

Panasonic® “ZNR” Transient/Surge Absorbers Type D and E

Features: • Excellent clamping voltage characteristic and fast response time (50nsec.) when subjected to impulse surges. Eliminates the discharge lag that is inductive of gap-type arrestors. • Bilateral and symmetrical V-1 characteristic curve. The ZNR can, therefore, be used both in AC and DC circuits, for protection of either positive or negative transients. Panasonic ZNRs are zinc oxide nonlinear resistors whose resistance changes as a function of the applied voltage. The ZNR has a bilateral and symmetrical V-1 characteristic curve and can therefore be used in circuits in place of back-to-back zener diodes. This gives your circuit clamping protection in either direction. The ZNR thus provides a highly reliable and economical way to protect against repeated high voltage transients and surges such as those produced by lightning, switching surges and noise spikes.

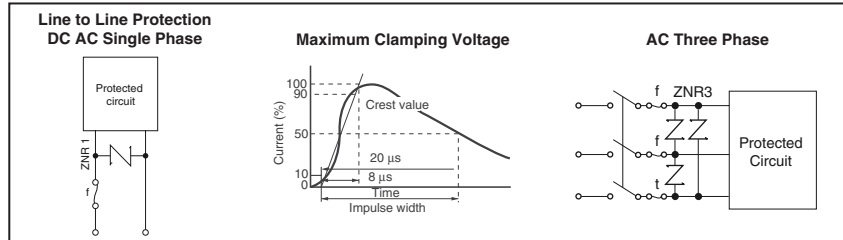
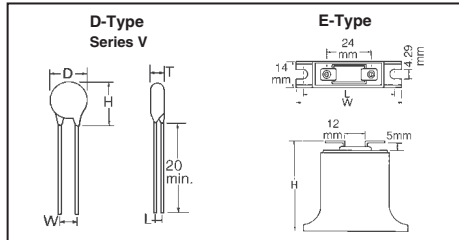
Ratings: Varistor Voltage: The voltage between two terminals with the specified measuring current C_{mA} DC applied is called V_c . The measurement shall be made as fast as possible to avoid heat affection.

Maximum Allowable Voltage: The recommended maximum sine wave voltage (rms) or the maximum DC voltage that can be applied continuously.

Withstanding Surge Current: The maximum current within the varistor voltage change of 510% with the standard impulse current (8/20 μ s second) applied one time.

Maximum Clamping Voltage: The maximum voltage between two terminals with the specified standard impulse current (8/20 μ s second) illustrated.

V Series: ZNR Surge Absorbers Type D, Series V, have been put on the market as a result of the development of a new ceramic material composition, higher quality of parts and materials used in the varistor and an improvement of manufacturing process control. They have a smaller size but a larger surge current and energy ratings so that they can be used in smaller equipment and exhibit their excellent surge protection ability in severe conditions. **Features:** • Improved in “Surge Current Handling Capability” (@ 8/20 μ s, 2 times) by 1.6 to 3.0 times over the current conventional type. • Very large “Energy Handling Capability” absorbing transient overvoltages in compact sizes • Varistor voltages 250V-1850V are listed under UL1414, UL1449 and CSA 2221 01, varistor voltages 82-150V are UL1449 only • Wide products range for transient/surge protection on AC 100V to AC 480V nominal system with the maximum peak current ratings of 600A to 6500A (@ 8/20 μ s, 2 times) • Operating Temperature Range -40°C ~ 85°C



Series	Type	Max. Allowance Voltage (V)		Varistor Volt. $\pm 10\%$ (V)	Max. Clamp Volt. @ Test Current (8/20 μ sec.) Vc(V)	Surge Current (A)	Dimensions (mm)					Digi-Key Part No.	Pricing				Panasonic Part No.			
		AC	DC				D Max.	T Max.	W ± 1	H Max.	L ± 1		1	10	100	1,000				
5	D Ser.V	11	14	18	40	1	125	7.0	4.5	5.0	10.0	1.5	P7282-ND	.52	2.97	19.35	148.11	ERZ-V050180		
		14	18	22	48	1	125	7.0	4.5	5.0	10.0	1.5	P7283-ND	.52	2.97	19.35	148.11	ERZ-V050220		
		17	22	27	60	1	125	7.0	4.5	5.0	10.0	1.5	P7284-ND	.52	2.97	19.35	148.11	ERZ-V050270		
		20	26	33	73	1	125	7.0	4.5	5.0	10.0	1.5	P7285-ND	.52	2.97	19.35	148.11	ERZ-V050330		
		25	31	39	86	1	125	7.0	4.5	5.0	10.0	1.5	P7286-ND	.52	2.97	19.35	148.11	ERZ-V050390		
		30	38	47	104	1	125	7.0	4.5	5.0	10.0	1.5	P7287-ND	.52	2.97	19.35	148.11	ERZ-V050470		
		35	45	56	123	1	125	7.0	4.5	5.0	10.0	1.5	P7288-ND	.52	2.97	19.35	148.11	ERZ-V050560		
		40	56	68	150	1	125	7.0	4.5	5.0	10.0	1.5	P7289-ND	.52	2.97	19.35	148.11	ERZ-V050680		
		50	65	82	145	5	600	7.0	4.1	5.0	10.0	1.4	P7180-ND	.52	2.97	19.35	148.11	ERZ-V050820		
		60	85	100	175	5	600	7.0	4.3	5.0	10.0	1.6	P7240-ND	.52	2.97	19.35	148.11	ERZ-V050101		
		75	100	120	210	5	600	7.0	4.5	5.0	10.0	1.8	P7241-ND	.52	2.97	19.35	148.11	ERZ-V050121		
		95	125	150	260	5	600	7.0	4.8	5.0	10.0	2.1	P7242-ND	.52	2.97	19.35	148.11	ERZ-V050151		
		130	170	200	355	5	600	7.0	4.4	5.0	10.0	1.7	P7181-ND	.52	2.97	19.35	148.11	ERZ-V050201		
		140	180	220	380	5	600	7.0	4.5	5.0	10.0	1.8	P7182-ND	.52	2.97	19.35	148.11	ERZ-V050221		
		150	200	240	415	5	600	7.0	4.6	5.0	10.0	1.9	P7183-ND	.52	2.97	19.35	148.11	ERZ-V050241		
		175	225	270	475	5	600	7.0	4.8	5.0	10.0	2.1	P7184-ND	.52	2.97	19.35	148.11	ERZ-V050271		
		210	270	330	570	5	600	7.0	5.1	5.0	10.0	2.4	P7185-ND	.52	2.97	19.35	148.11	ERZ-V050331		
		230	300	360	620	5	600	7.0	5.3	5.0	10.0	2.5	P7243-ND	.52	2.97	19.35	148.11	ERZ-V050361		
		250	320	390	675	5	600	7.0	5.4	5.0	10.0	2.7	P7244-ND	.52	2.97	19.35	148.11	ERZ-V050391		
		275	350	430	745	5	600	7.0	5.6	5.0	10.0	2.9	P7245-ND	.52	2.97	19.35	148.11	ERZ-V050431		
		300	385	470	810	5	600	7.0	5.8	5.0	10.0	3.1	P7186-ND	.52	2.97	19.35	148.11	ERZ-V050471		
		7	D Ser.V	11	14	18	36	2.5	250	8.5	4.5	5.0	11.5	1.3	P7290-ND	.58	3.31	21.50	164.57	ERZ-V070180
				14	18	22	43	2.5	250	8.5	4.6	5.0	11.5	1.4	P7291-ND	.58	3.31	21.50	164.57	ERZ-V070220
				17	22	27	53	2.5	250	8.5	4.7	5.0	11.5	1.5	P7292-ND	.58	3.31	21.50	164.57	ERZ-V070270
				20	26	33	65	2.5	250	8.5	4.9	5.0	11.5	1.7	P7293-ND	.58	3.31	21.50	164.57	ERZ-V070330
				25	31	39	77	2.5	250	8.5	4.8	5.0	11.5	1.6	P7294-ND	.58	3.31	21.50	164.57	ERZ-V070390
				30	38	47	93	2.5	250	8.5	4.9	5.0	11.5	1.7	P7295-ND	.58	3.31	21.50	164.57	ERZ-V070470
				35	45	56	110	2.5	250	8.5	5.0	5.0	11.5	1.8	P7296-ND	.58	3.31	21.50	164.57	ERZ-V070560
				40	56	68	135	2.5	250	8.5	5.2	5.0	11.5	2.0	P7297-ND	.58	3.31	21.50	164.57	ERZ-V070680
				50	65	82	135	10	1250	8.5	4.1	5.0	11.5	1.4	P7187-ND	.58	3.31	21.50	164.57	ERZ-V070820
60	85			100	165	10	1250	8.5	4.3	5.0	11.5	1.6	P7246-ND	.58	3.31	21.50	164.57	ERZ-V070101		
75	100			120	200	10	1250	8.5	4.5	5.0	11.5	1.8	P7247-ND	.58	3.31	21.50	164.57	ERZ-V070121		
95	125			150	250	10	1250	8.5	4.8	5.0	11.5	2.1	P7248-ND	.58	3.31	21.50	164.57	ERZ-V070151		
130	170			200	340	10	1250	8.5	4.4	5.0	11.5	1.7	P7188-ND	.58	3.31	21.50	164.57	ERZ-V070201		
140	180			220	360	10	1250	8.5	4.5	5.0	11.5	1.8	P7189-ND	.58	3.31	21.50	164.57	ERZ-V070221		
150	200			240	395	10	1250	8.5	4.6	5.0	11.5	1.9	P7190-ND	.58	3.31	21.50	164.57	ERZ-V070241		
175	225			270	455	10	1250	8.5	4.8	5.0	11.5	2.1	P7200-ND	.58	3.31	21.50	164.57	ERZ-V070271		
210	270			330	545	10	1250	8.5	5.1	5.0	11.5	2.4	P7201-ND	.58	3.31	21.50	164.57	ERZ-V070331		
230	300			360	595	10	1250	8.5	5.3	5.0	11.5	2.5	P7249-ND	.58	3.31	21.50	164.57	ERZ-V070361		
250	320			390	650	10	1250	8.5	5.4	5.0	11.5	2.7	P7250-ND	.58	3.31	21.50	164.57	ERZ-V070391		
275	350			430	710	10	1250	8.5	5.8	5.0	11.5	2.9	P7251-ND	.58	3.31	21.50	164.57	ERZ-V070431		
300	385			470	775	10	1250	8.5	5.8	5.0	11.5	3.1	P7202-ND	.58	3.31	21.50	164.57	ERZ-V070471		
320	410			510	845	10	1250	8.5	6.0	5.0	11.5	3.3	P7203-ND	.58	3.31	21.50	164.57	ERZ-V070511		
10	D Ser.V			11	14	18	36	5	500	11.5	4.6	7.5	14.5	1.3	P7298-ND	.75	4.35	29.80	237.04	ERZ-V100180
				14	18	22	43	5	500	11.5	4.7	7.5	14.5	1.4	P7299-ND	.75	4.35	29.80	237.04	ERZ-V100220
				17	22	27	53	5	500	11.5	4.8	7.5	14.5	1.5	P7300-ND	.75	4.35	29.80	237.04	ERZ-V100270
				20	26	33	65	5	500	11.5	5.0	7.5	14.5	1.7	P7301-ND	.75	4.35	29.80	237.04	ERZ-V100330
				25	31	39	77	5	500	11.5	4.9	7.5	14.5	1.6	P7302-ND	.75	4.35	29.80	237.04	ERZ-V100390
				30	38	47	93	5	500	11.5	5.0	7.5	14.5	1.7	P7303-ND	.75	4.35	29.80	237.04	ERZ-V100470
				35	45	56	110	5	500	11.5	5.1	7.5	14.5	1.8	P7304-ND	.75	4.35	29.80	237.04	ERZ-V100560
				40	56	68	135	5	500	11.5	5.3	7.5	14.5	2.0	P7305-ND	.75	4.35	29.80	237.04	ERZ-V100680
		50	65	82	135	25	2500	11.5	4.5	7.5	14.5	1.6	P7204-ND	.75	4.35	29.80	237.04	ERZ-V100820		
		60	85	100	165	25	2500	11.5	4.7	7.5	14.5	1.8	P7252-ND	.75	4.35	29.80	237.04	ERZ-V100101		
		75	100	120	200	25	2500	11.5	4.9	7.5	14.5	2.0	P7253-ND	.75	4.35	29.80	237.04	ERZ-V100121		
		95	125	150	250	25	2500	11.5	5.2	7.5	14.5	2.3	P7254-ND	.64	3.77	25.77	204.97	ERZ-V100151		
		130	170	200	340	25	2500	11.5	4.8	7.5	14.5	1.9	P7205-ND	.64	3.77	25.77	204.97	ERZ-V100201		
		140	180	220	360	25	2500	11.5	4.9	7.5	14.5	2.0	P7206-ND	.64	3.77	25.77	204.97	ERZ-V100221		
		150	200	240	395	25	2500	11.5	5.0	7.5	14.5	2.1	P7207-ND	.64	3.77	25.77	204.97	ERZ-V100241		
		175	225	270	455	25	2500	11.5	5.2	7.5	14.5	2.3	P7208-ND	.64	3.77	25.77	204.97	ERZ-V100271		
		210	270	330	545	25	2500	11.5	5.5	7.5	14.5	2.6	P7209-ND	.64	3.77	25.77	204.97	ERZ-V100331		
		230	300	360	595	25	2500	11.5	5.7	7.5	14.5	2.8	P7255-ND	.64	3.77	25.77	204.97	ERZ-V100361		
		250	320	390	650	25	2500	11.5	5.8	7.5	14.5	2.9	P7256-ND	.64	3.77	25.77	204.97	ERZ-V100391		
		275	350	430	710	25	2500	11.5	6.0	7.5	14.5	3.1	P7257-ND	.64	3.77	25.77	204.97	ERZ-V100431		

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