



Power Inductor EBP12 P Series Product Specifications

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■ Power Inductor — EBP12 P Series



■ Application

- Note PC power system.
- DC/DC converters.

■ Features

- 100% Lead (Pb)-Free and RoHS compliant.
- High current, low DCR, high efficiency.
- Operating temperature $-40^{\circ}\text{C}\sim+125^{\circ}\text{C}$ (Including self - temperature rise) .

■ Parts Number Explanation

Example:

EBP	1235	P	R47	M	T	W	Z
Product Type	Size (mm)	Application	Inductance (uH)	Tolerance	Package	Internal Code	Optional
Molding Power Inductor	1235 1250 1260 1265		R47 : 0.47uH R68 : 0.68uH	M : $\pm 20\%$	T : Taping		Z : Default Code E : E size $\geq 4.5\text{mm}$



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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.
EBP1235P-R47M-TWZ	0.47	2	55	32
EBP1235P-R68M-TWZ	0.68	2.5	49	28
EBP1235P-R82M-TWZ	0.82	3	44	25
EBP1235P-1R0M-TWE	1.0	3.5	40	24
EBP1235P-1R5M-TWE	1.5	5.5	35	19
EBP1235P-2R2M-TWE	2.2	8	29	16
EBP1235P-3R3M-TWE	3.3	12	27	12
EBP1235P-4R7M-TWE	4.7	18	22	9
EBP1250P-R33M-TWZ	0.33	0.9	80	42
EBP1250P-R47M-TWZ	0.47	1.1	65	38
EBP1250P-R56M-TWZ	0.56	1.5	55	36
EBP1250P-R68M-TWZ	0.68	1.7	54	34
EBP1250P-R82M-TWZ	0.82	2.1	52	31
EBP1250P-1R0M-TWZ	1.0	2.5	50	29
EBP1250P-1R5M-TWZ	1.5	3.3	48	27
EBP1250P-2R2M-TWE	2.2	5.5	32	20
EBP1250P-3R3M-TWE	3.3	9.2	32	15
EBP1250P-4R7M-TWE	4.7	15	27	12
EBP1250P-5R6M-TWE	5.6	16.5	22	11.5
EBP1250P-6R8M-TWE	6.8	18.5	21	11
EBP1250P-8R2M-TWE	8.2	22.5	18	9.5
EBP1250P-100M-TWE	10	25.5	16	9
EBP1250P-150M-TWE	15	38	13	8.2
EBP1250P-220M-TWE	22	58	10	6.5
EBP1250P-330M-TWE	33	88	8	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.
EBP1260P-R47M-TWZ	0.47	1.3	60	38
EBP1260P-R68M-TWZ	0.68	1.7	53	33
EBP1260P-1R0M-TWZ	1.0	2.4	45	29
EBP1260P-1R5M-TWZ	1.5	3.2	43	26
EBP1260P-2R2M-TWE	2.2	4.7	34	21
EBP1260P-3R3M-TWE	3.3	7.1	28	17
EBP1260P-4R7M-TWE	4.7	11.5	25	16
EBP1260P-6R8M-TWE	6.8	13.8	19	15
EBP1260P-8R2M-TWE	8.2	16	17	11
EBP1260P-100M-TWE	10	20.7	15.5	11
EBP1260P-150M-TWE	15	29	13	9
EBP1260P-220M-TWE	22	39.5	11	8
EBP1260P-330M-TWE	33	75	8	6
EBP1260P-470M-TWE	47	90	7	5.5
EBP1260P-680M-TWE	68	140	6	5
EBP1265P-R47M-TWZ	0.47	1.2	63	41
EBP1265P-R68M-TWZ	0.68	1.5	55	35
EBP1265P-1R0M-TWZ	1.0	2.3	48	30
EBP1265P-1R5M-TWZ	1.5	3.0	45	27
EBP1265P-2R2M-TWE	2.2	4.2	37	22
EBP1265P-3R3M-TWE	3.3	6.8	30	18
EBP1265P-4R7M-TWE	4.7	8.4	28	13.5
EBP1265P-6R8M-TWE	6.8	11.5	18	11.5
EBP1265P-8R2M-TWE	8.2	15.5	16	10.5
EBP1265P-100M-TWE	10	16.5	15.5	10
EBP1265P-150M-TWE	15	28	13	9
EBP1265P-220M-TWE	22	37	12	9
EBP1265P-330M-TWE	33	58	11	8
EBP1265P-470M-TWE	47	90	9.5	6.5
EBP1265P-680M-TWE	68	130	7.8	4.8



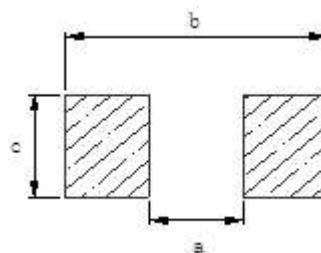
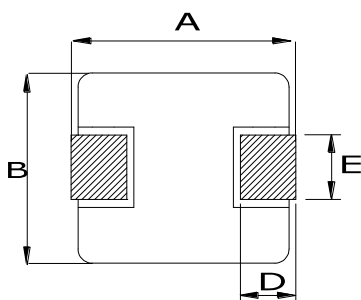
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Notes:

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
EBP1235P	13.5 ±0.5	12.6 ±0.3	3.3 ±0.2	2.0 ±0.5	See remark	8.0	14.2	5.0
EBP1250P	13.5 ±0.5	12.6 ±0.3	4.7 ±0.3	2.0 ±0.5	See remark	8.0	14.2	5.0
EBP1260P	13.5 ±0.5	12.6 ±0.3	5.7 ±0.3	2.0 ±0.5	See remark	8.0	14.2	5.0
EBP1265P	13.5 ±0.5	12.6 ±0.3	6.2 ±0.3	2.0 ±0.5	See remark	8.0	14.2	5.0



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Remarks:

Type	E	Dimensions
EBP1235P	3.85±0.5	R47/R68/R82
	4.7 ±0.5	1R0/1R5/2R2/3R3/4R7
EBP1250P	3.85±0.5	R33/R47/R56/R68/R82/1R0/1R5
	4.7 ±0.5	2R2/3R3/4R7/6R8/8R2/100/150/220/330
EBP1260P	3.85±0.5	R47/R68/1R0/1R5
	4.7 ±0.5	2R2/3R3/4R7/6R8/8R2/100/150/220/330/470/680
EBP1265P	3.85±0.5	R47/R68/1R0/1R5
	4.7 ±0.5	2R2/3R3/4R7/6R8/8R2/100/150/220/330/470/680

■ Marking

- The inductor is marked with a 3-digit code

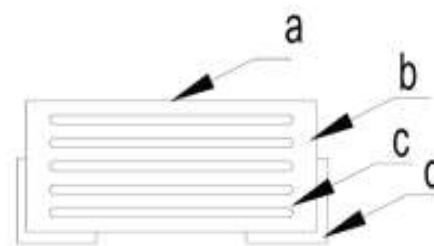
Nominal Inductance	
Example	Nominal Value
1R0	1.0 μH
100	10 μH
101	100 μH



Note : Using Ink for marking

■ Structure and Components

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 -40°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: -40 ± 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.

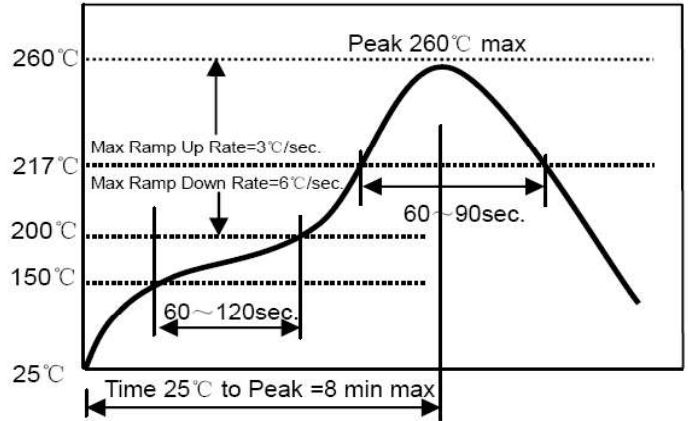
Allowed time above 217°C: 80~120sec.

Max temp: 260°C

Max time at max temp: 10 sec.

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2x max



(2) Iron Soldering Profile

Iron soldering power: Max. 30W

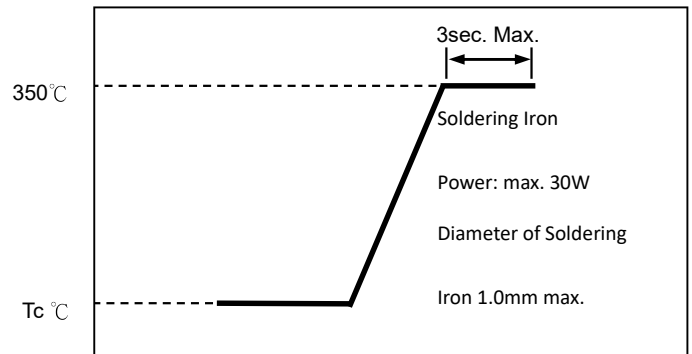
Pre-heating: 150°C/60sec.

Soldering Tip temperature: 350°C Max.

Soldering time: 3sec. Max.

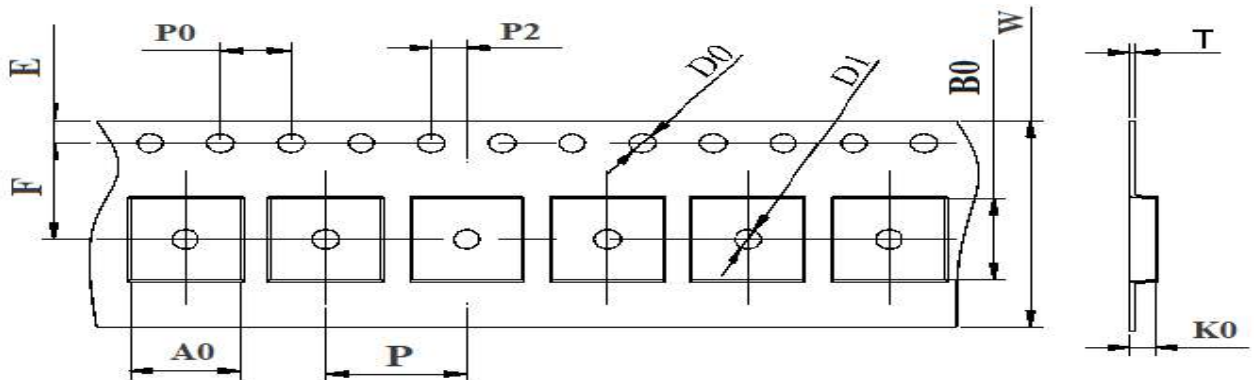
Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering



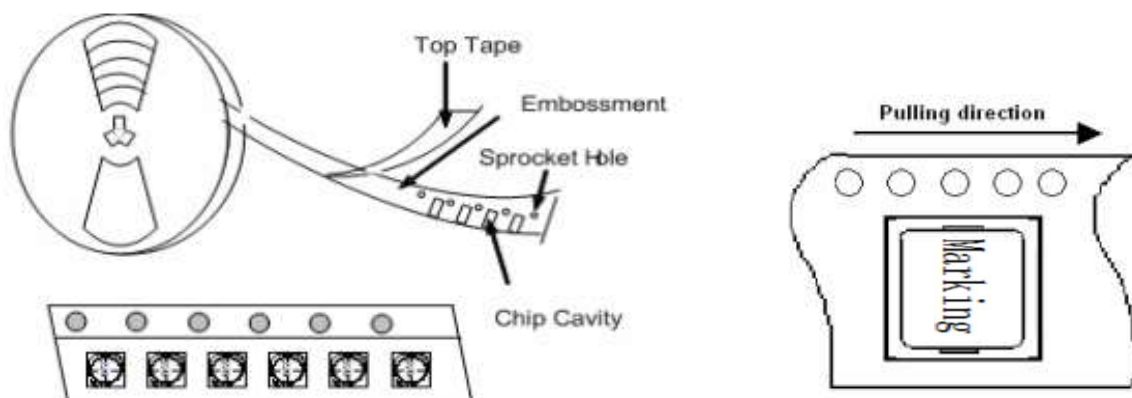
■ Packaging Information

(1) Tape Packaging Dimensions (Unit : mm)



Type	Tape dimensions (mm)											
	W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F
EBP1235P	24.0±0.3	16.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	1.5±0.1	0.5±0.05	13.1±0.1	14.0±0.1	3.8±0.1	1.75±0.1	11.5±0.1
EBP1250P	24.0±0.3	16.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	1.5±0.1	0.5±0.05	13.1±0.1	14.0±0.1	5.4±0.1	1.75±0.1	11.5±0.1
EBP1260P	24.0±0.3	16.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	1.5±0.1	0.5±0.05	13.1±0.1	14.0±0.1	6.3±0.1	1.75±0.1	11.5±0.1
EBP1265P	24.0±0.3	16.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	1.5±0.1	0.5±0.05	13.1±0.1	14.0±0.1	6.8±0.1	1.75±0.1	11.5±0.1

(2) Taping Drawings (Unit : mm)

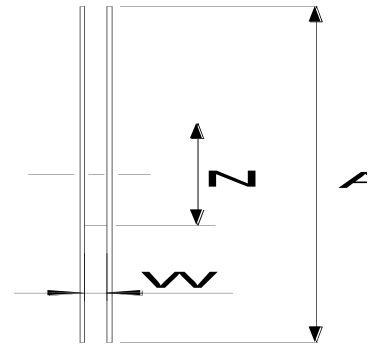
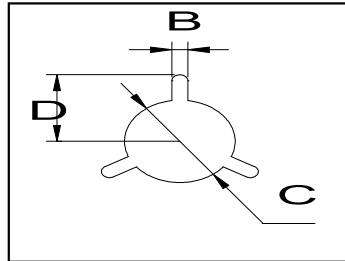
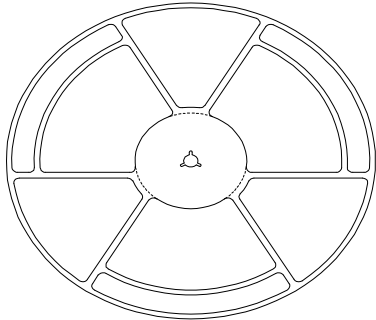




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(3) Reel Dimensions (Unit : mm)



Type	Reel dimensions (mm)					
	A	W	N	B	C	D
EBP1250P	330 +2.0	24.0 ±0.5	97.0 ±0.5	2.2 +0.5	13.0 ±0.2	10.75 ±0.25
EBP1250P	330 +2.0	24.0 ±0.5	97.0 ±0.5	2.2 +0.5	13.0 ±0.2	10.75 ±0.25
EBP1260P	330 +2.0	24.0 ±0.5	97.0 ±0.5	2.2 +0.5	13.0 ±0.2	10.75 ±0.25
EBP1265P	330 +2.0	24.0 ±0.5	97.0 ±0.5	2.2 +0.5	13.0 ±0.2	10.75 ±0.25

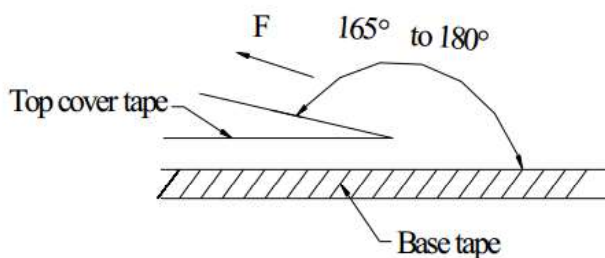
(4) Packaging Quantity(PCS)

Type	Standard Quantity		
	Reel	Inner box	Carton box
EBP1235P	500 pcs / reel	2Reel / box (1,000 pcs)	4 Middle boxes, (4,000 pcs)
EBP1250P	500 pcs / reel	2Reel / box (1,000 pcs)	4 Middle boxes, (4,000 pcs)
EBP1260P	500 pcs / reel	2Reel / box (1,000 pcs)	4 Middle boxes, (4,000 pcs)
EBP1265P	500 pcs / reel	2Reel / box (1,000 pcs)	4 Middle boxes, (4,000 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



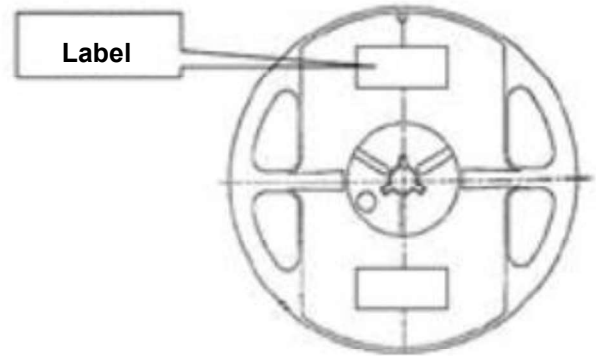


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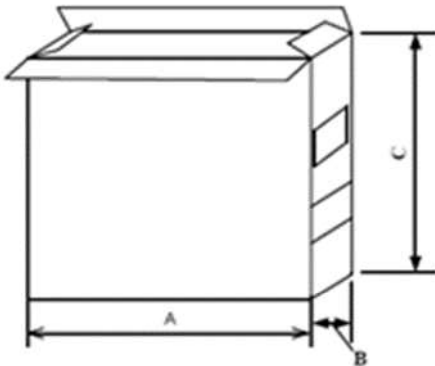
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(6) Reel Label

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

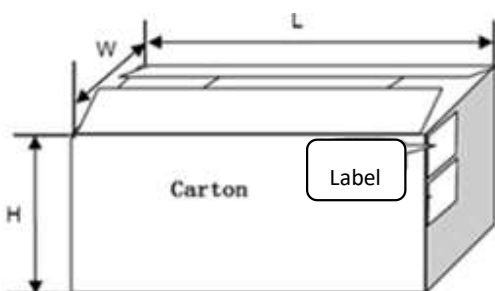


(7) Inner Box



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