Micro Commercial Components

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MLV1005 Series
MLV1608 Series
MLV2012 Series
MLV3216 Series
MLV3225 Series

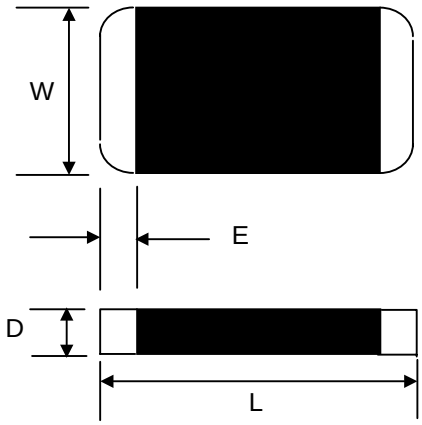
Normal Type Multilayer Varistor

Features

- Monolithic Multilayer Construction with 1005, 1608, 2012, 3216 and 3225 Model Sizes
- Wide Operating Voltage Range V_{DC}=3.3V to 48V
- Excellent Nonlinear Voltage-Current Characteristics with Low Clamping Voltage and Large Surge Current/Energy Handing Capabilities at Small Size
- Available in Tape and Reel or Bulk Pack

Maximum Ratings

- Operating Ambient Temperature Range: -55℃ to +125℃
- Leakage Current: 1. < 50μA at ambient temp.
  2. <100μA for 3.3V_{DC}
  (Test Conditions: The current measured with V_{DC} applied)
- Maximum Surge Energy (WS): $\Delta V_{1mA} / V_{1mA} \leqq \pm 10\%$
  Test Conditions: On standard circumstance Impulse the 10/1000μs specified current wave 1 time , Measure the variation of V_{1mA}
- Maximum Surge Current (I_S): $\Delta V_{1mA} / V_{1mA} \leqq \pm 10\%$
  Test Conditions: 1 At room temperature and humidity
  2. 8/20μs waveform
  3. Impulse of +/- polarity
  4. Measure the variation of V1mA



Size	DIM	INCHES		MM	
		MIN	MAX	MIN	MAX
1005 (0402)	L	0.036	0.044	0.90	1.00
	W	0.016	0.024	0.40	0.60
	D	---	0.024	---	0.60
	E	0.004	0.016	0.10	0.40
1608 (0603)	L	0.057	0.069	1.50	1.80
	W	0.026	0.038	0.65	0.95
	D	---	0.350	---	0.90
	E	0.007	0.023	0.20	0.60
2012 (0805)	L	0.071	0.087	1.80	2.20
	W	0.041	0.057	1.05	1.45
	D	---	0.510	---	1.30
	E	0.007	0.023	0.20	0.60
3216 (1206)	L	0.116	0.136	2.95	3.45
	W	0.036	0.044	1.40	1.80
	D	---	0.067	---	1.70
	E	0.010	0.030	0.25	0.75
3225 (1210)	L	0.116	0.136	2.95	3.45
	W	0.088	0.108	2.25	2.75
	D	---	0.067	---	1.70
	E	0.010	0.030	0.25	0.75

Electrical Characteristics

Part Number	Working Voltage		Breakdown Voltage	Maximum Transient			Typical Capacitance
				Clamping Voltage[1]	Surge Current	Surge Energy	
Symbol	V_{RMS}	V_{DC}	V_B	V_C	I_S	W_S	C
Units	Volts(max.)	Volts(max.)	Volts	Volts(max.)	Amps(max.)	Joules(max)	PF(typ.)
Test Condition			1mA DC	8/20 μ s (1A)	8/20 μ s	10/1000 μ s	$0.5V_{rms}$ 1KHz
MLV1005N030	2.5	3.3	5(4.4-6.0)	10	20	0.05	390
MLV1005N050	4	5.5	8(6.4-9.6)	16	20	0.05	295
MLV1005N090	6	9	12(9.6-14.4)	20	20	0.05	190
MLV1005N110	8	11	15(12.75-17.25)	25	20	0.05	160
MLV1005N140	11	14	18(16.5-20.3)	30	20	0.05	135
MLV1005N160	12	16.5	22(19.8-24.2)	36	20	0.05	105
MLV1005N180	14	18	24(21.6-27)	40	20	0.05	93
MLV1005N220	17	22	27(24.3-29.8)	45	20	0.05	75
MLV1005N260	20	26	33(29.7-36.3)	54	20	0.05	54
MLV1005N300	25	30	39(35.1-42.9)	65	20	0.05	45
MLV1005N380	30	38	47(42.3-51.7)	77	20	0.05	27
MLV1608N030	2.5	3.3	5(4.4-6.0)	10	30	0.1	1250
MLV1608N050	4	5.5	8(6.4-9.6)	16	30	0.1	800
MLV1608N090	6	9	12(9.6-14.4)	20	30	0.1	680
MLV1608N110	8	11	15(12.75-17.25)	25	30	0.1	460
MLV1608N140	11	14	18(16.5-20.3)	30	30	0.1	350
MLV1608N160	12	16.5	22(19.8-24.2)	36	30	0.1	300
MLV1608N180	14	18	24(21.6-27)	39	30	0.1	270
MLV1608N220	17	22	27(24.3-29.8)	44	30	0.1	235
MLV1608N260	20	26	33(29.7-36.3)	54	30	0.1	200
MLV1608N300	25	30	39(35.1-42.9)	65	30	0.1	120
MLV1608N380	30	38	47(42.3-51.7)	77	30	0.1	100
MLV1608N450	35	45	56(50.4-61.6)	90	30	0.1	80

Electrical Characteristics

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				Clamping Voltage[1]	Surge Current	Surge Energy	
Symbol	V_{RMS}	V_{DC}	V_B	V_C	I_S	W_S	C
Units	Volts(max.)	Volts(max.)	Volts	Volts(max.)	Amps(max.)	Joules(max)	PF(typ.)
Test Condition			1mA DC	8/20 μ s (1A)	8/20 μ s	10/1000 μ s	$0.5V_{rms}$ 1KHz
MLV2012N030	2.5	3.3	5(4.4-6.0)	10	40	0.1	2450
MLV2012N050	4	5.5	8(6.4-9.6)	16	80	0.1	1600
MLV2012N090	6	9	12(9.6-14.4)	20	80	0.1	1180
MLV2012N110	8	11	15(12.75-17.25)	25	100	0.1	1050
MLV2012N140	11	14	18(16.5-20.3)	30	100	0.1	750
MLV2012N160	12	16.5	22(19.8-24.2)	36	100	0.2	680
MLV2012N180	14	18	24(21.6-27)	39	100	0.2	550
MLV2012N220	17	22	27(24.3-29.8)	44	100	0.3	400
MLV2012N260	20	26	33(29.7-36.3)	54	100	0.3	350
MLV2012N300	25	30	39(35.1-42.9)	65	100	0.3	310
MLV2012N380	30	38	47(42.3-51.7)	77	100	0.3	280
MLV2012N450	35	45	56(50.4-61.6)	90	80	0.3	195
MLV2012N560	40	56	68(61.2-74.8)	110	80	0.3	145
MLV2012N650	50	65	82(73.8-90.2)	135	60	0.3	85
MLV3216N030	2.5	3.3	5(4.4-6.0)	10	60	0.1	3850
MLV3216N050	4	5.5	8(6.4-9.6)	16	100	0.2	3200
MLV3216N090	6	9	12(9.6-14.4)	20	100	0.2	2200
MLV3216N110	8	11	15(12.75-17.25)	25	100	0.2	1300
MLV3216N140	11	14	18(16.5-20.3)	30	100	0.3	1150
MLV3216N160	12	16.5	22(19.8-24.2)	36	100	0.3	1000
MLV3216N180	14	18	24(21.6-27)	38	100	0.3	900
MLV3216N220	17	22	27(24.3-29.8)	44	100	0.4	840
MLV3216N260	20	26	33(29.7-36.3)	54	100	0.5	490
MLV3216N300	25	30	39(35.1-42.9)	65	100	0.6	440
MLV3216N380	30	38	47(42.3-51.7)	77	100	0.7	400
MLV3216N450	35	45	56(50.4-61.6)	90	100	0.8	310
MLV3216N560	40	56	68(61.2-74.8)	110	100	1.0	280
MLV3216N650	50	65	82(73.8-90.2)	135	100	0.5	240
MLV3216N850	60	85	100(90-110)	165	100	0.6	160
MLV3216N900	70	90	110(99-121)	180	100	0.6	120

Electrical Characteristics

Part Number	Working Voltage		Breakdown Voltage	Maximum Transient			Typical Capacitance
				Clamping Voltage[1]	Surge Current	Surge Energy	
Symbol	V_{RMS}	V_{DC}	V_B	V_C	I_S	W_S	C
Units	Volts(max.)	Volts(max.)	Volts	Volts(max.)	Amps(max.)	Joules(max)	PF(typ.)
Test Condition			1mA DC	8/20 μ s (1A)	8/20 μ s	10/1000 μ s	$0.5V_{rms}$ 1KHz
MLV3225N050	4	5.5	8(6.4-9.6)	16	250	0.4	6200
MLV3225N090	6	9	12(9.6-14.4)	20	250	0.5	4400
MLV3225N110	8	11	15(12.75-17.25)	25	250	0.6	3520
MLV3225N140	11	14	18(16.5-20.3)	30	250	0.7	3260
MLV3225N160	12	16.5	22(19.8-24.2)	36	250	0.8	2100
MLV3225N180	14	18	24(21.6-27)	38	250	0.8	1950
MLV3225N220	17	22	27(24.3-29.8)	44	250	1.0	1720
MLV3225N260	20	26	33(29.7-36.3)	54	250	1.2	1090
MLV3225N300	25	30	39(35.1-42.9)	65	250	1.4	920
MLV3225N380	30	38	47(42.3-51.7)	77	250	1.6	780
MLV3225N450	35	45	56(50.4-61.6)	90	250	2.0	470
MLV3225N560	40	56	68(61.2-74.8)	110	250	2.3	390
MLV3225N650	50	65	82(73.8-90.2)	135	250	1.2	320
MLV3225N850	60	85	100(90-110)	165	200	1.4	220
MLV3225N900	70	90	110(99-121)	180	200	1.4	200

[1] MLV3225 maximum clamping voltage testing current 2.5A

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