

ESSL Series

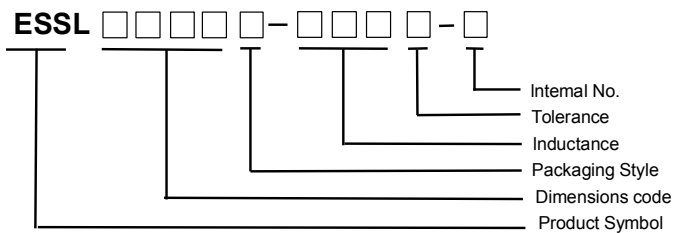
Features

- RoHS compliant
- High energy storage and very low resistance.
- Smallest size and high performance

Applications

- Notebook computers, Step-up and step-down converters
- Flash, memory programmers. etc..

Product Identification

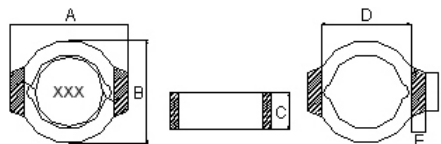


- Packaging: T : Tape and Reel , B : Bulk

Shapes and Dimensions

Recommended Pattern

ESSL04LP



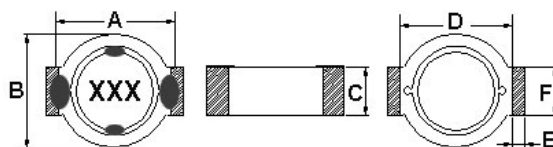
Dimensions in mm

TYPE	A	B	C	D	E	F
ESSL04LP	6.5 ⁺⁰	5.6 ⁺⁰	1.0±0.2	4.8Ref	0.8Ref	2.0Ref

Dimensions in mm

TYPE	A	B	C	D
ESSL04LP	1.40	4.06	6.86	3.56

ESSL0400



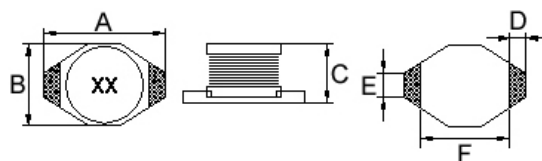
Dimensions in mm

TYPE	A	B	C	D	E	F
ESSL0400	6.5 ⁺⁰	5.6 ⁺⁰	2.0 ⁺⁰	4.8Ref	0.8Ref	2.0Ref

Dimensions in mm

TYPE	A	B	C	D
ESSL0400	1.40	4.06	6.86	3.56

ESSL0402



Dimensions in mm

A	B	C	D	E	F
6.60 ⁺⁰	4.45 ⁺⁰	2.92 ⁺⁰	1.02	1.27	4.32

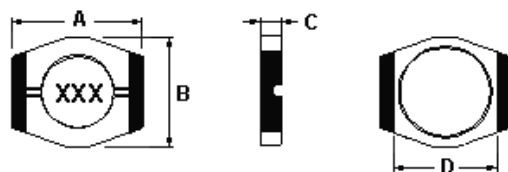
Dimensions in mm

TYPE	A	B	C	D
ESSL0402	1.40	4.06	6.86	3.56

SMD Unshielded Power Inductors - ESSL Series

ESSL 0614

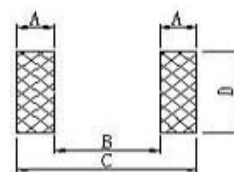
Shapes and Dimensions



Dimensions in mm

A	B	C	D
9.14 ⁺⁰	7.87 ⁺⁰	1.65 ⁺⁰	7.24 ⁺⁰

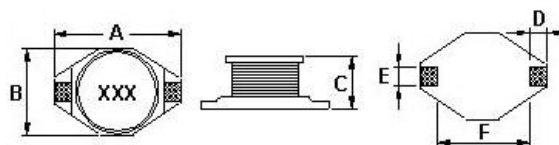
Recommended Pattern



Dimensions in mm

A	B	C	D
1.21	7.24	9.66	5.84

ESSL0802/ 0804/ 0810



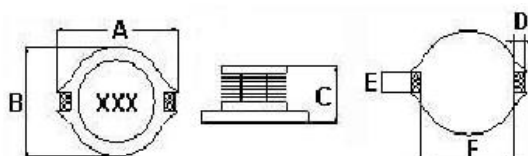
Dimensions in mm

TYPE	A	B	C	D	E	F
ESSL0802	12.95 ⁺⁰	9.4 ⁺⁰	3.0 ⁺⁰	2.54	2.54	7.62
ESSL0804	12.95 ⁺⁰	9.40 ⁺⁰	5.21 ⁺⁰	2.54	2.54	7.62
ESSL0810	12.95 ⁺⁰	9.40 ⁺⁰	11.43 ⁺	2.54	2.54	7.62

Dimension in mm

TYPE	A	B	C	D
ESSL0802	2.92	7.37	13.21	2.79
ESSL0804	2.92	7.37	13.21	2.79
ESSL0810	2.92	7.37	13.21	2.79

ESSL1306



Dimensions in mm

A	B	C	D	E	F
18.54 ⁺⁰	15.24 ⁺⁰	7.11 ⁺⁰	2.54	2.54	12.7

Dimension in mm

TYPE	A	B	C	D
ESSL1306	2.92	12.45	18.29	2.79

Electrical Characteristics

Part Number	Inductance ^① (μH)	Tolerance (±%)	DC Resistance (Ω) Max	I sat ^② (A)	I rms ^③ (A)
ESSL04LP-1R2M-N	1.2	20	0.08	2.10	3.60
ESSL04LP-1R5M-N	1.5	20	0.10	1.90	2.80
ESSL04LP-2R2M-N	2.2	20	0.12	1.60	2.40
ESSL04LP-3R3M-N	3.3	20	0.16	1.30	2.00
ESSL04LP-4R7M-N	4.7	20	0.20	1.10	1.70
ESSL04LP-6R8M-N	6.8	20	0.32	0.90	1.20
ESSL04LP-100M-N	10	20	0.41	0.80	1.10
ESSL04LP-150M-N	15	20	0.55	0.65	0.90
ESSL04LP-220M-N	22	20	0.85	0.50	0.83
ESSL04LP-330M-N	33	20	1.30	0.40	0.62
ESSL04LP-470M-N	47	20	1.80	0.35	0.52
ESSL04LP-680M-N	68	20	2.50	0.30	0.35
ESSL04LP-101M-N	100	20	3.50	0.25	0.27
ESSL04LP-151M-N	150	20	5.00	0.18	0.24
ESSL04LP-221M-N	220	20	7.00	0.16	0.23
ESSL04LP-331M-N	330	20	15.0	0.13	0.13

1. Inductance tested at 100 KHz, 0.1 Vrms.

2. Inductance drop = 10% typ. at Isat.

3. ΔT = 40℃ rise typ at Irms.

● Tolerance: M = ±20%

● Operating temperature range - 40℃ ~ 125℃ (Including self - temperature rise)

Electrical Characteristics

Part Number	Inductance ^① (μH)	Tolerance (±%)	DC Resistance (Ω) Max	I sat ^② (A)	I rms ^③ (A)
ESSL0400T-1R0M-N	1.0	20	0.05	2.50	2.3
ESSL0400T-1R5M-N	1.5	20	0.06	2.20	2.1
ESSL0400T-2R2M-N	2.2	20	0.07	1.80	1.7
ESSL0400T-3R3M-N	3.3	20	0.12	1.40	1.3
ESSL0400T-4R7M-N	4.7	20	0.15	1.20	1.1
ESSL0400T-6R8M-N	6.8	20	0.20	1.10	1.0
ESSL0400T-100M-N	10	20	0.30	1.00	0.90
ESSL0400T-150M-N	15	20	0.40	0.80	0.70
ESSL0400T-220M-N	22	20	0.54	0.60	0.50
ESSL0400T-330M-N	33	20	0.74	0.50	0.45
ESSL0400T-470M-N	47	20	1.1	0.45	0.40
ESSL0400T-680M-N	68	20	1.6	0.35	0.35
ESSL0400T-101M-N	100	20	2.3	0.30	0.30
ESSL0400T-151M-N	150	20	3.5	0.25	0.25
ESSL0400T-221M-N	220	20	5.7	0.20	0.18
ESSL0400T-331M-N	330	20	8.2	0.16	0.16
ESSL0400T-471M-N	470	20	10.8	0.14	0.12
ESSL0400T-681M-N	680	20	17.2	0.12	0.10
ESSL0400T-102M-N	1000	20	22.6	0.08	0.08

1. Inductance tested at 100 KHz, 0.1 Vrms.

2. Inductance drop = 10% typ. at Isat.

3. ΔT = 40℃ rise typ at Irms.

● Tolerance: M = ±20%

● Operating temperature range – 40℃ ~ 125℃ (Including self - temperature rise)

Electrical Characteristics

Part Number	Inductance ^① (μH)	Tolerance (±%)	SRF (MHz) Typ	DC Resistance (Ω) Max	Isat ^② (A)	Irms ^③ (A)
ESSL0402T-1R0M-N	1.0	20	130	0.05	2.90	2.9
ESSL0402T-1R5M-N	1.5	20	115	0.05	2.60	2.8
ESSL0402T-2R2M-N	2.2	20	90	0.07	2.30	2.4
ESSL0402T-3R3M-N	3.3	20	70	0.08	2.00	2.0
ESSL0402T-4R7M-N	4.7	20	50	0.09	1.50	1.5
ESSL0402T-6R8M-N	6.8	20	45	0.13	1.20	1.4
ESSL0402T-100M-N	10	20	35	0.16	1.10	1.1
ESSL0402T-150M-N	15	20	30	0.23	0.90	1.2
ESSL0402T-220M-N	22	20	20	0.37	0.70	0.8
ESSL0402T-330M-N	33	20	15	0.51	0.58	0.6
ESSL0402T-470M-N	47	20	14	0.64	0.50	0.5
ESSL0402T-680M-N	68	20	11	0.86	0.40	0.4
ESSL0402T-101M-N	100	20	9	1.27	0.31	0.3
ESSL0402T-151M-N	150	20	6	2.00	0.27	0.25
ESSL0402T-221M-N	220	20	5.5	3.11	0.22	0.20
ESSL0402T-331M-N	330	20	5	3.80	0.18	0.16
ESSL0402T-471M-N	470	20	4	5.06	0.16	0.15
ESSL0402T-681M-N	680	20	3	9.20	0.14	0.12
ESSL0402T-102M-N	1000	20	2	13.8	0.10	0.07

1. Inductance tested at 100 KHz, 0.1 Vrms.

2. Inductance drop = 20% typ. at Isat.

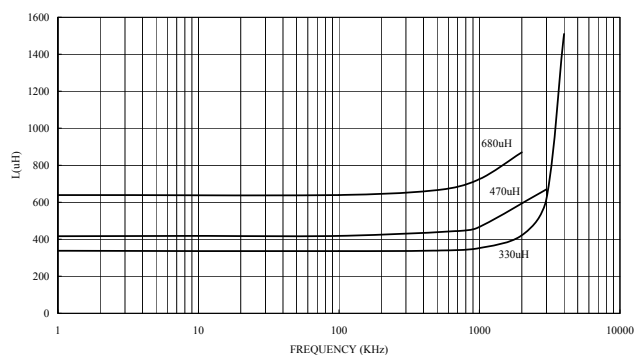
3. ΔT = 30°C rise typ at Irms.

● Tolerance: M = ±20%

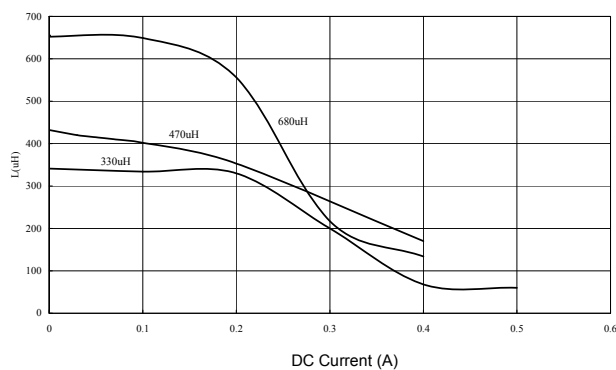
● Operating temperature range - 40°C ~ 125°C (Including self - temperature rise)

Test Instruments :

INDUCTANCE vs. FREQUENCY CHARACTERISTICS



Inductance vs. DC Current



Electrical Characteristics

Part Number	Inductance (μ H)	Tolerance ($\pm$ %)	D.C. Resistance (Ω) Max	Isat (A)
ESSL0614T-4R7M-N	4.7	20	0.145	1.60
ESSL0614T-6R8M-N	6.8	20	0.165	1.30
ESSL0614T-100M-N	10	20	0.240	1.00
ESSL0614T-150M-N	15	20	0.300	0.90
ESSL0614T-220M-N	22	20	0.420	0.70
ESSL0614T-330M-N	33	20	0.550	0.60
ESSL0614T-470M-N	47	20	0.765	0.40
ESSL0614T-680M-N	68	20	1.10	0.40
ESSL0614T-101M-N	100	20	1.60	0.30
ESSL0614T-151M-N	150	20	2.50	0.25
ESSL0614T-221M-N	220	20	3.65	0.22
ESSL0614T-331M-N	330	20	4.65	0.18
ESSL0614T-471M-N	470	20	6.75	0.14
ESSL0614T-681M-N	680	20	9.15	0.12
ESSL0614T-102M-N	1000	20	14.2	0.10

- Inductance tested at 100 KHz, 0.1 Vrms.I
- Inductance drop = 10% typ. at Isat
- Tolerance: M = $\pm$ 20%

Electrical Characteristics

Part Number	Inductance ^① (μ H)	Tolerance ($\pm$ %)	SRF (MHz) Typ	DC Resistance (Ω) Max	Isat ^② (A)	Irms ^③ (A)
ESSL0802T-100M-N	10	20	35	0.09	2.4	2.0
ESSL0802T-150M-N	15	20	33	0.12	2.0	1.5
ESSL0802T-220M-N	22	20	25	0.19	1.6	1.3
ESSL0802T-330M-N	33	20	19	0.25	1.4	1.1
ESSL0802T-470M-N	47	20	14	0.32	1.0	0.8
ESSL0802T-680M-N	68	20	12	0.55	0.9	0.7
ESSL0802T-101M-N	100	20	10	0.70	0.7	0.6
ESSL0802T-151M-N	150	20	8	1.00	0.6	0.5
ESSL0802T-221M-N	220	20	6	1.60	0.5	0.4
ESSL0802T-331M-N	330	20	5	2.20	0.4	0.3
ESSL0802T-471M-N	470	20	4	3.30	0.3	0.2
ESSL0802T-681M-N	680	20	3	4.40	0.2	0.1
ESSL0802T-102M-N	1000	20	2.5	7.00	0.1	0.05

1. Inductance tested at 100 KHz, 0.1 Vrms.

2. Inductance drop = 20% typ. at Isat.

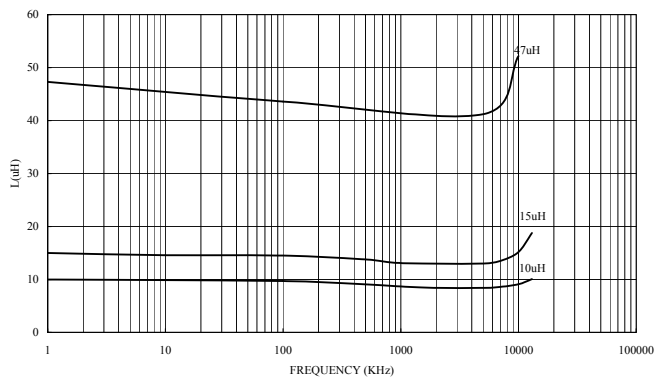
3. $\Delta T = 30^\circ\text{C}$ rise typ at Irms.

● Tolerance: M = $\pm 20\%$

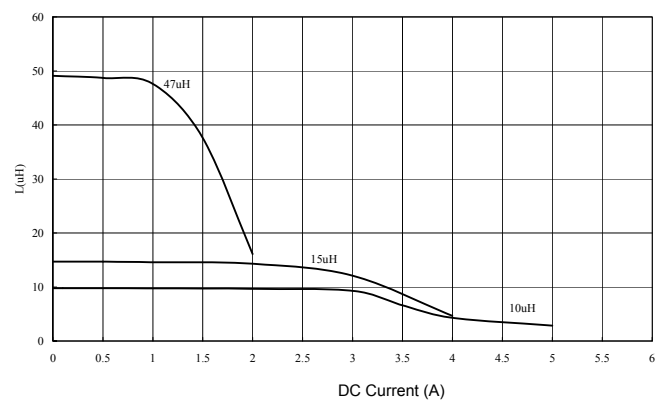
● Operating temperature range $-40^\circ\text{C} \sim 125^\circ\text{C}$ (Including self - temperature rise)

Test Instruments :

INDUCTANCE vs. FREQUENCY CHARACTERISTICS



Inductance vs. DC Current



Electrical Characteristics

Part Number	Inductance ^① (μH)	Tolerance (±%)	SRF (MHz) Typ	DC Resistance (Ω) Max	Isat ^② (A)	Irms ^③ (A)
ESSL0804T-1R0M-N	1.0	20	100	0.009	9.0	6.8
ESSL0804T-1R5M-N	1.5	20	90	0.010	8.0	6.4
ESSL0804T-2R2M-N	2.2	20	80	0.012	7.0	6.1
ESSL0804T-3R3M-N	3.3	20	65	0.015	6.4	5.4
ESSL0804T-4R7M-N	4.7	20	45	0.018	5.4	4.8
ESSL0804T-6R8M-N	6.8	20	38	0.027	4.6	4.4
ESSL0804T-100M-N	10	20	30	0.038	3.8	3.9
ESSL0804T-150M-N	15	20	27	0.046	3.0	3.1
ESSL0804T-220M-N	22	20	19	0.085	2.6	2.7
ESSL0804T-330M-N	33	20	15	0.100	2.0	2.1
ESSL0804T-470M-N	47	20	12	0.140	1.6	1.8
ESSL0804T-680M-N	68	20	10	0.200	1.4	1.5
ESSL0804T-101M-N	100	20	9	0.260	1.2	1.3
ESSL0804T-151M-N	150	20	6	0.400	1.0	1.0
ESSL0804T-221M-N	220	20	5	0.610	0.8	0.8
ESSL0804T-331M-N	330	20	4.5	1.020	0.6	0.6
ESSL0804T-471M-N	470	20	3.5	1.270	0.5	0.5
ESSL0804T-681M-N	680	20	2.5	2.020	0.4	0.4
ESSL0804T-102M-N	1000	20	2.0	3.000	0.3	0.3

1. Inductance tested at 100 KHz, 0.1 Vrms.

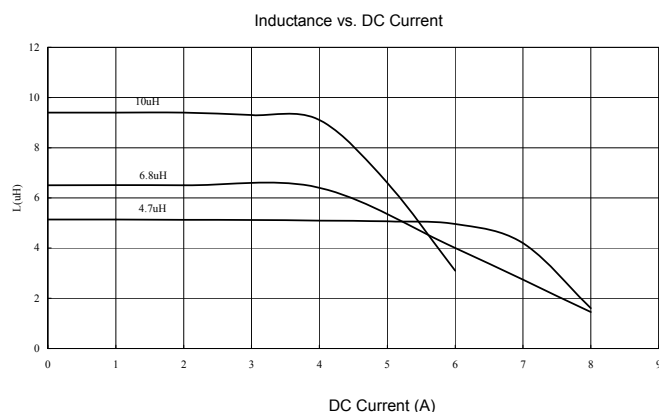
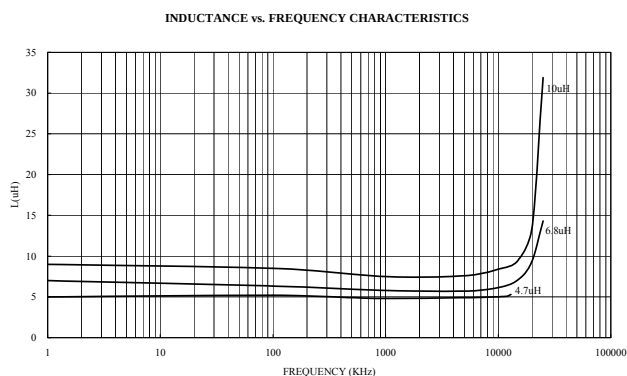
2. Inductance drop = 20% typ. at Isat.

3. ΔT = 15°C rise typ at Irms.

● Tolerance: M = ±20%

● Operating temperature range - 40°C ~ 125°C (Including self - temperature rise)

Test Instruments :



Electrical Characteristics

Part Number	Inductance ^① (μ H)	Tolerance ($\pm$ %)	DC Resistance (Ω) Max	SRF (MHz) Typ	Isat ^② (A)	Irms ^③ (A)
ESSL0810T-100M-N	10	20	0.033	22	8.0	3.5
ESSL0810T-150M-N	15	20	0.042	18	7.0	3.0
ESSL0810T-220M-N	22	20	0.054	11	5.5	2.5
ESSL0810T-330M-N	33	20	0.08	9	4.0	2.0
ESSL0810T-470M-N	47	20	0.10	8	3.8	1.6
ESSL0810T-680M-N	68	20	0.17	7	3.0	1.2
ESSL0810T-101M-N	100	20	0.22	5	2.5	1.2
ESSL0810T-151M-N	150	20	0.34	4	2.0	0.9
ESSL0810T-221M-N	220	20	0.44	3.5	1.6	0.7
ESSL0810T-331M-N	330	20	0.70	2.5	1.2	0.6
ESSL0810T-471M-N	470	20	0.95	2	1.0	0.3
ESSL0810T-681M-N	680	20	1.2	2	1.0	0.2
ESSL0810T-102M-N	1000	20	2.0	1.5	0.8	0.1

1. Inductance tested at 100 KHz, 0.1 Vrms.

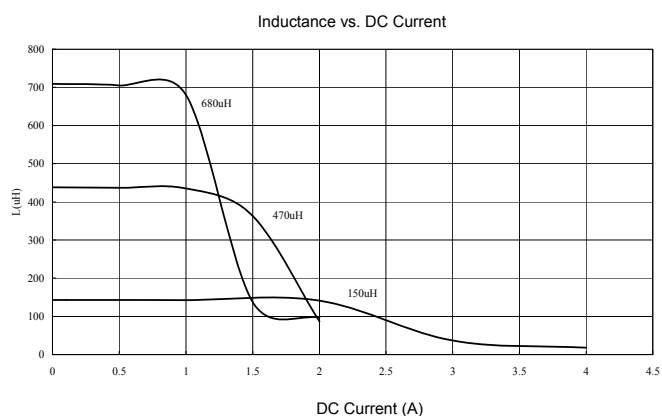
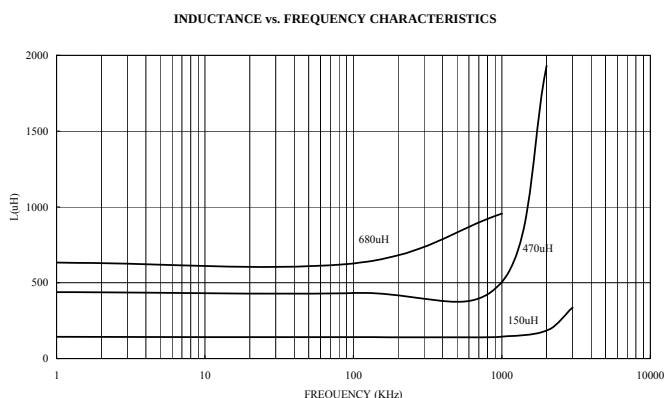
2. Inductance drop = 20% typ. at Isat.

3. $\Delta T = 40^\circ\text{C}$ rise typ at Irms.

● Tolerance: M = $\pm 20\%$

● Operating temperature range $-40^\circ\text{C} \sim 125^\circ\text{C}$ (Including self - temperature rise)

Test Instruments :



Electrical Characteristics

Part Number	Inductance ^① (μH)	Tolerance (±%)	SRF (MHz) Typ	DC Resistance (Ω+15%)	Isat ^② (A)	Irms ^③ (A)
ESSL1306T-1R0M-N	1.0	20	80	0.011	20	8.6
ESSL1306T-2R2M-N	2.2	20	80	0.014	16	7.1
ESSL1306T-3R3M-N	3.3	20	60	0.016	14	6.2
ESSL1306T-5R6M-N	5.6	20	40	0.022	12	5.3
ESSL1306T-100M-N	10	20	30	0.032	10	4.3
ESSL1306T-150M-N	15	20	22	0.036	8.0	4.0
ESSL1306T-220M-N	22	20	20	0.047	7.0	3.5
ESSL1306T-330M-N	33	20	15	0.066	5.5	3.0
ESSL1306T-470M-N	47	20	9	0.087	4.5	2.6
ESSL1306T-680M-N	68	20	8	0.13	3.5	2.3
ESSL1306T-101M-N	100	20	7	0.19	3.0	1.8
ESSL1306T-151M-N	150	20	6	0.25	2.6	1.5
ESSL1306T-221M-N	220	20	5	0.38	2.4	1.2
ESSL1306T-331M-N	330	20	4	0.56	1.9	1.0
ESSL1306T-471M-N	470	20	3	0.85	1.4	0.82
ESSL1306T-681M-N	680	20	2.5	1.2	1.2	0.72
ESSL1306T-102M-N	1000	20	2	1.8	1.0	0.56

1. Inductance tested at 100 KHz, 0.1 Vrms.

2. Inductance drop = 20% typ. at Isat.

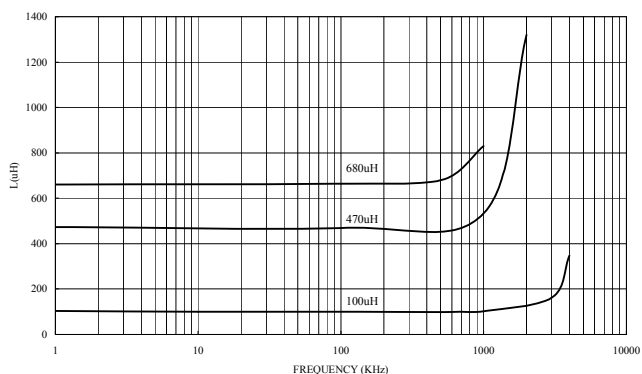
3. $\Delta T = 40^{\circ}\text{C}$ rise typ at Irms.

● Tolerance: M = $\pm 20\%$

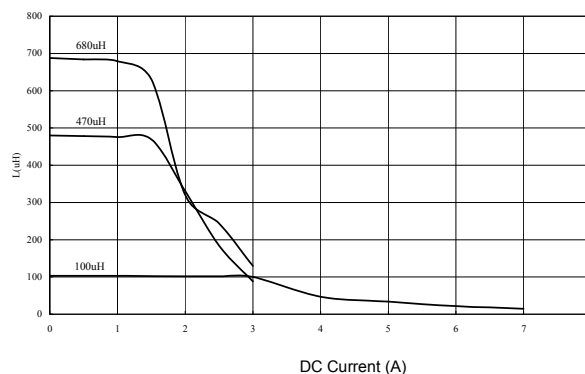
● Operating temperature range $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$ (Including self - temperature rise)

Test Instruments :

INDUCTANCE vs. FREQUENCY CHARACTERISTICS

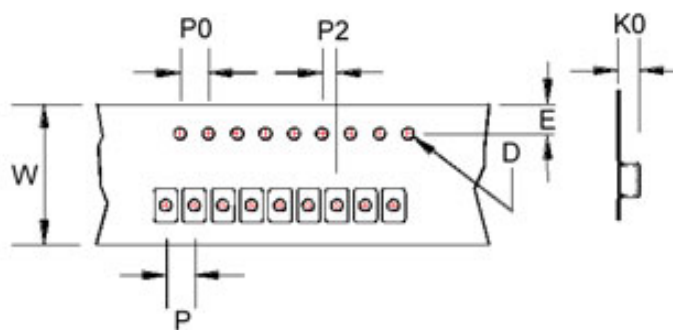


Inductance vs. DC Current

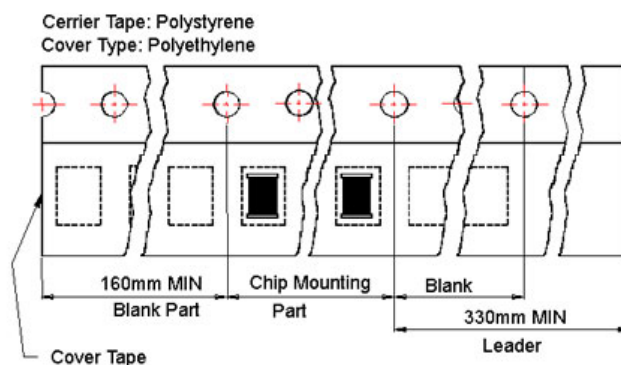


Packaging Specifications

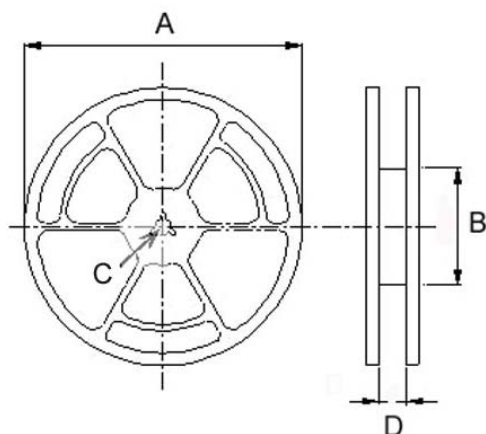
Tape Dimensions



Tape Material



Reel Dimensions



Dimensions in mm

TYPE	Tape Dimensions							Reel Dimensions				Quantity (PCS / REEL)	
	K0	D	E	W	P	P0	P2	A	B	C	D	178mm	330mm
ESSL 04LP	1.30	1.5	1.75	12	8	4	2	330	100	13	13.4	-	3500
								178	60		13.2	1000	-
ESSL 0400	1.85	1.5	1.75	12	8	4	2	330	100	13	13.4	-	3500
								178	60		13.2	1000	-
ESSL0402	3.2	1.55	1.75	12	8	4	2	330	100	13	13.4	-	2500
								178	60		13.2	750	-
ESSL 0614	1.8	1.5	1.75	16	12	4	2	330	100	13	17.4	-	2500
ESSL 0802	3.75	1.55	1.75	24	16	4	2	330	100	13	24.4	-	1000
ESSL 0804	5.4	1.55	1.75	24	16	4	2	330	100	13	24.4	-	750
ESSL 0810	11.5	1.55	1.75	24	20	4	2	330	100	13	24.4	-	225
ESSL 1306	7.5	1.55	1.75	32	20	4	2	330	100	13	33.4	-	350