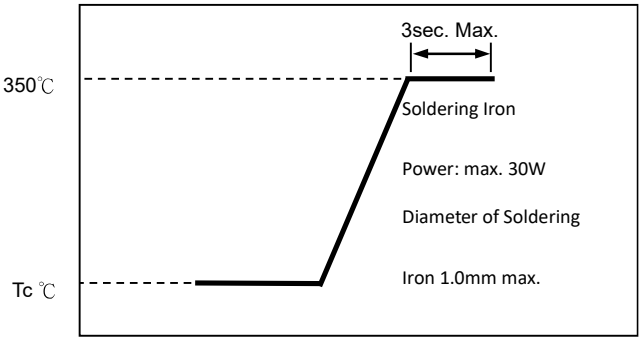
Pre-heating: 150℃/60sec.

Soldering Tip temperature: 350℃ Max.

Soldering time: 3sec. Max.

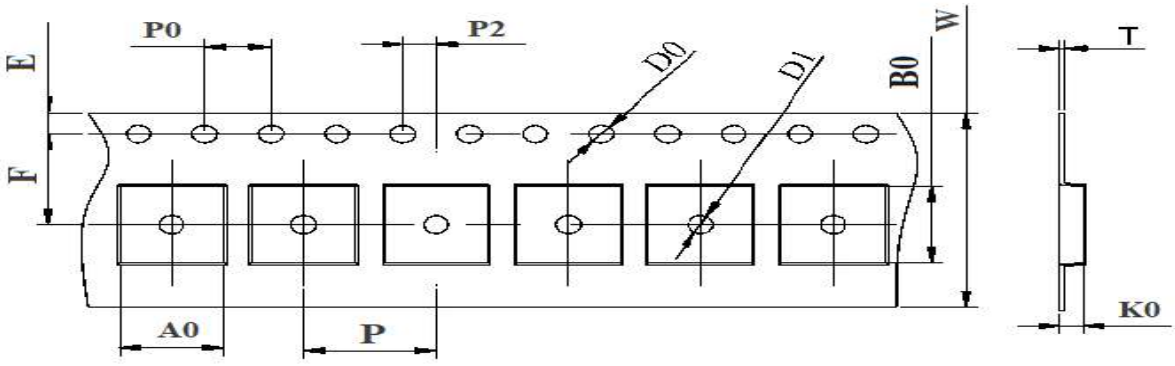
Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering



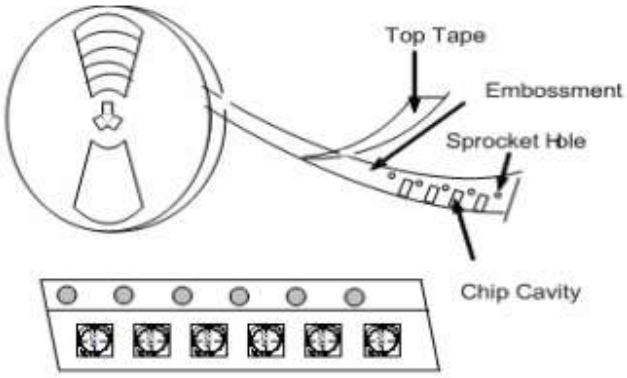
■ Packaging Information

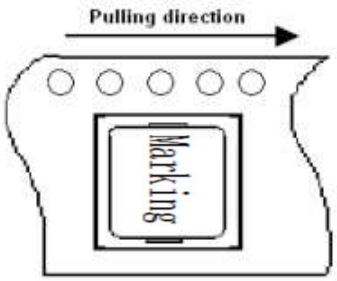
(1) Tape Packaging Dimensions（Unit：mm）



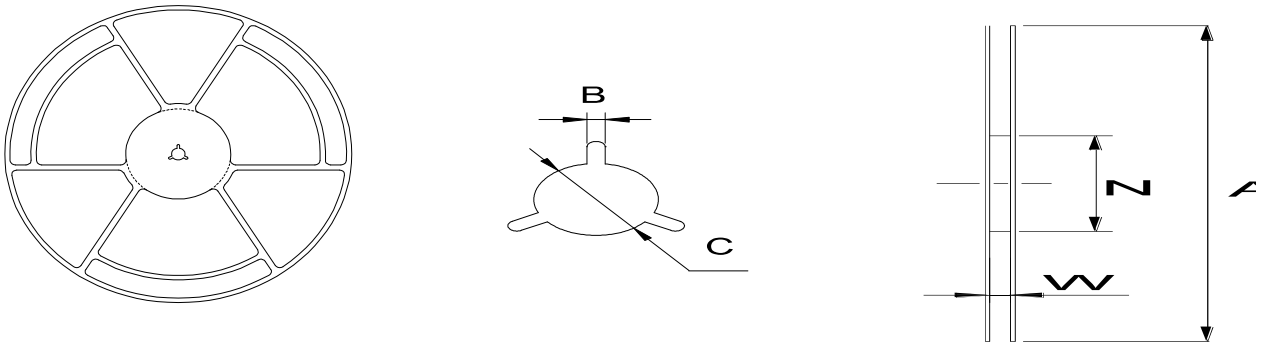
Type	Tape dimensions (mm)											
	W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F
EBP0420P	12±0.3	8±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	4.5±0.1	4.85±0.1	2.3±0.1	1.75±0.1	5.5±0.1

(2) Taping Drawings (Unit : mm)





(3) Reel Dimensions（Unit：mm）



Type	Reel dimensions (mm)				
	A	W	N	B	C
EBP0420P	330+2.0	12.8±0.2	97±0.5	2.2+0.5	13.0±0.2

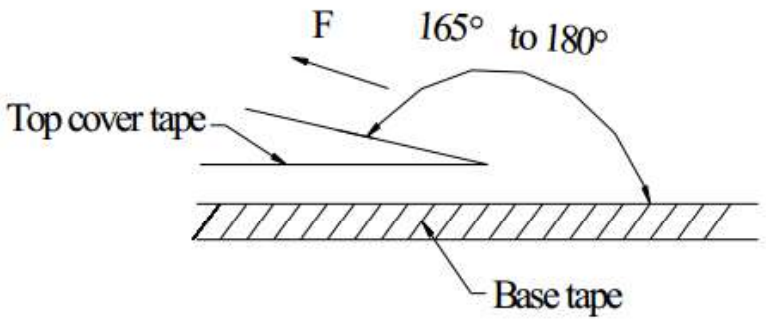
(4) Packaging Quantity (PCS)

Type	Standard Quantity		
	Reel	Inner box	Carton box
EBP0420P	3000 pcs / reel	4Reel / box (12000 pcs)	4 Middle boxes, (48,000 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



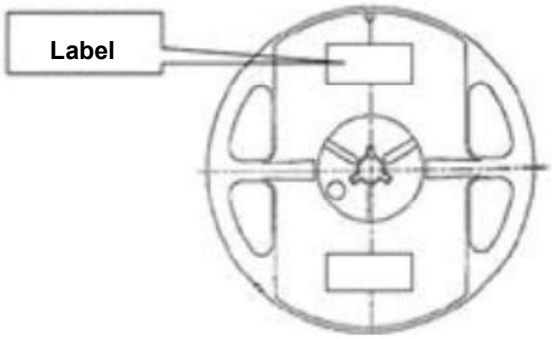
(6) Reel Label

●Label on the reel

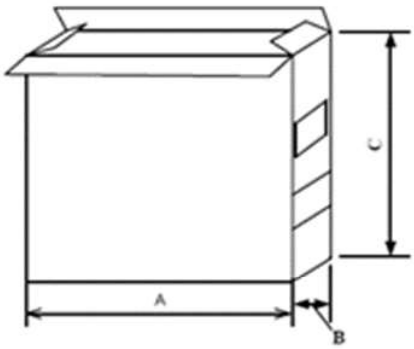
- Everohms part Number.
- Lot Number
- Quantity
- Description

●Shipping Label

- Customer's part Number
- Manufacturer's part Number
- Quantity
- date code

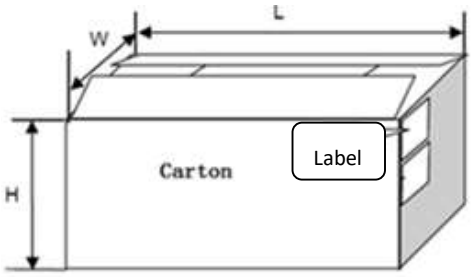


(7) Inner Box



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