

**UNSHIELDED SMD POWER INDUCTORS / DL TYPE**

**FEATURES**

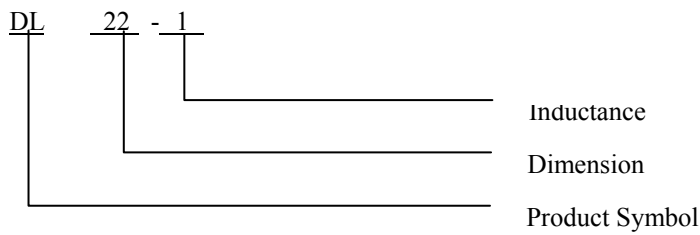
- ◆ Designed for the smallest possible size and high performance
- ◆ They are with high energy storage and very low resistance making them the ideal inductors for DC-DC conversion in the following applications
- ◆ DL16 used ceramic base with gold-plating
- ◆ Others used LCP plastic base



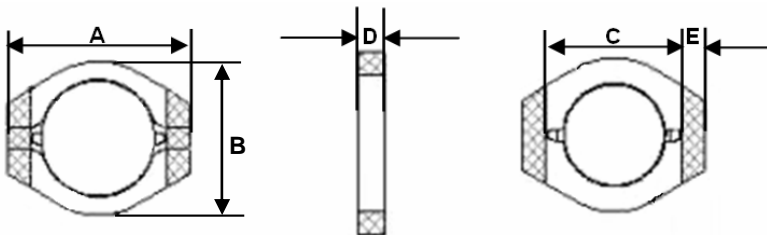
**APPLICATIONS**

- ◆ Notebook
- ◆ Digital camera & scanner
- ◆ CD-Rom & DVD DC/DC converter

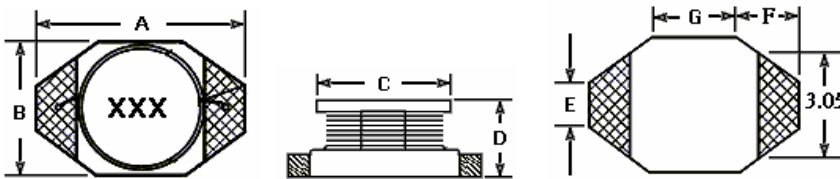
**ORDERING CODE**



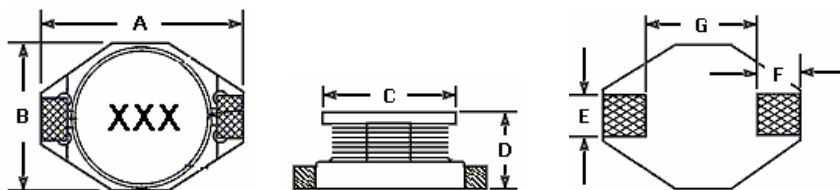
**SHAPES**



**Fig.1**



**Fig.2**



**Fig.3**

## UNSHIELDED SMD POWER INDUCTORS / DL TYPE

### DIMENSIONS (UNIT: mm)

Part No.	Fig.	A(Max)	B(Max)	C(Max)	D(Max)	E(Ref.)	F(Ref.)	G(Ref.)
<b>DL17</b>	<b>1</b>	6.60	5.50	4.90	1.15	0.75	-	-
<b>DL25</b>	<b>1</b>	9.14	7.87	7.40	1.65	0.87	-	-
<b>DL16</b>	<b>2</b>	6.60	4.45	3.94	2.92	1.27	1.02	4.32
<b>DL11</b>	<b>3</b>	12.95	9.40	8.38	3.00	2.54	2.54	7.62
<b>DL22</b>	<b>3</b>	12.95	9.40	8.38	5.21	2.54	2.54	7.62
<b>DL33</b>	<b>3</b>	12.95	9.40	8.38	11.43	2.54	2.54	7.62
<b>DL50</b>	<b>3</b>	18.54	15.24	12.70	7.11	2.54	2.54	12.70

### ELECTRICAL CHARACTERISTICS FOR DL17

Part No.	Inductance (uH)	DC Resistance (Ω) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>1.2</b>	1.2	0.08	190	2.10	1.70
<b>1.5</b>	1.5	0.10	140	1.90	1.50
<b>2.2</b>	2.2	0.12	115	1.60	1.40
<b>3.3</b>	3.3	0.16	90	1.30	1.20
<b>4.7</b>	4.7	0.20	88	1.10	1.10
<b>6.8</b>	6.8	0.32	66	0.90	0.85
<b>10</b>	10	0.41	55	0.80	0.75
<b>15</b>	15	0.55	42	0.65	0.60
<b>22</b>	22	0.85	38	0.50	0.52
<b>33</b>	33	1.30	29	0.40	0.42
<b>47</b>	47	1.80	22	0.35	0.36
<b>68</b>	68	2.50	18	0.30	0.30
<b>100</b>	100	3.50	14	0.25	0.26
<b>150</b>	150	5.00	12	0.18	0.21
<b>220</b>	220	7.00	10	0.16	0.18
<b>330</b>	330	15.0	8	0.13	0.13

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL25

Part No.	Inductance (uH)	DC Resistance (Ω) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>4.7</b>	4.7	0.145	90	1.60	1.90
<b>6.8</b>	6.8	0.165	75	1.30	1.70
<b>10</b>	10	0.240	60	1.00	1.50
<b>15</b>	15	0.300	45	0.90	1.30
<b>22</b>	22	0.420	35	0.70	1.00
<b>33</b>	33	0.550	30	0.60	0.90
<b>47</b>	47	0.765	22	0.50	0.70
<b>68</b>	68	1.10	20	0.40	0.60

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<b>100</b>	100	1.60	15	0.30	0.50
<b>150</b>	150	2.50	12	0.25	0.40
<b>220</b>	220	3.65	10	0.22	0.32
<b>330</b>	330	4.65	8.0	0.18	0.28
<b>470</b>	470	6.75	6.5	0.14	0.24
<b>680</b>	680	9.15	5.5	0.12	0.20
<b>1000</b>	1000	14.20	4.5	0.10	0.16

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL16

Part No.	Inductance ( $\mu$ H)	DC Resistance ( $\Omega$ ) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>1</b>	1.0	0.05	130	2.90	2.90
<b>1.5</b>	1.5	0.05	115	2.60	2.80
<b>2.2</b>	2.2	0.07	90	2.30	2.40
<b>3.3</b>	3.3	0.08	70	2.00	2.00
<b>4.7</b>	4.7	0.09	50	1.50	1.50
<b>6.8</b>	6.8	0.13	45	1.20	1.40
<b>10</b>	10	0.16	35	1.10	1.10
<b>15</b>	15	0.23	30	0.90	1.20
<b>22</b>	22	0.37	20	0.70	0.80
<b>33</b>	33	0.51	15	0.58	0.60
<b>47</b>	47	0.64	14	0.50	0.50
<b>68</b>	68	0.86	11	0.40	0.40
<b>100</b>	100	1.27	9.0	0.31	0.30
<b>150</b>	150	2.00	6.0	0.27	0.25
<b>220</b>	220	3.11	5.5	0.22	0.20
<b>330</b>	330	3.80	5.0	0.18	0.16
<b>470</b>	470	5.06	4.0	0.16	0.15
<b>680</b>	680	9.20	3.0	0.14	0.12
<b>1000</b>	1000	13.8	2.0	0.10	0.07

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL11

Part No.	Inductance ( $\mu$ H)	DC Resistance ( $\Omega$ ) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>10</b>	10	0.11	35	2.40	2.00
<b>15</b>	15	0.15	33	2.00	1.50
<b>22</b>	22	0.23	25	1.60	1.30
<b>33</b>	33	0.30	19	1.40	1.10
<b>47</b>	47	0.39	14	1.00	0.80
<b>68</b>	68	0.66	12	0.90	0.70
<b>100</b>	100	0.84	10	0.70	0.60
<b>150</b>	150	1.20	8.0	0.60	0.50

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<b>220</b>	220	1.90	6.0	0.50	0.40
<b>330</b>	330	2.70	5.0	0.40	0.30
<b>470</b>	470	4.00	4.0	0.30	0.20
<b>680</b>	680	5.30	3.0	0.20	0.10
<b>1000</b>	1000	8.40	2.5	0.10	0.05

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL22

Part No.	Inductance (uH)	DC Resistance (Ω) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>1</b>	1.0	0.008	60	7.60	7.10
<b>2.2</b>	2.2	0.010	50	6.50	5.90
<b>4.7</b>	4.7	0.018	45	5.40	4.80
<b>6.8</b>	6.8	0.027	38	4.60	4.40
<b>10</b>	10	0.038	30	3.80	3.90
<b>15</b>	15	0.046	27	3.00	3.10
<b>22</b>	22	0.085	19	2.60	2.70
<b>33</b>	33	0.100	15	2.00	2.10
<b>47</b>	47	0.140	12	1.60	1.80
<b>68</b>	68	0.200	10	1.40	1.50
<b>100</b>	100	0.280	9.0	1.20	1.30
<b>150</b>	150	0.400	6.0	1.00	1.00
<b>220</b>	220	0.610	5.0	0.80	0.80
<b>330</b>	330	1.020	4.5	0.60	0.60
<b>470</b>	470	1.270	3.5	0.50	0.50
<b>680</b>	680	2.020	2.5	0.40	0.40
<b>1000</b>	1000	3.000	2.0	0.30	0.30

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL33

Part No.	Inductance (uH)	DC Resistance (Ω) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>10</b>	10	0.040	22	8.00	3.50
<b>15</b>	15	0.050	18	7.00	3.00
<b>22</b>	22	0.066	11	5.50	2.50
<b>33</b>	33	0.080	9.0	4.00	2.00
<b>47</b>	47	0.110	8.0	3.80	1.60
<b>68</b>	68	0.170	7.0	3.00	1.20
<b>100</b>	100	0.220	5.0	2.50	1.20
<b>150</b>	150	0.340	4.0	2.00	0.90

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<b>220</b>	220	0.440	3.5	1.60	0.70
<b>330</b>	330	0.700	2.5	1.20	0.60
<b>470</b>	470	0.950	2.0	1.00	0.30
<b>680</b>	680	1.200	2.0	1.00	0.20
<b>1000</b>	1000	2.000	1.5	0.80	0.10

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C

### ELECTRICAL CHARACTERISTICS FOR DL50

Part No.	Inductance (uH)	DC Resistance (Ω) MAX	SRF. (MHz)	Isat (A)	Irms (A)
<b>1</b>	1.0	0.009	80	20.00	8.60
<b>2.2</b>	2.2	0.014	80	16.00	7.10
<b>3.3</b>	3.3	0.018	60	14.00	6.20
<b>4.7</b>	4.7	0.019	50	13.00	5.50
<b>5.6</b>	5.6	0.020	40	12.00	5.30
<b>10</b>	10	0.031	30	10.00	4.30
<b>15</b>	15	0.036	22	8.00	4.00
<b>22</b>	22	0.047	20	7.00	3.50
<b>33</b>	33	0.066	15	5.50	3.00
<b>47</b>	47	0.086	9.0	4.50	2.60
<b>68</b>	68	0.130	8.0	3.50	2.30
<b>100</b>	100	0.190	7.0	3.00	1.80
<b>150</b>	150	0.250	6.0	2.60	1.50
<b>220</b>	220	0.380	5.0	2.40	1.20
<b>330</b>	330	0.560	4.0	1.90	1.00
<b>470</b>	470	0.850	3.0	1.40	0.82
<b>680</b>	680	1.100	2.5	1.20	0.72
<b>1000</b>	1000	1.800	2.0	1.00	0.56

- ★ Test Frequency : 100KHz 0.1V
- ★ Tolerance :±10%,±20%
- ★ Operating temperature: -40°C ~ +85°C