

## Feature

- Full range from 0201 to 2220 series.
- Working Voltage form 4 to 60V<sub>RMS</sub>; 5.5 to 85Vdc
- High surge current ability
- Bidirectional clamping, high energy
- Fast response time
- Suitable for ESD protection
- **Low capacitance design (<0.05pF) for fast data transmission**
- Array type design
- Very low leakage current
- Good solderability

### 1. MLC Series:

Multilayer surface mount for wide range applications.

### 2. MLA Series:

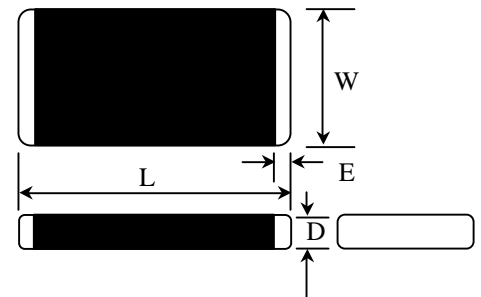
Multilayer surface mount design for high energy and surge application.

### 3. ESD Series:

Low capacitance design for high data transmission.

### 4. Array Series:

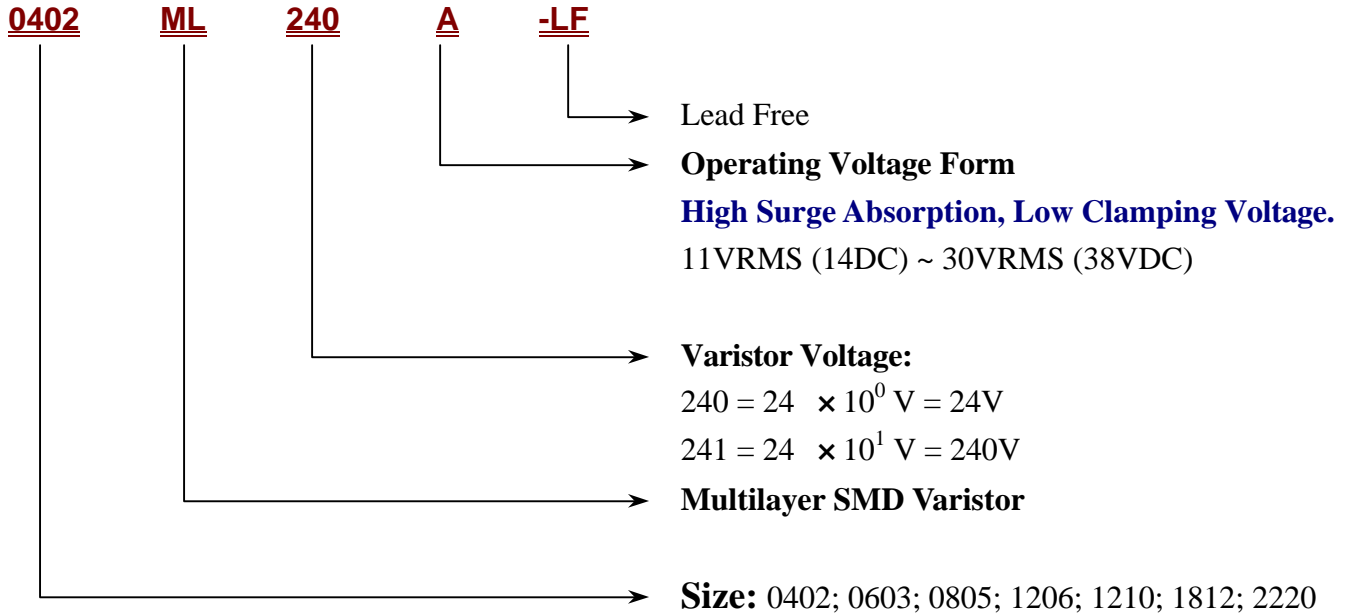
Multilayer array series surface mount design.



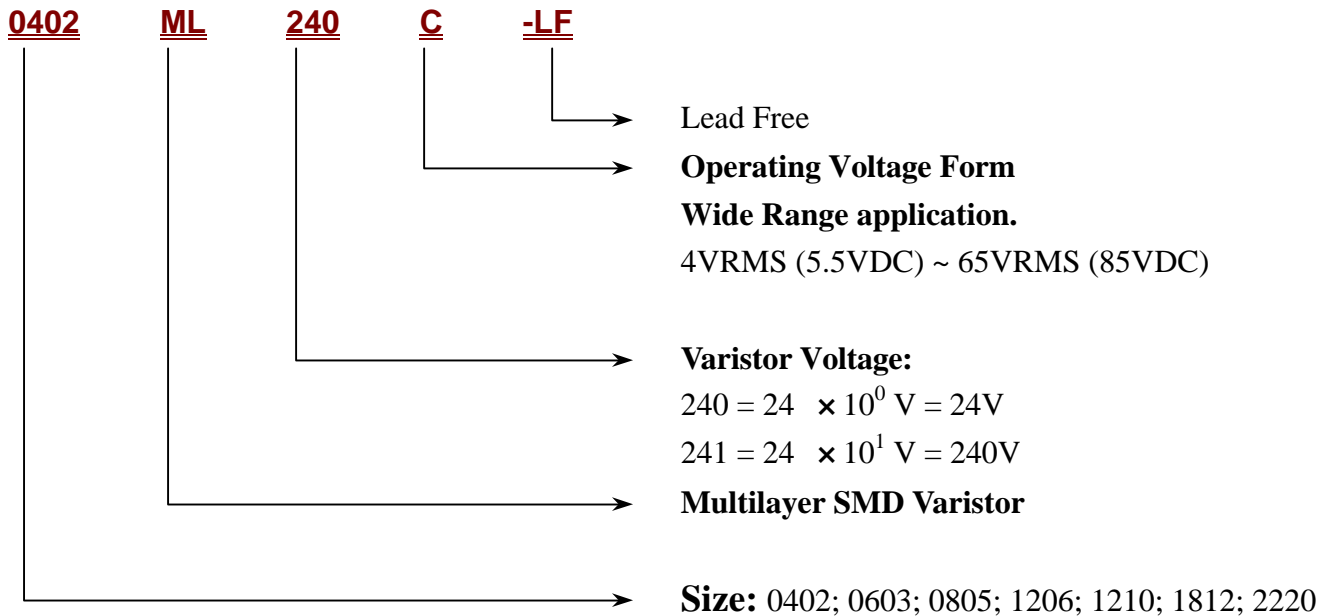
Type	L	W	D	E
	mm	mm	mm	mm
0201	0.60 ± 0.03	0.30 ± 0.03	0.2 max	0.30 ± 0.03
0402	1.00 ± 0.10	0.50 ± 0.10	0.6 max	0.25+0.1/-0.1
0603	1.60 ± 0.15	0.80 ± 0.15	0.9 max	0.30+0.1/-0.1
0805	2.00 ± 0.20	1.25 ± 0.15	1.0 max	0.30+0.1/-0.1
1206	3.20 ± 0.20	1.60 ± 0.15	1.2 max	0.50+0.2/-0.2
1210	3.20 ± 0.20	2.50 ± 0.20	1.5 max	0.50+0.2/-0.2
1812	4.50 ± 0.20	3.20 ± 0.20	2.0 max	0.50+0.3/-0.1
2220	5.70 ± 0.20	5.00 ± 0.20	2.5 max	0.50+0.3/-0.1

## Part Number Identification

### 1. ML A Series



### 2. ML C Series



## High surge protection varistor A-series

Model Number	Working Voltage (MAX)		Breakdown Voltage	Peak Current (MAX)	Clamping Voltage (MAX)		Energy Absorption (MAX)	Typical Capacitance
	AC (RMS)	DC (V)			(A)	(V)		
Unit Condition			1mA(V)	8/20 $\mu$ s (A)			10/1000 $\mu$ s(J)	1KHz (pF)
1206ML180A-LF	11	14	18(15.3~20.7)	200	1.0	30	0.5	1500
1206ML240A-LF	14	18	24(21.6~27)	200	1.0	39	0.5	1160
1206ML390A-LF	25	30	39(35.1~42.9)	200	1.0	65	1.0	620
1206ML470A-LF	30	38	47(42.3~51.7)	200	1.0	77	1.1	550
1210ML240A-LF	14	18	24(21.6~27)	400	2.5	39	1.4	2380
1210ML270A-LF	17	22	27(24.3~29.8)	400	2.5	44	1.7	2100
1210ML330A-LF	20	26	33(29.7~36.3)	400	2.5	54	1.9	1400
1210ML470A-LF	30	38	47(42.3~51.7)	400	2.5	77	2.0	1000
1812ML240A-LF	14	18	24(21.6~27)	800	5.0	38	2.3	4650
1812ML390A-LF	25	30	39(35.1~42.9)	800	5.0	65	3.7	2950
1812ML470A-LF	30	38	47(42.3~51.7)	800	5.0	77	4.2	2550
1812ML560A-LF	35	45	56(50.4~61.6)	800	5.0	90	4.2	2400
2220ML240A-LF	14	18	24(21.6~27)	1200	10	39	5.8	13600
2220ML270A-LF	17	22	27(24.3~29.8)	1200	10	44	7.2	12000
2220ML390A-LF	25	30	39(35.1~42.9)	1200	10	65	9.6	8900
2220ML470A-LF	30	38	47(42.3~51.7)	1200	10	77	12.0	5700

## High surge protection varistor C-series

Model Number	Working Voltage (MAX)		Breakdown Voltage	Peak Current (MAX)	Clamping Voltage (MAX)		Energy Absorption (MAX)	Typical Capacitance
	AC (VRMS)	DC (V)			(A)	(V)		
Unit Condition	AC (VRMS)	DC (V)	1mA (V)	8/20 $\mu$ s (A)	(A)	(V)	10/1000 $\mu$ s(J)	1KHz (pF)
0402ML080C-LF	4	5.5	8(8~11)	20	1	20	0.05	295
0402ML120C-LF	6	9	12(10.2~13.8)	20	1	23	0.05	190
0402ML150C-LF	8	11	15(12.75~17.25)	20	1	25	0.05	160
0402ML180C-LF	11	14	18(15.3~20.7)	20	1	30	0.05	135
0402ML240C-LF	14	18	24(21.6~26.4)	20	1	40	0.05	93
0603ML080C-LF	4	5.5	8(8~11)	30	1	20	0.1	800
0603ML120C-LF	6	9	12(10.2~13.8)	30	1	23	0.1	680
0603ML180C-LF	11	14	18(15.3~20.7)	30	1	30	0.1	350
0603ML240C-LF	14	18	24(21.6~26.4)	30	1	39	0.1	270
0603ML270C-LF	17	22	27(24.3~29.7)	30	1	44	0.1	235
0603ML390C-LF	25	30	39(35.1~42.9)	30	1	65	0.1	120
0603ML470C-LF	30	38	47(42.3~51.7)	30	1	77	0.1	100
0805ML080C-LF	4	5.5	8(8~11)	80	1	20	0.1	1600
0805ML120C-LF	6	9	12(10.2~13.8)	80	1	23	0.1	1180
0805ML240C-LF	14	18	24(21.6~26.4)	100	1	39	0.2	550
0805ML270C-LF	17	22	27(24.3~29.7)	100	1	44	0.2	400
0805ML330C-LF	20	26	33(29.7~36.3)	100	1	54	0.3	350
0805ML390C-LF	25	30	39(35.1~42.9)	100	1	65	0.3	310
0805ML470C-LF	30	38	56(50.4~61.6)	100	1	77	0.3	280
0805ML560C-LF	35	45	47(42.3~51.7)	80	1	90	0.3	195
1206ML080C-LF	4	5.5	8(8~11)	100	1	20	0.2	3200
1206ML180C-LF	11	14	18(15.3~20.7)	100	1	30	0.3	1150
1206ML240C-LF	14	18	24(21.6~26.4)	100	1	38	0.3	900
1206ML270C-LF	17	22	27(24.3~29.7)	100	1	44	0.4	840
1206ML330C-LF	20	26	33(29.7~36.3)	100	1	54	0.5	490
1206ML390C-LF	25	30	39(35.1~42.9)	100	1	65	0.6	440
1206ML470C-LF	30	38	47(42.3~51.7)	100	1	77	0.7	400
1206ML560C-LF	35	45	56(50.4~61.6)	100	1	90	0.8	310
1206ML680C-LF	40	56	68(61.2~74.8)	100	1	110	1.0	280
1206ML820C-LF	50	65	82(73.8~90.2)	100	1	135	0.5	240
1206ML101C-LF	60	85	100(90~110)	100	1	165	0.6	160

## High surge protection varistor C-series

Model Number	Working Voltage (MAX)		Breakdown Voltage	Peak Current (MAX)	Clamping Voltage (MAX)		Energy Absorption (MAX)	Typical Capacitance
	AC (VRMS)	DC (V)			(A)	(V)		
Unit Condition	AC (VRMS)	DC (V)	1mA (V)	8/20 $\mu$ s (A)	(A)	(V)	10/1000 $\mu$ s(J)	1KHz (pF)
1210ML240C-LF	14	18	24(21.6~26.4)	250	2.5	38	0.8	1950
1210ML270C-LF	17	22	27(24.3~29.7)	250	2.5	44	1.0	1720
1210ML330C-LF	20	26	33(29.7~36.3)	250	2.5	54	1.2	1090
1210ML390C-LF	25	30	39(35.1~42.9)	250	2.5	65	1.4	920
1210ML470C-LF	30	38	47(42.3~51.7)	250	2.5	77	1.6	780
1210ML560C-LF	35	45	56(50.4~61.6)	250	2.5	90	2.0	470
1210ML680C-LF	40	56	68(61.2~74.8)	250	2.5	110	2.3	390
1210ML101C-LF	60	85	100(90~110)	200	2.5	165	1.4	220
1812ML240C-LF	14	18	24(21.6~26.4)	500	5	38	1.7	3930
1812ML390C-LF	25	30	39(35.1~42.9)	500	5	65	2.9	2500
1812ML470C-LF	30	38	47(42.3~51.7)	500	5	77	3.5	2200
1812ML560C-LF	35	45	56(50.4~61.6)	500	5	90	4.2	1950
2220ML240C-LF	14	18	24(21.6~26.4)	1000	10	38	3.1	11800
2220ML390C-LF	25	30	39(35.1~42.9)	1000	10	65	5.5	7500
2220ML470C-LF	30	38	47(42.3~51.7)	1000	10	77	6.3	4600