



Power Inductor ECD Type B Series Product Specifications

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Power Inductor — ECD Type B Series



Parts Number Explanation

Example:

ECD	1305B	F	R47	M	T	W	Z
Product Type	Size (mm)	Application	Inductance (uH)	Tolerance	Package	Internal Code	Optional
Wire-wound Power Inductor	1305 1311		R47 : 0.47uH R68 : 0.68uH 220 : 22.0uH	N : ±30% M : ±20% K : ±10%	T : Taping		Z : Default Code



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■ **Standard Electrical Specifications**

Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L \leq 10\%$
ECD1305BF-1R0M-TWZ	1.0	9	5.5	9.00
ECD1305BF-1R5M-TWZ	1.5	10	6.5	8.00
ECD1305BF-2R2M-TWZ	2.2	12	9.5	7.00
ECD1305BF-3R3M-TWZ	3.3	15	12	6.40
ECD1305BF-4R7M-TWZ	4.7	18	14.5	5.40
ECD1305BF-6R8M-TWZ	6.8	27	22	4.60
ECD1305BF-100M-TWZ	10.0	38	32	3.80
ECD1305BF-150M-TWZ	15.0	46	42	3.00
ECD1305BF-220M-TWZ	22.0	85	60	2.60
ECD1305BF-330M-TWZ	33.0	100	88	2.00
ECD1305BF-470M-TWZ	47.0	140	125	1.60
ECD1305BF-680M-TWZ	68.0	200	165	1.50
ECD1305BF-101M-TWZ	100	300	260	1.30
ECD1305BF-151M-TWZ	150	400	380	1.00
ECD1305BF-221M-TWZ	220	610	510	0.80
ECD1305BF-331M-TWZ	330	1050	770	0.60
ECD1305BF-471M-TWZ	470	1400	1160	0.50
ECD1305BF-681M-TWZ	680	2020	1650	0.40
ECD1305BF-102M-TWZ	1000	3000	2420	0.35
ECD1305BF-122M-TWZ	1200	3500	2900	0.32
ECD1305BF-152M-TWZ	1500	5000	4300	0.30
ECD1305BF-222M-TWZ	2200	8500	6500	0.25
ECD1305BF-332M-TWZ	3300	9.2Ω	7.6Ω	0.20
ECD1305BF-472M-TWZ	4700	14.5Ω	10.8Ω	0.17
ECD1305BF-822M-TWZ	8200	27.6Ω	23.5Ω	0.12



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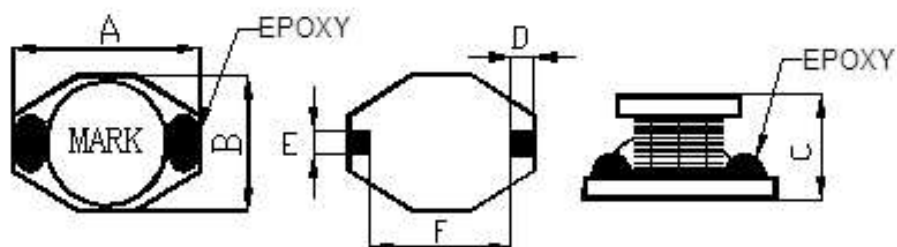
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Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μ H)	DCR ($m\Omega$)	Isat (A)	Irms (A)
	$\pm 20\%$, 100 kHz, 1V	MAX.	TYP.	TYP.
ECD1311BF-2R2M-TWZ	2.2	14	10	14.00
ECD1311BF-3R3M-TWZ	3.3	17	13	10.00
ECD1311BF-4R7M-TWZ	4.7	20	15	10.00
ECD1311BF-6R8M-TWZ	6.8	28	22	10.00
ECD1311BF-100M-TWZ	10.0	40	25	8.00
ECD1311BF-150M-TWZ	15.0	50	30	7.00
ECD1311BF-220M-TWZ	22.0	54	40	6.50
ECD1311BF-330M-TWZ	33.0	80	60	4.00
ECD1311BF-470M-TWZ	47.0	110	88	3.80
ECD1311BF-680M-TWZ	68.0	170	126	3.00
ECD1311BF-101M-TWZ	100	220	160	2.50
ECD1311BF-151M-TWZ	150	334	250	2.00
ECD1311BF-221M-TWZ	220	440	320	2.00
ECD1311BF-331M-TWZ	330	700	490	1.20
ECD1311BF-471M-TWZ	470	950	726	1.00
ECD1311BF-681M-TWZ	680	1.7 Ω	1.25 Ω	0.95
ECD1311BF-102M-TWZ	1000	2.0 Ω	1.7 Ω	0.80
ECD1311BF-222M-TWZ	2200	5.5 Ω	4 Ω	0.40
ECD1311BF-272M-TWZ	2700	5.5 Ω	4.38 Ω	0.40
ECD1311BF-332M-TWZ	3300	6.8 Ω	5.68 Ω	0.30
ECD1311BF-802M-TWZ	8000	17 Ω	14 Ω	0.15

Notes :

1. Test Frequency : 100KHZ/0.25V
2. Tolerance : N: $\pm 30\%$; M: $\pm 20\%$; K: $\pm 10\%$

■ Dimensions



Note : Using Ink for marking

Unit: mm

Type	A	B	C	D	E	F
ECD1305BF	13.5 max.	9.5 max.	5.5 max.	2.54 typ.	2.54 typ.	7.62 typ.
ECD1311BF	13.5 max.	9.5 max.	11.43 max.	2.54 typ.	2.54 typ.	7.62 typ.

■ Marking

- The inductor is marked with a 3-digit code

Nominal Inductance	
Example	Nominal Value
1R0	1.0 μ H
100	10 μ H
101	100 μ H



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● **Reliability test and requirement**

Mechanical		
Item	Specification and Requirement	Test Method
Substrate bending	$\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage or electrical damage.	<p>The sample shall be soldered onto the printed circuit board in figure 1 and a load applied until the figure in the arrow direction is made approximately 3 mm. (keep time 30 seconds).</p> <p style="text-align: center;">F(Pressurization)</p>
Vibration	$\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage.	<p>The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated. Should be applied to the 3 directions (X, Y, Z) for 2 hours each. (A total of 6 hours)</p>
Solderability	New solder More than 90%.	<p>Flux (rosin, isopropyl alcohol {JIS-K-1522}) shall be coated over the whole of the sample before hard, the sample shall then be preheated for about 2 minutes in a temperature of 130~150°C and after it has been immersed to a depth 0.5mm below for 3±0.2 seconds fully in molten solder M705 with a temperature of 245±2°C.</p> <p>More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath.</p>



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Mechanical

Item	Specification and Requirement	Test Method
Resistance to soldering heat. (reflow soldering)	There shall be no damage or problems.	<p style="text-align: center;">Temperature profile of reflow soldering</p> <p style="text-align: center;">The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time. The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</p>

ELECTRICAL

Item	Specification and Requirement	Test Method
Insulation resistance	There shall be no other damage or problems.	DC 100V voltage shall be applied across this sample of top surface and the terminal. The insulation resistance shall be more than $1 \times 10^8 \Omega$.
Dielectric withstand voltage	There shall be no other damage or problems.	AC 100V voltage shall be applied for 1minute across set the top surface and the terminal of this sample.
Temperature characteristics	$\Delta L / L 20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$	The test shall be performed after the sample has stabilized in an ambient temperature of $- 40$ to $+ 125^\circ\text{C}$, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L / L 20^\circ\text{C} \leq \pm 10\%$.



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ENVIROMENT CHARACTERISTICS

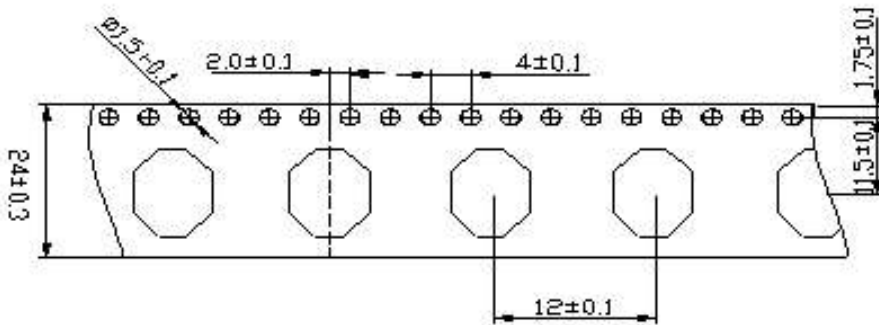
Item	Specification and Requirement	Test Method															
High temperature storage.	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 500 hours in an atmosphere with a temperature of $125 \pm 2^\circ\text{C}$ and a normal humidity. Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.															
Low temperature storage.	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 500 hours in an atmosphere with a temperature of $-40 \pm 3^\circ\text{C}$. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.															
Change of temperature.	$\Delta L/Lo \leq \pm 5\%$ There shall be no other damage of problems.	The sample shall be subject to 5 continuous cycles, such as shown in the table 2 below and then it shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. Table 2 <table border="1"> <thead> <tr> <th></th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>$-40 \pm 3^\circ\text{C}$ (Thermostat No.1)</td> <td>10 min.</td> </tr> <tr> <td>2</td> <td>Standard atmospheric</td> <td>5 sec. or less No.1→No.2</td> </tr> <tr> <td>3</td> <td>$125 \pm 2^\circ\text{C}$ (Thermostat No.2)</td> <td>30 min.</td> </tr> <tr> <td>4</td> <td>Standard atmospheric</td> <td>5 sec. or less No.2→No.1</td> </tr> </tbody> </table>		Temperature	Duration	1	$-40 \pm 3^\circ\text{C}$ (Thermostat No.1)	10 min.	2	Standard atmospheric	5 sec. or less No.1→No.2	3	$125 \pm 2^\circ\text{C}$ (Thermostat No.2)	30 min.	4	Standard atmospheric	5 sec. or less No.2→No.1
	Temperature	Duration															
1	$-40 \pm 3^\circ\text{C}$ (Thermostat No.1)	10 min.															
2	Standard atmospheric	5 sec. or less No.1→No.2															
3	$125 \pm 2^\circ\text{C}$ (Thermostat No.2)	30 min.															
4	Standard atmospheric	5 sec. or less No.2→No.1															
Moisture storage.	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 500 hours in a temperature of $40 \pm 2^\circ\text{C}$ and a humidity(RH) of 90~95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour.															

Test conditions :

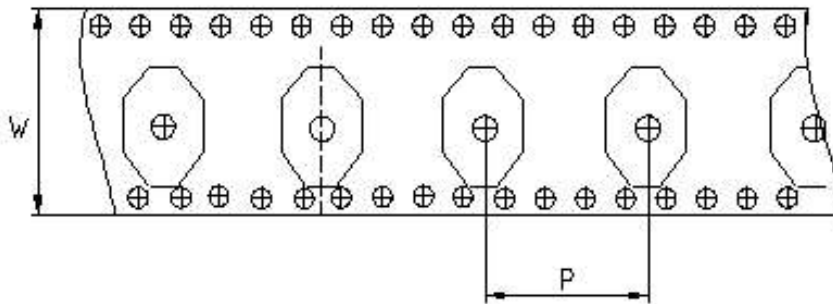
The sample shall be reflow soldered onto the printed circuit board in every test.

■ Packaging Information

(1) CARRIER TAPE DIMENSIONS (Unit : mm)

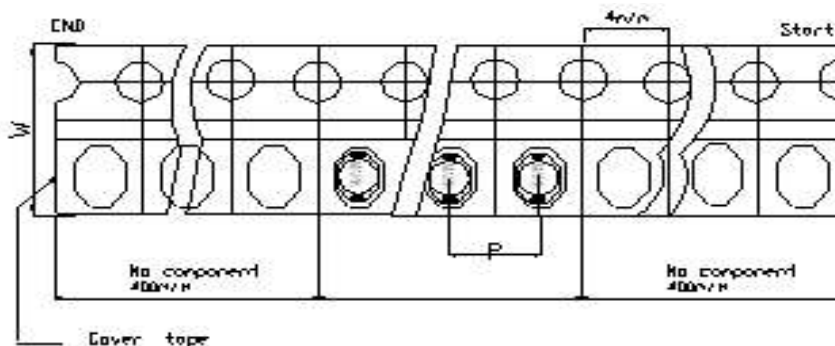


W	24
P	12



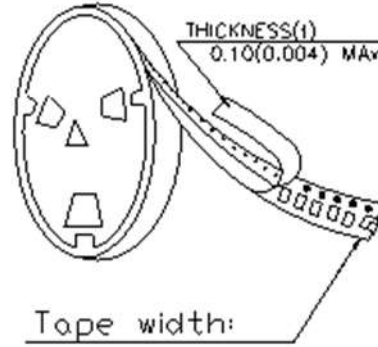
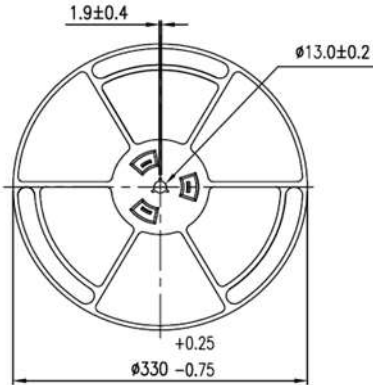
W	32
P	20

(2) TAPING DIMENSIONS (Unit : mm)



Note: After the product is ready, the outermost layer of the reel is 400mmMIN and the innermost layer is 400mmMIN.

(3) REEL DIMENSIONS (Unit : mm)



Type	Tape Width
ECD1305BF	32mm
ECD1311BF	32mm

(4) Quantity (PCS)

Type	pcs / Reel
ECD1305BF	1000
ECD1311BF	250