



Power Inductor ECD F series Product Specifications

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Power Inductor — ECD F Series



Parts Number Explanation

Example:

ECD	0032	F	R47	M	T	W	Z
Product Type	Size (mm)	Application	Inductance (uH)	Tolerance	Package	Internal Code	Optional
Wire-wound Power Inductor	0032 0043 0053 0054 0073 0075		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	$\Delta L/L_0 \leq 10\%$
ECD0032F-1R0M-TWZ	1.0	40	25	3.34
ECD0032F-1R2M-TWZ	1.2	50	32	2.60
ECD0032F-1R5M-TWZ	1.5	60	40	2.40
ECD0032F-1R8M-TWZ	1.8	70	45	2.35
ECD0032F-2R2M-TWZ	2.2	75	55	2.35
ECD0032F-2R7M-TWZ	2.7	100	75	1.90
ECD0032F-3R3M-TWZ	3.3	110	80	1.80
ECD0032F-4R7M-TWZ	4.7	135	120	1.30
ECD0032F-5R6M-TWZ	5.6	200	160	1.20
ECD0032F-6R8M-TWZ	6.8	210	170	1.15
ECD0032F-100M-TWZ	10.0	320	250	1.10
ECD0032F-120M-TWZ	12.0	360	280	0.85
ECD0032F-150M-TWZ	15.0	460	360	0.80
ECD0032F-220M-TWZ	22.0	650	510	0.65
ECD0032F-270M-TWZ	27.0	780	600	0.50
ECD0032F-330M-TWZ	33.0	800	650	0.50
ECD0032F-430M-TWZ	43.0	1.59Ω	1Ω	0.45
ECD0032F-470M-TWZ	47.0	1.60Ω	1.1Ω	0.45
ECD0032F-560M-TWZ	56.0	1.65Ω	1.3Ω	0.30
ECD0032F-680M-TWZ	68.0	1.8Ω	1.5Ω	0.29
ECD0032F-101M-TWZ	100.0	2.85Ω	2.4Ω	0.25
ECD0032F-151M-TWZ	150.0	4.2Ω	3.6Ω	0.16
ECD0032F-221M-TWZ	220.0	6Ω	4.9Ω	0.20
ECD0032F-301M-TWZ	300.0	7Ω	6.1Ω	0.10
ECD0032F-331M-TWZ	330.0	9.5Ω	9Ω	0.09
ECD0032F-471M-TWZ	470.0	11.48Ω	10.5Ω	0.15
ECD0032F-681M-TWZ	680.0	20.5Ω	18.5Ω	0.04
ECD0043F-1R0M-TWZ	1.0	30	17	3.80
ECD0043F-1R2M-TWZ	1.2	36	21	3.50
ECD0043F-1R4M-TWZ	1.4	38	22	3.30



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Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 10\%$
ECD0043F-1R5M-TWZ	1.5	38	28	3.00
ECD0043F-1R8M-TWZ	1.8	42	30	2.91
ECD0043F-2R2M-TWZ	2.2	48	28	3.00
ECD0043F-2R7M-TWZ	2.7	52	36	2.50
ECD0043F-3R0M-TWZ	3.0	55	45	2.50
ECD0043F-3R3M-TWZ	3.3	55	42	2.60
ECD0043F-3R9M-TWZ	3.9	76	50	1.98
ECD0043F-4R7M-TWZ	4.7	94	56	1.90
ECD0043F-5R6M-TWZ	5.6	100	80	1.80
ECD0043F-6R8M-TWZ	6.8	120	80	1.60
ECD0043F-8R2M-TWZ	8.2	132	110	1.26
ECD0043F-100M-TWZ	10.0	180	130	1.15
ECD0043F-120M-TWZ	12.0	210	165	1.05
ECD0043F-150M-TWZ	15.0	240	195	0.92
ECD0043F-180M-TWZ	18.0	338	220	0.84
ECD0043F-220M-TWZ	22.0	378	270	0.76
ECD0043F-270M-TWZ	27.0	410	320	0.71
ECD0043F-330M-TWZ	33.0	510	345	0.70
ECD0043F-390M-TWZ	39.0	560	420	0.66
ECD0043F-470M-TWZ	47.0	800	630	0.65
ECD0043F-560M-TWZ	56.0	960	760	0.50
ECD0043F-680M-TWZ	68.0	1.117Ω	0.92Ω	0.46
ECD0043F-820M-TWZ	82.0	1.345Ω	1.06Ω	0.45
ECD0043F-101M-TWZ	100.0	1.52Ω	1.15Ω	0.44
ECD0043F-151M-TWZ	150.0	2Ω	1.6Ω	0.42
ECD0043F-221M-TWZ	220.0	3.4Ω	2.5Ω	0.36
ECD0043F-331M-TWZ	330.0	5.3Ω	3.7Ω	0.28
ECD0043F-471M-TWZ	470.0	6.8Ω	4.9Ω	0.20
ECD0043F-681M-TWZ	680.0	10Ω	8.0Ω	0.18
ECD0043F-102M-TWZ	1000.0	15.6Ω	12.5Ω	0.14



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Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 10\%$
ECD0053F-1R0M-TWZ	1.0	30	15	4.50
ECD0053F-1R2M-TWZ	1.2	25	16	4.60
ECD0053F-1R5M-TWZ	1.5	30	16	4.10
ECD0053F-2R2M-TWZ	2.2	35	22	3.50
ECD0053F-2R7M-TWZ	2.7	40	30	3.20
ECD0053F-3R3M-TWZ	3.3	50	36	3.00
ECD0053F-3R9M-TWZ	3.9	60	48	2.60
ECD0053F-4R7M-TWZ	4.7	70	45	2.50
ECD0053F-5R6M-TWZ	5.6	80	55	2.40
ECD0053F-6R8M-TWZ	6.8	90	60	2.20
ECD0053F-8R2M-TWZ	8.2	100	80	2.00
ECD0053F-100M-TWZ	10	120	85	1.80
ECD0053F-150M-TWZ	15	150	125	1.70
ECD0053F-180M-TWZ	18	232	160	1.60
ECD0053F-220M-TWZ	22	220	180	1.50
ECD0053F-270M-TWZ	27	260	220	1.20
ECD0053F-330M-TWZ	33	330	260	1.10
ECD0053F-390M-TWZ	39	400	300	1.00
ECD0053F-470M-TWZ	47	430	370	0.90
ECD0053F-680M-TWZ	68	600	515	0.75
ECD0053F-820M-TWZ	82	820	600	0.65
ECD0053F-101M-TWZ	100	900	780	0.60
ECD0053F-121M-TWZ	120	1000	850	0.58
ECD0053F-151M-TWZ	150	1560	1200	0.53
ECD0053F-221M-TWZ	220	2000	1700	0.38
ECD0053F-331M-TWZ	330	4000	2800	0.35
ECD0053F-391M-TWZ	390	4100	3000	0.32
ECD0053F-451M-TWZ	450	4200	3200	0.30
ECD0053F-471M-TWZ	470	4300	3200	0.20
ECD0053F-681M-TWZ	680	7000	-	0.18
ECD0053F-102M-TWZ	1000	8000	7200	0.13



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Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 10\%$
ECD0054F-1R0M-TWZ	1.0	15	8	5.90
ECD0054F-1R2M-TWZ	1.2	16	10	5.30
ECD0054F-1R5M-TWZ	1.5	20	13	5.30
ECD0054F-2R2M-TWZ	2.2	26	16	4.60
ECD0054F-2R7M-TWZ	2.7	28	22	4.40
ECD0054F-3R3M-TWZ	3.3	34	24	4.30
ECD0054F-3R9M-TWZ	3.9	37	26	4.10
ECD0054F-4R7M-TWZ	4.7	40	28	3.50
ECD0054F-6R8M-TWZ	6.8	60	44	3.00
ECD0054F-100M-TWZ	10.0	75	60	2.00
ECD0054F-120M-TWZ	12.0	100	88	1.60
ECD0054F-150M-TWZ	15.0	120	95	1.55
ECD0054F-180M-TWZ	18.0	150	110	1.55
ECD0054F-220M-TWZ	22.0	170	120	1.50
ECD0054F-330M-TWZ	33.0	230	190	0.88
ECD0054F-470M-TWZ	47.0	350	255	0.85
ECD0054F-680M-TWZ	68.0	460	350	0.61
ECD0054F-820M-TWZ	82.0	600	540	0.58
ECD0054F-101M-TWZ	100.0	700	520	0.55
ECD0054F-121M-TWZ	120.0	770	610	0.55
ECD0054F-151M-TWZ	150.0	1200	940	0.52
ECD0054F-221M-TWZ	220.0	1650	1165	0.50
ECD0054F-331M-TWZ	330.0	1800	1600	0.28
ECD0054F-471M-TWZ	470.0	3000	2300	0.25
ECD0054F-681M-TWZ	680.0	5100	3500	0.25
ECD0054F-821M-TWZ	820.0	5300	4500	0.22
ECD0054F-102M-TWZ	1000.0	7000	5500	0.10
ECD0073F-1R0M-TWZ	1.0	15	10	6.00
ECD0073F-1R5M-TWZ	1.5	15	10	5.10
ECD0073F-2R2M-TWZ	2.2	18	13	4.00
ECD0073F-3R3M-TWZ	3.3	28	18	3.80



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Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 10\%$
ECD0073F-4R7M-TWZ	4.7	35	24	3.50
ECD0073F-6R8M-TWZ	6.8	70	40	1.60
ECD0073F-100M-TWZ	10	80	55	1.44
ECD0073F-120M-TWZ	12	90	60	1.39
ECD0073F-150M-TWZ	15	104	68	1.24
ECD0073F-180M-TWZ	18	111	86	1.12
ECD0073F-220M-TWZ	22	129	105	1.07
ECD0073F-270M-TWZ	27	150	130	0.94
ECD0073F-330M-TWZ	33	170	150	0.85
ECD0073F-390M-TWZ	39	217	180	0.74
ECD0073F-470M-TWZ	47	250	225	0.68
ECD0073F-560M-TWZ	56	353	270	0.64
ECD0073F-680M-TWZ	68	370	280	0.59
ECD0073F-820M-TWZ	82	406	345	0.54
ECD0073F-101M-TWZ	100	480	450	0.51
ECD0073F-121M-TWZ	120	536	520	0.49
ECD0073F-151M-TWZ	150	760	680	0.40
ECD0073F-181M-TWZ	180	1022	840	0.36
ECD0073F-221M-TWZ	220	1200	960	0.31
ECD0073F-331M-TWZ	330	1500	1300	0.29
ECD0073F-471M-TWZ	470	2500	2200	0.28
ECD0073F-681M-TWZ	680	3200	2700	0.20
ECD0073F-821M-TWZ	820	3900	3150	0.13
ECD0073F-102M-TWZ	1000	4760	4400	0.11
ECD0075F-1R0M-TWZ	1.0	10	6.5	8.50
ECD0075F-1R5M-TWZ	1.5	18	10	5.20
ECD0075F-2R2M-TWZ	2.2	20	12	5.00
ECD0075F-3R3M-TWZ	3.3	30	16	3.90
ECD0075F-4R7M-TWZ	4.7	35	20	3.80
ECD0075F-5R6M-TWZ	5.6	40	23	3.20
ECD0075F-6R8M-TWZ	6.8	45	26	3.10



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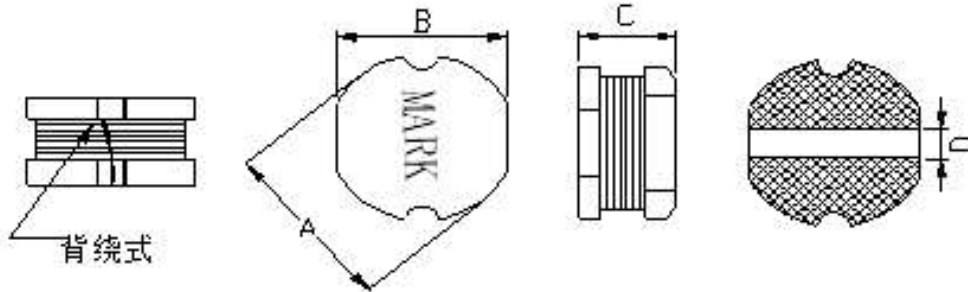
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Part No.	Inductance	DCR (mΩ)	DCR (mΩ)	Isat (A)
	L (μH)	MAX	TYP	$\Delta L/L_0 \leq 10\%$
ECD0075F-8R2M-TWZ	8.2	50	30	2.80
ECD0075F-100M-TWZ	10.0	50	38	2.60
ECD0075F-120M-TWZ	12.0	70	40	2.10
ECD0075F-150M-TWZ	15.0	80	45	2.00
ECD0075F-180M-TWZ	18.0	100	55	1.60
ECD0075F-220M-TWZ	22.0	110	70	1.50
ECD0075F-270M-TWZ	27.0	120	86	1.30
ECD0075F-330M-TWZ	33.0	130	100	1.20
ECD0075F-390M-TWZ	39.0	160	120	1.10
ECD0075F-470M-TWZ	47.0	180	135	1.10
ECD0075F-560M-TWZ	56.0	240	150	0.94
ECD0075F-680M-TWZ	68.0	280	190	0.85
ECD0075F-820M-TWZ	82.0	360	220	0.78
ECD0075F-101M-TWZ	100.0	370	290	0.72
ECD0075F-121M-TWZ	120.0	470	320	0.66
ECD0075F-151M-TWZ	150.0	640	400	0.58
ECD0075F-181M-TWZ	180.0	710	540	0.51
ECD0075F-221M-TWZ	220.0	780	650	0.49
ECD0075F-301M-TWZ	300.0	1100	810	0.40
ECD0075F-331M-TWZ	330.0	1260	900	0.40
ECD0075F-471M-TWZ	470.0	1890	1380	0.35
ECD0075F-561M-TWZ	560.0	2000	1500	0.33
ECD0075F-681M-TWZ	680.0	2560	2000	0.31
ECD0075F-821M-TWZ	820.0	3250	2300	0.30
ECD0075F-102M-TWZ	1000.0	3300	2800	0.30
ECD0075F-222M-TWZ	2200.0	6800	6000	0.18
ECD0075F-103M-TWZ	10000	44.1Ω	3100	0.09

Notes :

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

■ Dimensions



Note : Using Ink for marking

Unit: mm

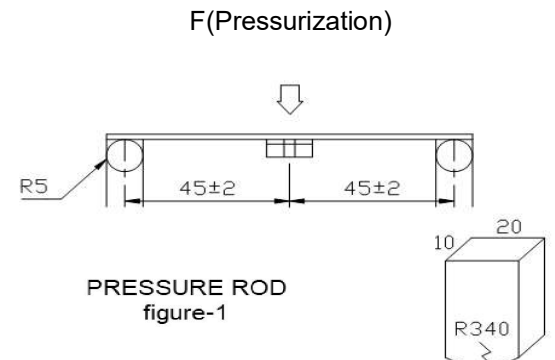
Type	A	B	C	D
ECD0032F	3.5 ±0.3	3.0 ±0.3	2.1 ±0.3	1.2 ±0.3
ECD0043F	4.5 ±0.3	4.0 ±0.3	3.2 ±0.3	1.6 Ref.
ECD0053F	5.8 ±0.3	5.2 ±0.3	3.0 ±0.3	2.0 Ref.
ECD0054F	5.8 ±0.3	5.2 ±0.3	4.5 ±0.3	2.0 Ref.
ECD0073F	7.8 ±0.3	7.0 ±0.3	3.5 ±0.3	2.5 Ref.
ECD0075F	7.8 ±0.3	7.0 ±0.3	5.0 ±0.3	2.5 Ref.

■ 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

● **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>  <p style="text-align: center;">PRESSURE ROD figure-1</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>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	$\Delta L / L20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$	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 $\Delta L / L20^\circ\text{C} \leq \pm 10\%$.



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ENVIROMENT CHARACTERISTICS

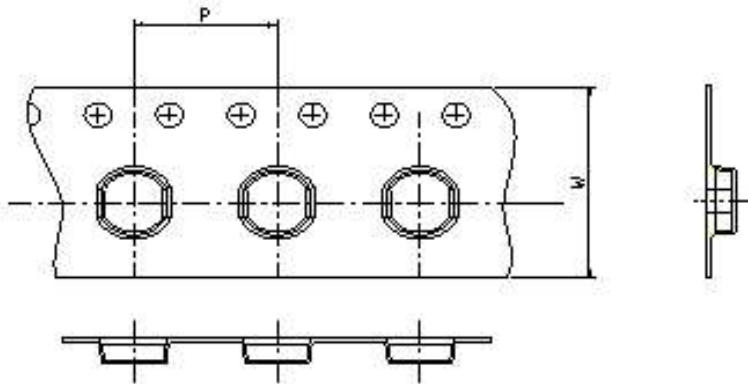
Item	Specification and Requirement	Test Method															
High temperature storage.	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage.	The sample shall be left for 500 hours in an atmosphere with a temperature of $125 \pm 2^\circ\text{C}$ and a normal humidity. Upon completion of the 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. <p style="text-align: center;">Table 2</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step.</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>	Step.	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
Step.	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

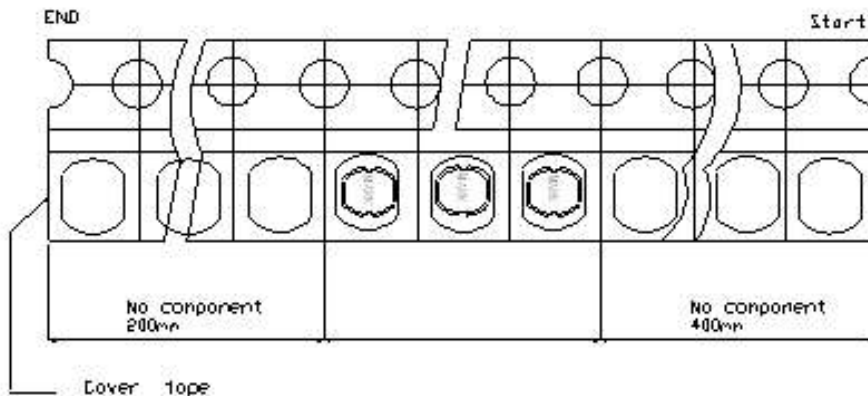
(1) CARRIER TAPE DIMENSIONS (Unit : mm)



Type	0032F/0043F/0053F/0054F	0073F/0075F
W	12	16
P	8	12

(2) TAPING DIMENSIONS (Unit : mm)

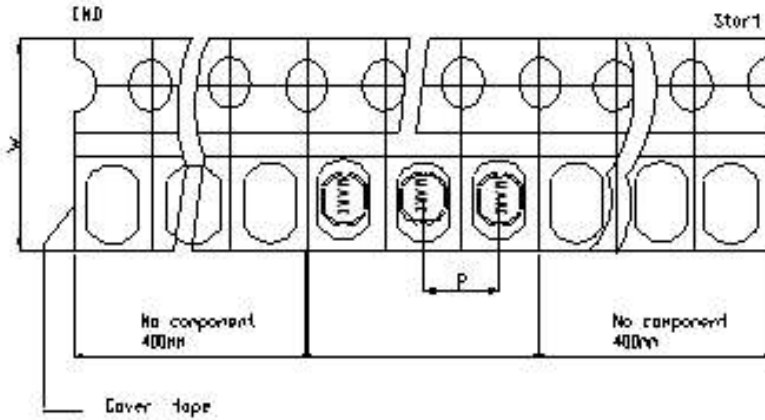
■ ECD0032F/ECD0043F/ECD0053F/ECD0054F



Note:

After the product is ready, the outermost layer of the reel is 400mmMIN and the innermost layer is 200mmMIN.

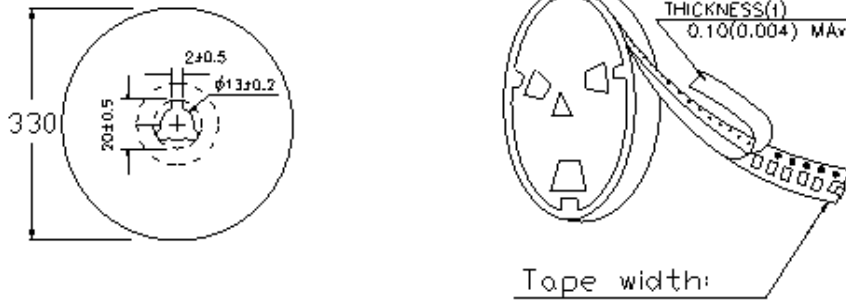
■ ECD0073F/ECD0075F



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)



■ Tape Width :

- ECD0032F/ECD0043F/ECD0053F/ECD0054F are 12mm.
- ECD0073F/ECD0075F are 16mm.

(4) Quantity (PCS)

Type	pcs / Reel
ECD0032F	3000
ECD0043F	2000
ECD0053F	2000
ECD0054F	1500
ECD0073F	1000
ECD0075F	1000