

# ESD-SMD Multilayer chip Varistor

## L0603-3220A series



### Applications

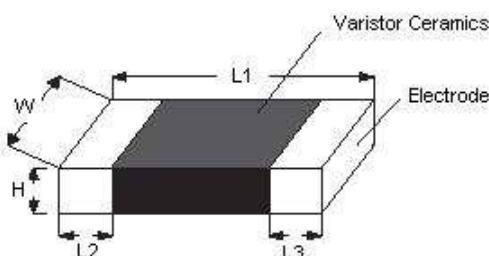
1. CMOS and MOSFET protection from ESD
2. Computer ESD and I/O protection
3. Telecommunication transient protection
  - USB2.0 port, IEEE-1394, RF module, Antenna circuit, high speed Protocol Etc.

### Features

1. Excellent ESD clamping & Small Insertion Loss
2. High transient current capability, Fastest response time
3. Capacitance is designed to ultra-low value, which can be efficiently suitable to high speed data line.
4. EU-RoHS Compliance

### Product Name

L	0	6	0	3	A	3	R	3	X
Brand Name	EIA				Type	Varistor Voltage		Remarks	
	0603				A:				
	0805								
	1206								
	1210								
	1812								
	2220								
	3220								

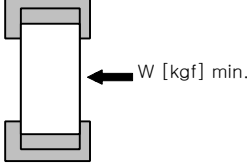


EIA	L1(mm)	W(mm)	H(mm)	L2&L3(mm)
0603	1.60±0.15	0.80±0.15	0.95	0.35±0.15
0805	2.00±0.15	1.25±0.20	1.20	0.40±0.20
1206	3.20±0.30	1.60±0.20	1.50	0.50±0.20
1210	3.20±0.30	2.50±0.25	1.50	0.50±0.20
1812	4.50±0.40	3.20±0.30	1.50	0.60±0.30
2220	5.70±0.40	5.00±0.30	2.00	0.60±0.30
3220	8.10±0.30	5.00±0.30	3.00	0.80±0.30

Electrical Characteristics (@ TA = 25 °C Unless Otherwise Noted)

Part Number							Working Voltage		Breakdown Voltage		Peak Current	Clamping Voltage		
							AC	DC	@ 1mA DC		8/20uS	8/20uS		
							VRMS	VDC	VB		Ip(MAX)	VC	A	
0603	0805	1206	1210	1812	2220	L****A3R3K	1.4	2	3.3	2.6~4.0	0603 10A~30A	9	1	
						L****A5R0K	2.4	3.3	5	4.0~6.0		12	1	
						L****A8R0K	4	5.5	8	6.6~9.9		14	1	
						L****A120K	7	9	12	10~15.5		24	1	
						L****A180K	11	14	18	15~20.5		30	1~10	
						L****A210K	12	16	21	17~24		35	1~10	
						L****A240K	14	18	24	22~27		38	1~10	
						L****A270K	17	22	27	24~30		42	1~10	
						L****A300K	19	24	30	27~33		0805 60A~100A	47	1~10
						L****A330K	20	26	33	29~36			54	1~10
						L****A370K	21	27	37	33~40.5		1206 80A~150A	60	1~10
						L****A390K	24	30	39	35~42			65	1~10
						L****A470K	28	36	47	42~52.5		1210	77	1~10
						L****A530K	30	42	53	47~58.5			85	1~10
						L****A560K	35	45	56	51~62		1210	90	1~10
						L****A600K	36	47	60	53~66			98	1~10
	L****A680K	40	56	68	61~75	1210 250A~500A	110	1~10						
	L****A760K	45	60	76	68~84		120	1~10						
	L****A820K	50	65	82	74~92	1812 400A~800A	135	1~10						
	L****A900K	52	68	90	80~100		150	1~10						
	L****A101K	60	85	100	90~110	2220 1000A~2000A	165	2.5~10						
	L****A121K	75	100	120	108~132		200	2.5~10						
	L****A151K	95	125	150	135~165		250	2.5~10						
	L****A181K	115	150	180	162~198		300	5~10						
	L****A201K	130	170	205	184~225	3220 500A~800A	340	5~10						
	L****A221K	140	180	220	198~242		360	5~10						
	L****A241K	150	200	240	216~264		395	5~10						
	L****A271K	175	225	270	243~297		455	5~10						
	L****A361K	230	300	360	324~396		595	5~10						
	L****A391K	250	320	390	351~429		650	5~10						
	L****A431K	275	350	430	387~473		710	5~10						
	L****A471K	300	385	470	423~517		775	5~10						

## Electrical Rating

No	Item	Requirements	Test method
1	Operation Range	1. -40°C ~ 85°C	
2	Leakage current	1. Satisfaction to the specification, under 1uA	1. Applied voltage : specified working voltage
3	Capacitance	1. Satisfaction to the specification, under 1pF	1. Frquency & OSC level : 1MHz, 1.0Vrms
4	Solderability	1. More than 90% of the terminal electrode shall be covered with new solder.	1. Type of solder : H63A 2. Soldering Temp & Time : 230+/-5°C, 5+/-1 sec
5	Reflow soldering	1. No Serious mechanical damage 2. More than 50% of the terminal electrode shall be covered with new solder 3. Leakage Current : ≤ 10uA	1. Type of solder : H63A 2. Temp & Time : max 260+/-5°C, min 10sec * Refer to the soldering profile of page 6
6	Humidity Load Test	1. No Serious mechanical damage 2. Leakage Current : ≤ 10uA	1. Test Temp. & Relative Humidity & Time : 85+/- 5°C, 85 +/- 5% RH, Vw Applied, 500 +/- 12hrs
7	Thermal Shock		1. Step 1 : -40 +/- 5°C, Step 2 : 85 +/- 5°C 2. Cycle : 30min ± 3min, each 5 cycles
8	High Temp. Test		1. Temp. & time : 85+/-5°C , 1000 +/- 24hrs
9	Adhesive strength	1. No Serious mechanical damage under condition of 1005 : min 0.5kgf, 1608 : min 1.0kgf	
10	ESD	1. No mechanical damage after test 2. Leakage Current : ≤ 10uA * ESD gun (IEC61000-4-2 standard) * C=150pF R=330Ω	1. Contact discharge * Voltage : +/-8kV(Level 4) * Number : 10 times in 10sec
			2. Air discharge * Voltage : +/-15kV(Level 4) * Number : 10 times in 10sec

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