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 indurative 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.

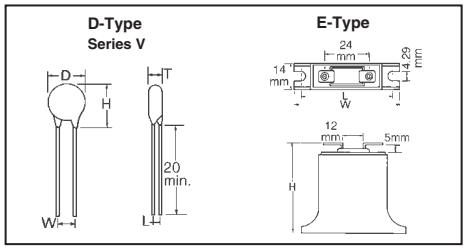
Ratings: Varistor Voltage: The voltage between two terminals with the specified measuring current CmA DC applied is called Vc. The measurement shall be made as fast as possible to avoid heat affection.

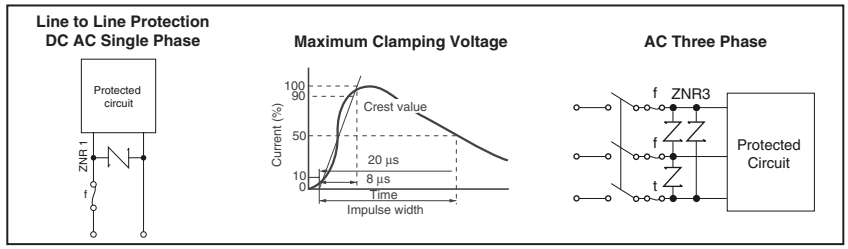
Maximum Allowable Voltage: The recommended maximum sine wave voltage (rms) or the maximum DC voltage that can be applied continuously.

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

Maximum Clamping Voltage: The maximum voltage between two terminals with the specified standard impulse current (8/20μ 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 μs, 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 μs, 2 times) • Operating Temperature Range -40°C ~ 85°C





Series	Type	Max. Allowance Voltage (V) AC	Max. Allowance Voltage (V) DC	Varistor Volt. ±10% (V)	Max. Clamp Volt. @ Test Current (8/20μsec.) Vc(V)	Max. Clamp Volt. @ Test Current (8/20μsec.) Ip(A)	Surge Current (A)	Dimensions (mm) D Max.	T Max.	W ±1	H Max.	L ±1	Digi-Key Part No.	Pricing 1	10	100	1,000	Panasonic Part No.
5	D Ser.V	11	14	18	40	1	125	7.0	4.5	5.0	10.0	1.5	P7282-ND◆	.35	2.00	13.02	99.69	ERZ-V05D180
		14	18	22	48	1	125	7.0	4.5	5.0	10.0	1.5	P7283-ND◆	.35	2.00	13.02	99.69	ERZ-V05D220
		17	22	27	60	1	125	7.0	4.5	5.0	10.0	1.5	P7284-ND◆	.35	2.00	13.02	99.69	ERZ-V05D270
		20	26	33	73	1	125	7.0	4.5	5.0	10.0	1.5	P7285-ND◆	.35	2.00	13.02	99.69	ERZ-V05D330
		25	31	39	86	1	125	7.0	4.5	5.0	10.0	1.5	P7286-ND◆	.35	2.00	13.02	99.69	ERZ-V05D390
		30	38	47	104	1	125	7.0	4.5	5.0	10.0	1.5	P7287-ND◆	.35	2.00	13.02	99.69	ERZ-V05D470
		35	45	56	123	1	125	7.0	4.5	5.0	10.0	1.5	P7288-ND◆	.35	2.00	13.02	99.69	ERZ-V05D560
		40	56	68	150	1	125	7.0	4.5	5.0	10.0	1.5	P7289-ND◆	.35	2.00	13.02	99.69	ERZ-V05D680
		50	65	82	145	5	600	7.0	4.1	5.0	10.0	1.4	P7180-ND◆	.35	2.00	13.02	99.69	ERZ-V05D820
		60	85	100	175	5	600	7.0	4.3	5.0	10.0	1.6	P7240-ND◆	.35	2.00	13.02	99.69	ERZ-V05D101
		75	100	120	210	5	600	7.0	4.5	5.0	10.0	1.8	P7241-ND◆	.35	2.00	13.02	99.69	ERZ-V05D121
		95	125	150	260	5	600	7.0	4.8	5.0	10.0	2.1	P7242-ND	.35	2.00	13.02	99.69	ERZ-V05D151
		130	170	200	355	5	600	7.0	4.4	5.0	10.0	1.7	P7181-ND◆	.35	2.00	13.02	99.69	ERZ-V05D201
		140	180	220	380	5	600	7.0	4.5	5.0	10.0	1.8	P7182-ND◆	.35	2.00	13.02	99.69	ERZ-V05D221
		150	200	240	415	5	600	7.0	4.6	5.0	10.0	1.9	P7183-ND◆	.35	2.00	13.02	99.69	ERZ-V05D241
		175	225	270	475	5	600	7.0	4.8	5.0	10.0	2.1	P7184-ND◆	.35	2.00	13.02	99.69	ERZ-V05D271
		210	270	330	570	5	600	7.0	5.1	5.0	10.0	2.4	P7185-ND◆	.35	2.00	13.02	99.69	ERZ-V05D331
		230	300	360	620	5	600	7.0	5.3	5.0	10.0	2.5	P7243-ND◆	.35	2.00	13.02	99.69	ERZ-V05D361
		250	320	390	675	5	600	7.0	5.4	5.0	10.0	2.7	P7244-ND◆	.35	2.00	13.02	99.69	ERZ-V05D391
		275	350	430	745	5	600	7.0	5.6	5.0	10.0	2.9	P7245-ND◆	.35	2.00	13.02	99.69	ERZ-V05D431
		300	385	470	810	5	600	7.0	5.8	5.0	10.0	3.1	P7186-ND◆	.35	2.00	13.02	99.69	ERZ-V05D471
7	D Ser.V	11	14	18	36	2.5	250	8.5	4.5	5.0	11.5	1.3	P7290-ND◆	.39	2.23	14.47	110.77	ERZ-V07D180
		14	18	22	43	2.5	250	8.5	4.6	5.0	11.5	1.4	P7291-ND◆	.39	2.23	14.47	110.77	ERZ-V07D220
		17	22	27	53	2.5	250	8.5	4.7	5.0	11.5	1.5	P7292-ND◆	.39	2.23	14.47	110.77	ERZ-V07D270
		20	26	33	65	2.5	250	8.5	4.9	5.0	11.5	1.7	P7293-ND◆	.39	2.23	14.47	110.77	ERZ-V07D330
		25	31	39	77	2.5	250	8.5	4.8	5.0	11.5	1.6	P7294-ND◆	.39	2.23	14.47	110.77	ERZ-V07D390
		30	38	47	93	2.5	250	8.5	4.9	5.0	11.5	1.7	P7295-ND◆	.39	2.23	14.47	110.77	ERZ-V07D470
		35	45	56	110	2.5	250	8.5	5.0	5.0	11.5	1.8	P7296-ND◆	.39	2.23	14.47	110.77	ERZ-V07D560
		40	56	68	135	2.5	250	8.5	5.2	5.0	11.5	2.0	P7297-ND◆	.39	2.23	14.47	110.77	ERZ-V07D680
		50	65	82	135	10	1250	8.5	4.1	5.0	11.5	1.4	P7187-ND◆	.39	2.23	14.47	110.77	ERZ-V07D820
		60	85	100	165	10	1250	8.5	4.3	5.0	11.5	1.6	P7246-ND◆	.39	2.23	14.47	110.77	ERZ-V07D101
		75	100	120	200	10	1250	8.5	4.5	5.0	11.5	1.8	P7247-ND◆	.39	2.23	14.47	110.77	ERZ-V07D121
		95	125	150	250	10	1250	8.5	4.8	5.0	11.5	2.1	P7248-ND◆	.39	2.23	14.47	110.77	ERZ-V07D151
		130	170	200	340	10	1250	8.5	4.4	5.0	11.5	1.7	P7188-ND◆	.39	2.23	14.47	110.77	ERZ-V07D201
		140	180	220	360	10	1250	8.5	4.5	5.0	11.5	1.8	P7189-ND◆	.39	2.23	14.47	110.77	ERZ-V07D221
		150	200	240	395	10	1250	8.5	4.6	5.0	11.5	1.9	P7190-ND◆	.39	2.23	14.47	110.77	ERZ-V07D241
		175	225	270	455	10	1250	8.5	4.8	5.0	11.5	2.1	P7200-ND◆	.39	2.23	14.47	110.77	ERZ-V07D271
		210	270	330	545	10	1250	8.5	5.1	5.0	11.5	2.4	P7201-ND	.39	2.23	14.47	110.77	ERZ-V07D331
		230	300	360	595	10	1250	8.5	5.3	5.0	11.5	2.5	P7249-ND◆	.39	2.23	14.47	110.77	ERZ-V07D361
		250	320	390	650	10	1250	8.5	5.4	5.0	11.5	2.7	P7250-ND◆	.39	2.23	14.47	110.77	ERZ-V07D391
		275	350	430	710	10	1250	8.5	5.8	5.0	11.5	2.9	P7251-ND◆	.39	2.23	14.47	110.77	ERZ-V07D431
		300	385	470	775	10	1250	8.5	5.8	5.0	11.5	3.1	P7202-ND◆	.39	2.23	14.47	110.77	ERZ-V07D471
		320	410	510	845	10	1250	8.5	6.0	5.0	11.5	3.3	P7203-ND◆	.39	2.23	14.47	110.77	ERZ-V07D511
10	D Ser.V	11	14	18	36	5	500	11.5	4.6	7.5	14.5	1.3	P7298-ND◆	.50	2.93	20.06	159.54	ERZ-V10D180
		14	18	22	43	5	500	11.5	4.7	7.5	14.5	1.4	P7299-ND◆	.50	2.93	20.06	159.54	ERZ-V10D220
		17	22	27	53	5	500	11.5	4.8	7.5	14.5	1.5	P7300-ND◆	.50	2.93	20.06	159.54	ERZ-V10D270
		20	26	33	65	5	500	11.5	5.0	7.5	14.5	1.7	P7301-ND◆	.50	2.93	20.06	159.54	ERZ-V10D330
		25	31	39	77	5	500	11.5	4.9	7.5	14.5	1.6	P7302-ND◆	.50	2.93	20.06	159.54	ERZ-V10D390
		30	38	47	93	5	500	11.5	5.0	7.5	14.5	1.7	P7303-ND◆	.50	2.93	20.06	159.54	ERZ-V10D470
		35	45	56	110	5	500	11.5	5.1	7.5	14.5	1.8	P7304-ND◆	.50	2.93	20.06	159.54	ERZ-V10D560
		40	56	68	135	5	500	11.5	5.3	7.5	14.5	2.0	P7305-ND◆	.50	2.93	20.06	159.54	ERZ-V10D680
		50	65	82	135	25	2500	11.5	4.5	7.5	14.5	1.6	P7204-ND◆	.50	2.93	20.06	159.54	ERZ-V10D820
		60	85	100	165	25	2500	11.5	4.7	7.5	14.5	1.8	P7252-ND◆	.50	2.93	20.06	159.54	ERZ-V10D101
		75	100	120	200	25	2500	11.5	4.9	7.5	14.5	2.0	P7253-ND◆	.50	2.93	20.06	159.54	ERZ-V10D121
		95	125	150	250	25	2500	11.5	5.2	7.5	14.5	2.3	P7254-ND◆	.43	2.54	17.35	137.96	ERZ-V10D151
		130	170	200	340	25	2500	11.5	4.8	7.5	14.5	1.9	P7205-ND◆	.43	2.54	17.35	137.96	ERZ-V10D201
		140	180	220	360	25	2500	11.5	4.9	7.5	14.5	2.0	P7206-ND◆	.43	2.54	17.35	137.96	ERZ-V10D221
		150	200	240	395	25	2500	11.5	5.0	7.5	14.5	2.1	P7207-ND◆	.43	2.54	17.35	137.96	ERZ-V10D241
		175	225	270	455	25	2500	11.5	5.2	7.5	14.5	2.3	P7208-ND◆	.43	2.54	17.35	137.96	ERZ-V10D271
		210	270	330	545	25	2500	11.5	5.5	7.5	14.5	2.6	P7209-ND◆	.43	2.54	17.35	137.96	ERZ-V10D331
		230	300	360	595	25	2500	11.5	5.7	7.5	14.5	2.8	P7255-ND◆	.43	2.54	17.35	137.96	ERZ-V10D361
		250	320	390	650	25	2500	11.5	5.8	7.5	14.5	2.9	P7256-ND◆	.43	2.54	17.35	137.96	ERZ-V10D391
		275	350	430	710	25	2500	11.5	6.0	7.5	14.5	3.1	P7257-ND◆	.43	2.54	17.35	137.96	ERZ-V10D431

◆ *RoHS Compliant*

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