Leaded Varistor for Voltage Surge Suppression – VPR Series

Operating Temp. : -40℃~ +85℃

FEATURES

- Fast response
- Excellent clamping ratio, high peak current and pulse energy withstanding characteristics, providing strong capability of voltage surge suppression
- Wide working voltage range, suitable for AC circuit or DC circuit

APPLICATIONS

- Lightning protection and voltage surge suppression for Power Supply, LED lighting.
- Lightning protection and voltage surge suppression for security system, PLC.
- Industrial instrument, smart meters, etc.

PRODUCT IDENTIFICATION

VP	R	05	K	D	300	B	S
①	②	③	④	⑤	⑥	⑦	⑧

①

Type	
VP	Leaded Varistor for Voltage Surge Suppression

②

Shape	
R	Round

③

Diameter of Ceramic Body (mm)	
05	5
07	7
10	10
14	14
20	20

④

Tolerance of Varistor Voltage	
K	for Varistor voltage≤68, Special
	for Varistor voltage>68, 10%

⑤

Feature Code	
D	Standard

⑥

Max. Allowable AC Working Voltage	
Example	Nominal Value
095	95
300	300

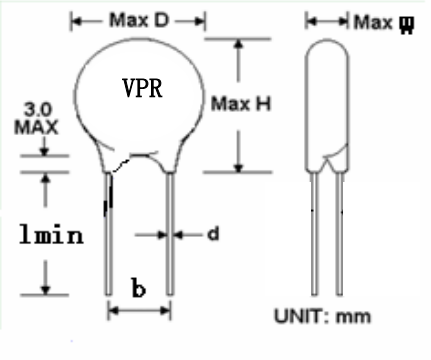
⑦

Package	
B	Bulk Package

⑧

Lead Wire Type	
S	Straight Cut Lead

SHAPE AND DIMENSIONS



Unit: mm

Type	D max	H max	W max	b	d	lmin
VPR05	7.5	10.0	5.8	5.0±1	0.6±0.1	23
VPR07	9.0	12.0	6.3	5.0±1	0.6±0.1	23
VPR10	14.0	17.0	7.4	7.5±1	0.8±0.1	23
VPR14	17.5	20.0	11.5	7.5±1	0.8±0.1	23
VPR20	25.0	28.0	11.9	10.0±1	1.0±0.1	23

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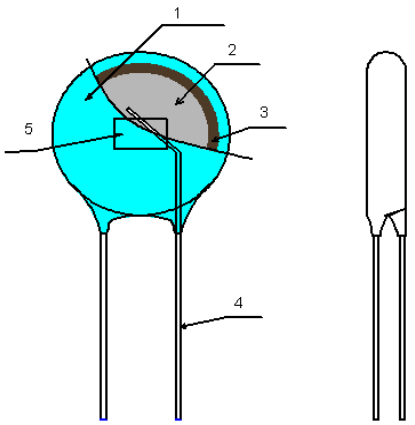
SHAPE AND DIMENSIONS

Structure and Dimensions



No.	Name	Type
1	Epoxy resin	Flame-retardant UL94V-0 blue
2	Silver layer	100% Ag
3	Ceramic body	Zinc oxide ceramic
4	Tinned wire	Φ0.6/Φ0.8/Φ1.0 (mm)
5	Marking*1	VPR*D*** /VPR**KD***

Fig.1

Fig.2

※*1: Marking: Diameter or side of ceramic body is 5 or 7mm, sample shown in Fig.1; Diameter or side of ceramic body is 10, 14 or 20mm, sample shown in Fig.2.

SPECIFICATIONS

VPR05 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR05KD011BS	11	14	14.4	18	21.6	44	1	0.4	100	0.01	1600
VPR05KD014BS	14	18	18.7	22	26.0	51	1	0.5	100	0.01	1500
VPR05KD017BS	17	22	23.0	27	31.1	60	1	0.6	100	0.01	1450
VPR05KD020BS	20	26	29.5	33	36.5	73	1	0.8	100	0.01	1400
VPR05KD025BS	25	31	35	39	46	86	1	0.9	100	0.01	700
VPR05KD030BS	30	38	42	47	55	104	1	1.1	100	0.01	650
VPR05KD035BS	35	45	50	56	66	123	1	1.3	100	0.01	600
VPR05KD040BS	40	56	61	68	80	150	1	1.6	100	0.01	580
VPR05KD050BS	50	65	74	82	90	145	5	2.5	400	0.10	310
VPR05KD060BS	60	85	90	100	110	175	5	3.0	400	0.10	290
VPR05KD075BS	75	100	108	120	132	210	5	4.0	400	0.10	270
VPR05KD095BS	95	125	135	150	165	260	5	4.8	400	0.10	240
VPR05KD115BS	115	150	162	180	198	325	5	5.9	400	0.10	140
VPR05KD130BS	130	170	180	200	220	355	5	6.5	400	0.10	120
VPR05KD140BS	140	180	198	220	242	380	5	7.0	400	0.10	110
VPR05KD150BS	150	200	216	240	264	415	5	8.0	400	0.10	110
VPR05KD175BS	175	225	247	270	303	475	5	8.5	400	0.10	100
VPR05KD195BS	195	250	270	300	330	505	5	9.0	400	0.10	100
VPR05KD210BS	210	275	297	330	363	600	5	10.0	400	0.10	90
VPR05KD230BS	230	300	324	360	396	620	5	10.0	400	0.10	80
VPR05KD250BS	250	320	351	390	429	675	5	12.0	400	0.10	80
VPR05KD275BS	275	350	387	430	473	745	5	13.0	400	0.10	70
VPR05KD300BS	300	385	423	470	517	810	5	15.0	400	0.10	70
VPR05KD320BS	320	410	459	510	561	880	5	15.0	400	0.10	65
VPR05KD350BS	350	460	504	560	616	940	5	15.0	400	0.10	65
VPR05KD385BS	385	505	558	620	682	1050	5	15.0	400	0.10	65
VPR05KD420BS	420	560	612	680	748	1150	5	15.0	400	0.10	60
VPR05KD460BS	460	615	675	750	825	1290	5	15.0	400	0.10	60

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SPECIFICATIONS

VPR07 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR07KD011BS	11	14	14.4	18	21.6	42	2.5	0.9	250	0.02	3800
VPR07KD014BS	14	18	18.7	22	26	47	2.5	1.1	250	0.02	3600
VPR07KD017BS	17	22	23.0	27	31.1	53	2.5	1.4	250	0.02	3400
VPR07KD020BS	20	26	29.5	33	36.5	65	2.5	1.7	250	0.02	2900
VPR07KD025BS	25	31	35	39	46	77	2.5	2.1	250	0.02	1600
VPR07KD030BS	30	38	42	47	55	93	2.5	2.5	250	0.02	1550
VPR07KD035BS	35	45	50	56	66	110	2.5	3.1	250	0.02	1500
VPR07KD040BS	40	56	61	68	80	135	2.5	3.6	250	0.02	1200
VPR07KD050BS	50	65	74	82	90	135	10	5.5	1200	0.25	860
VPR07KD060BS	60	85	90	100	110	165	10	6.5	1200	0.25	750
VPR07KD075BS	75	100	108	120	132	200	10	7.8	1200	0.25	530
VPR07KD095BS	95	125	135	150	165	250	10	9.7	1200	0.25	410
VPR07KD115BS	115	150	162	180	198	300	10	11.7	1200	0.25	300
VPR07KD130BS	130	170	180	200	220	340	10	13.0	1200	0.25	250
VPR07KD140BS	140	180	198	220	242	360	10	14.0	1200	0.25	250
VPR07KD150BS	150	200	216	240	264	395	10	15.0	1200	0.25	240
VPR07KD175BS	175	225	247	270	303	455	10	18.0	1200	0.25	220
VPR07KD195BS	195	250	270	300	330	500	10	20.0	1200	0.25	190
VPR07KD210BS	210	275	297	330	363	550	10	25.0	1200	0.25	180
VPR07KD230BS	230	300	324	360	396	595	10	25.0	1200	0.25	170
VPR07KD250BS	250	320	351	390	429	650	10	25.0	1200	0.25	160
VPR07KD275BS	275	350	387	430	473	710	10	28.0	1200	0.25	150
VPR07KD300BS	300	385	423	470	517	775	10	30.0	1200	0.25	130
VPR07KD320BS	320	410	459	510	561	845	10	30.0	1200	0.25	120
VPR07KD350BS	350	460	504	560	616	915	10	30.0	1200	0.25	120
VPR07KD385BS	385	505	558	620	682	1025	10	30.0	1200	0.25	120
VPR07KD420BS	420	560	612	680	748	1120	10	30.0	1200	0.25	110
VPR07KD460BS	460	615	675	750	825	1240	10	33.0	1200	0.25	100
VPR07KD485BS	485	640	702	780	858	1290	10	37.0	1200	0.25	90
VPR07KD510BS	510	670	738	820	902	1355	10	40.0	1200	0.25	90

VPR10 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR10KD011BS	11	14	14.4	18	21.6	39	5	2.1	500	0.05	16000
VPR10KD014BS	14	18	18.7	22	26.0	43	5	2.5	500	0.05	11000
VPR10KD017BS	17	22	23.0	27	31.1	53	5	3.0	500	0.05	8000
VPR10KD020BS	20	26	29.5	33	36.5	65	5	4.0	500	0.05	6300
VPR10KD025BS	25	31	35	39	46	77	5	4.6	500	0.05	5200
VPR10KD030BS	30	38	42	47	55	93	5	5.5	500	0.05	4600

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SPECIFICATIONS

VPR10 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR10KD035BS	35	45	50	56	66	110	5	7.0	500	0.05	3750
VPR10KD040BS	40	56	61	68	80	135	5	8.2	500	0.05	2800
VPR10KD050BS	50	65	74	82	90	135	25	12.0	2500	0.40	1920
VPR10KD060BS	60	85	90	100	110	165	25	15.0	2500	0.40	1800
VPR10KD075BS	75	100	108	120	132	200	25	18.0	2500	0.40	1500
VPR10KD095BS	95	125	135	150	165	250	25	22.0	2500	0.40	1200
VPR10KD115BS	115	150	162	180	198	300	25	27.0	2500	0.40	620
VPR10KD130BS	130	170	180	200	220	340	25	30.0	2500	0.40	570
VPR10KD140BS	140	180	198	220	242	360	25	32.0	2500	0.40	560
VPR10KD150BS	150	200	216	240	264	395	25	35.0	2500	0.40	550
VPR10KD175BS	175	225	247	270	303	455	25	40.0	2500	0.40	530
VPR10KD195BS	195	250	270	300	330	500	25	42.0	2500	0.40	500
VPR10KD210BS	210	275	297	330	363	550	25	47.0	2500	0.40	450
VPR10KD230BS	230	300	324	360	396	595	25	47.0	2500	0.40	450
VPR10KD250BS	250	320	351	390	429	650	25	60.0	2500	0.40	430
VPR10KD275BS	275	350	387	430	473	710	25	65.0	2500	0.40	400
VPR10KD300BS	300	385	423	470	517	775	25	70.0	2500	0.40	300
VPR10KD320BS	320	410	459	510	561	845	25	70.0	2500	0.40	260
VPR10KD350BS	350	460	504	560	616	915	25	70.0	2500	0.40	200
VPR10KD385BS	385	505	558	620	682	1025	25	70.0	2500	0.40	170
VPR10KD420BS	420	560	612	680	748	1120	25	70.0	2500	0.40	160
VPR10KD460BS	460	615	675	750	825	1240	25	75.0	2500	0.40	150
VPR10KD485BS	485	640	702	780	858	1290	25	80.0	2500	0.40	150
VPR10KD510BS	510	670	738	820	902	1355	25	85.0	2500	0.40	150
VPR10KD550BS	550	745	819	910	1001	1500	25	93.0	2500	0.40	140
VPR10KD625BS	625	825	900	1000	1100	1650	25	102.0	2500	0.40	140
VPR10KD680BS	680	895	990	1100	1210	1815	25	115.0	2500	0.40	130

VPR14 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR14KD130BS	130	170	180	200	220	340	50	57.0	4500	0.60	1150
VPR14KD140BS	140	180	198	220	242	360	50	60.0	4500	0.60	1100
VPR14KD150BS	150	200	216	240	264	395	50	63.0	4500	0.60	1050
VPR14KD175BS	175	225	247	270	303	455	50	70.0	4500	0.60	1000
VPR14KD195BS	195	250	270	300	330	500	50	73.0	4500	0.60	900
VPR14KD210BS	210	275	297	330	363	550	50	93.0	4500	0.60	850
VPR14KD230BS	230	300	324	360	396	595	50	93.0	4500	0.60	800
VPR14KD250BS	250	320	351	390	429	650	50	100.0	4500	0.60	800
VPR14KD275BS	275	350	387	430	473	710	50	115.0	4500	0.60	650

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SPECIFICATIONS

VPR14 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR14KD300BS	300	385	423	470	517	775	50	125.0	4500	0.60	550
VPR14KD320BS	320	410	459	510	561	845	50	125.0	4500	0.60	450
VPR14KD350BS	350	460	504	560	616	915	50	125.0	4500	0.60	400
VPR14KD385BS	385	505	558	620	682	1025	50	125.0	4500	0.60	350
VPR14KD420BS	420	560	612	680	748	1120	50	130.0	4500	0.60	350
VPR14KD460BS	460	615	675	750	825	1240	50	143.0	4500	0.60	330
VPR14KD485BS	485	640	702	780	858	1290	50	148.0	4500	0.60	330
VPR14KD510BS	510	670	738	820	902	1355	50	157.0	4500	0.60	330
VPR14KD550BS	550	745	819	910	1001	1500	50	175.0	4500	0.60	300
VPR14KD625BS	625	825	900	1000	1100	1650	50	190.0	4500	0.60	300
VPR14KD680BS	680	895	990	1100	1210	1815	50	213.0	4500	0.60	200

VPR20 TYPE

Part Number	Max. Working Voltage		Varistor Voltage			Max. Clamping Voltage		Rated Single Pulse Transient		Rated Power	Typical Capacitance
Test Condition	<20μA		@1mA DC			8/20μs		Energy 10/1000 μs	Peak Current 8/20μs	/	@1V_{rms}, 1kHz
	AC RMS	DC									
Units	Volts	Volts	Volts			Volts	Amps	Joules	Amps	Watt	pF
Symbol	V_{WAC}	V_{WDC}	Min.	V_B	Max.	V_C	I_C	E_T	I_P	P	C
VPR20KD130BS	130	170	180	200	220	340	100	95.0	6500	1.00	2300
VPR20KD140BS	140	180	198	220	242	360	100	100.0	6500	1.00	2200
VPR20KD150BS	150	200	216	240	264	395	100	108.0	6500	1.00	2200
VPR20KD175BS	175	225	247	270	303	455	100	127.0	6500	1.00	2100
VPR20KD195BS	195	250	270	300	330	500	100	150.0	6500	1.00	1800
VPR20KD210BS	210	275	297	330	363	550	100	163.0	6500	1.00	1750
VPR20KD230BS	230	300	324	360	396	595	100	163.0	6500	1.00	1700
VPR20KD250BS	250	320	351	390	429	650	100	180.0	6500	1.00	1400
VPR20KD275BS	275	350	387	430	473	710	100	190.0	6500	1.00	1350
VPR20KD300BS	300	385	423	470	517	775	100	220.0	6500	1.00	1200
VPR20KD320BS	320	410	459	510	561	845	100	220.0	6500	1.00	1050
VPR20KD350BS	350	460	504	560	616	915	100	220.0	6500	1.00	850
VPR20KD385BS	385	505	558	620	682	1025	100	220.0	6500	1.00	570
VPR20KD420BS	420	560	612	680	748	1120	100	230.0	6500	1.00	550
VPR20KD460BS	460	615	675	750	825	1240	100	255.0	6500	1.00	530
VPR20KD485BS	485	640	702	780	858	1290	100	265.0	6500	1.00	500
VPR20KD510BS	510	670	738	820	902	1355	100	282.0	6500	1.00	500
VPR20KD550BS	550	745	819	910	1001	1500	100	310.0	6500	1.00	480
VPR20KD625BS	625	825	900	1000	1100	1650	100	342.0	6500	1.00	460
VPR20KD680BS	680	895	990	1100	1210	1815	100	383.0	6500	1.00	400

※: Products with other electrical characteristics can be provided upon customer's request. Please contact your local sales.

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