

MNR Varistors

Metal Oxide Type



Varistors are voltage-dependent, non-linear resistors which have symmetrical, sharp, breakdown characteristics similar to back-to-back Zener diodes. They are designed for transient suppression in electrical circuits. Transients can result from the sudden release of previously stored energy (EMP), or from extraneous sources beyond the control of the circuit designer, such as lightning surges.

Features

- High transient current capability – up to 6500A.
- Fast response time – less than 35ns.
- Excellent voltage clamping characteristics.
- Very low temperature coefficient.
- Low standby current.
- Compact and light weight.
- High energy capability.
- High voltage - dependent index (N)
- Very low leakage current.
- Low capacitance.
- Low overshoot characteristics.
- Low leakage factor.
- Epoxy coating for maximum protection from heat, humidity, shock, and vibration.
- UL recognized, CSA certified.

ZR Series

Radial Lead

Part Number	@85°C Steady State AC		Max. Clamping Voltage at Test Current 8 x 20 μ s		Energy 10x1000 μ s Joules
	Vrms Volts	Vdc Volts	Volts	Amps	
0018ZR05D	10	13	43	1.0	0.4
0018ZR07D	10	13	39	2.5	0.8
0018ZR10D	10	13	39	5.0	1.6
0018ZR14D	10	13	39	10.0	3.5
0022ZR05D	13	17	51	1.0	0.5
0022ZR07D	13	17	46	2.5	1.0
0022ZR10D	13	17	46	5.0	2.0
0022ZR14D	13	17	46	10.0	4.0
0024ZR05D	14	18	55	1.0	0.5
0024ZR07D	14	18	50	2.5	1.2
0024ZR10D	14	18	50	5.0	2.0
0024ZR14D	14	18	50	10.0	4.0
0027ZR05D	17	22	60	1.0	0.6
0027ZR07D	17	22	53	2.5	1.3
0027ZR10D	17	22	53	5.0	2.5
0027ZR14D	17	22	53	10.0	5.0
0033ZR05D	20	26	73	1.0	0.7
0033ZR07D	20	26	65	2.5	1.5
0033ZR10D	20	26	65	5.0	3.0
0033ZR14D	20	26	65	10.0	6.0
0039ZR05D	25	31	86	1.0	0.8
0039ZR07D	25	31	77	2.5	1.7
0039ZR10D	25	31	77	5.0	3.5
0039ZR14D	25	31	77	10.0	7.0
0047ZR05D	30	38	104	1.0	1.1
0047ZR07D	30	38	93	2.5	2.3
0047ZR10D	30	38	93	5.0	4.5
0047ZR14D	30	38	93	10.0	8.5
0056ZR05D	35	45	123	1.0	1.3
0056ZR07D	35	45	110	2.5	2.7
0056ZR10D	35	45	110	5.0	5.5
0056ZR14D	35	45	110	10.0	10.0
0068ZR05D	40	56	150	1.0	1.6
0068ZR07D	40	56	135	2.5	3.2
0068ZR10D	40	56	135	5.0	6.5
0068ZR14D	40	56	135	10.0	13.0
0082ZR05D	50	65	160	5.0	2.0
0082ZR07D	50	65	150	10.0	4.0
0082ZR10D	50	65	150	25.0	9.0
0082ZR14D	50	65	150	50.0	14.0
0100ZR05D	60	85	190	5.0	2.0
0100ZR07D	60	85	175	10.0	6.0
0100ZR10D	60	85	175	25.0	13.0
0100ZR14D	60	85	175	50.0	19.0

NA Series

Axial Lead

Part Number	@85°C Steady State AC		Max. Clamping Voltage at Test Current 8 x 20 μ s Volts	Energy 10x1000 μ s Joules
	Vrms Volts	Vdc Volts		
0027NA	17	22	55	0.13
0033NA	20	26	65	0.2
0039NA	25	31	77	0.2
0047NA	30	38	93	0.26
0056NA	35	45	105	0.26
0068NA	40	56	125	0.4
0082NA	50	65	150	0.5
0100NA	60	85	175	0.5
0120NA	75	100	200	0.5
0150NA	95	120	230	0.6
0180NA	115	150	285	0.7
0220NA	140	180	355	0.9
0270NA	170	225	435	1.0
0330NA	210	270	535	1.1
0370NA	235	300	600	1.1
0390NA	250	320	635	1.3
0430NA	270	350	695	1.7

Dimensions – NA Series

A		B	
inch	mm	inch	mm
0.295	7.5	0.026	0.65

Metal Oxide Varistors

NR Series

Radial Lead

NR Series

Radial Lead

NR Series

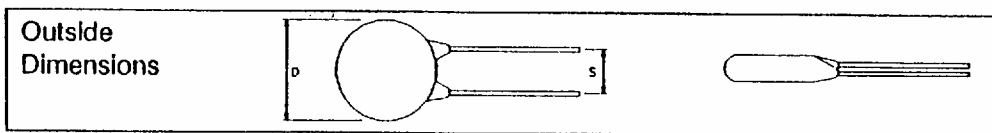
Radial Lead

Part Number	@85°C Steady State AC		Max. Clamping Voltage at Test Current		Energy
	Vrms	Vdc	8 x 20 μs		10 x 1000μs Joules
	Volts	Volts	Volts	Amps	
0150NR05D	95	120	265	5	3
0150NR07D	95	120	250	10	6
0150NR10D	95	120	250	25	15
0150NR12D	95	120	250	35	18
0150NR14D	95	120	250	50	25
0150NR20D	95	120	250	100	50
0183NR05D	115	150	315	5	3.5
0183NR07D	115	150	305	10	8
0183NR10D	115	150	305	25	18
0183NR12D	115	150	305	35	22
0183NR14D	115	150	305	50	30
0183NR20D	115	150	305	100	60
0216NR05D	135	175	370	5	4.5
0216NR07D	135	175	355	10	10
0216NR10D	135	175	355	25	21
0216NR12D	135	175	355	35	25
0216NR14D	135	175	355	50	40
0216NR20D	135	175	355	100	75
0240NR05D	150	200	415	5	5
0240NR07D	150	200	395	10	11
0240NR10D	150	200	395	25	25
0240NR12D	150	200	395	35	28
0240NR14D	150	200	395	50	45
0240NR20D	150	200	395	100	80
0250NR05D	160	205	430	5	5
0250NR07D	160	205	410	10	11
0250NR10D	160	205	410	25	25
0250NR12D	160	205	410	35	30
0250NR14D	160	205	410	50	45
0250NR20D	160	205	410	100	80
0270NR05D	170	225	475	5	6
0270NR07D	170	225	450	10	12
0270NR10D	170	225	450	25	30
0270NR12D	170	225	450	35	32
0270NR14D	170	225	450	50	50
0270NR20D	170	225	450	100	90
0283NR05D	180	230	485	5	6
0283NR07D	180	230	465	10	12
0283NR10D	180	230	465	25	31
0283NR12D	180	230	465	35	33
0283NR14D	180	230	465	50	50
0283NR20D	180	230	465	100	90

Part Number	@85°C Steady State AC		Max. Clamping Voltage at Test Current 8 x 20µs		Energy 10 x 1000µs Joules
	Vrms	Vdc			
	Volts	Volts	Volts	Amps	
0330NR05D	210	270	565	5	7
0330NR07D	210	270	545	10	13
0330NR10D	210	270	545	25	33
0330NR12D	210	270	545	35	40
0330NR14D	210	270	545	50	55
0330NR20D	210	270	545	100	100
0360NR05D	230	300	620	5	7.5
0360NR07D	230	300	595	10	15
0360NR10D	230	300	595	25	35
0360NR12D	230	300	595	35	42
0360NR14D	230	300	595	50	65
0360NR20D	230	300	595	100	120
0383NR05D	240	315	675	5	8
0390NR07D	250	320	645	10	17
0390NR10D	250	320	645	25	40
0390NR12D	250	320	645	35	47
0390NR14D	250	320	645	50	70
0390NR20D	250	320	645	100	130
0416NR05D	260	340	715	5	8.5
0416NR07D	260	340	685	10	18
0416NR10D	260	340	685	25	42
0416NR12D	260	340	685	35	50
0416NR14D	260	340	685	50	75
0416NR20D	260	340	685	100	135
0430NR05D	270	350	745	5	9
0430NR07D	270	350	710	10	20
0430NR10D	270	350	710	25	45
0430NR12D	270	350	710	35	52
0430NR14D	270	350	710	50	75
0430NR20D	270	350	710	100	140
0450NR05D	280	370	770	5	9.5
0450NR07D	280	370	740	10	20
0450NR10D	280	370	740	25	45
0450NR12D	280	370	740	35	55
0450NR14D	280	370	740	50	80
0450NR20D	280	370	740	100	145
0470NR05D	300	385	810	5	10
0470NR07D	300	385	775	10	20
0470NR10D	300	385	775	25	45
0470NR12D	300	385	775	35	55
0470NR14D	300	385	775	50	80
0470NR20D	300	385	775	100	150

Part Number	@85°C Steady State AC		Max. Clamping Voltage at Test Current		Energy
	Vrms	Vdc	8 x 20 μ s		10 x 1000 μ s
	Volts	Volts	Volts	Amps	Joules
0550NR05D	350	450	945	5	10
0550NR07D	350	450	910	10	22
0550NR10D	350	450	910	25	50
0550NR12D	350	450	910	35	60
0550NR14D	350	450	910	50	85
0550NR20D	350	450	910	100	150
0620NR10D	390	505	1025	25	50
0620NR12D	390	505	1025	35	65
0620NR14D	390	505	1025	50	85
0620NR20D	390	505	1025	100	150
0700NR10D	440	565	1200	25	58
0700NR12D	440	565	1200	35	70
0700NR14D	440	565	1200	50	90
0700NR20D	440	565	1200	100	160
0765NR10D	480	620	1300	25	65
0765NR12D	480	620	1300	35	80
0765NR14D	480	620	1300	50	100
0765NR20D	480	620	1300	100	175
0800NR10D	500	650	1350	25	70
0800NR12D	500	650	1350	35	90
0800NR14D	500	650	1350	50	105
0800NR20D	500	650	1350	100	180
0850NR10D	540	690	1450	25	80
0850NR12D	540	690	1450	35	90
0850NR14D	540	690	1450	50	110
0850NR20D	540	690	1450	100	190
1000NR10D	630	810	1700	25	80
1000NR12D	630	810	1700	35	100
1000NR14D	630	810	1700	50	130
1000NR20D	630	810	1700	100	220
1400NR20D	890	1130	2400	100	310

Dimensions - NR & ZR Series



Dimensions - NR & ZR Series

Size (Part No.)	D		S	
	Max.		Nom.*	
	Inch	mm	Inch	mm
05D	0.295	7.5	0.197	5.0
07D	0.354	9.0	0.197	7.0
10D	0.531	13.5	0.295	7.5
12D	0.610	15.5	0.295	7.5
14D	0.689	17.5	0.295	7.5
20D	0.787	25.0	0.394	10.0

* S Dimension Tolerance ± 0.5 mm (.02 in.)
CSA #LR 56165-1 UL # E92101(M), E79699 (M)

(Taping and lead - forming available)