

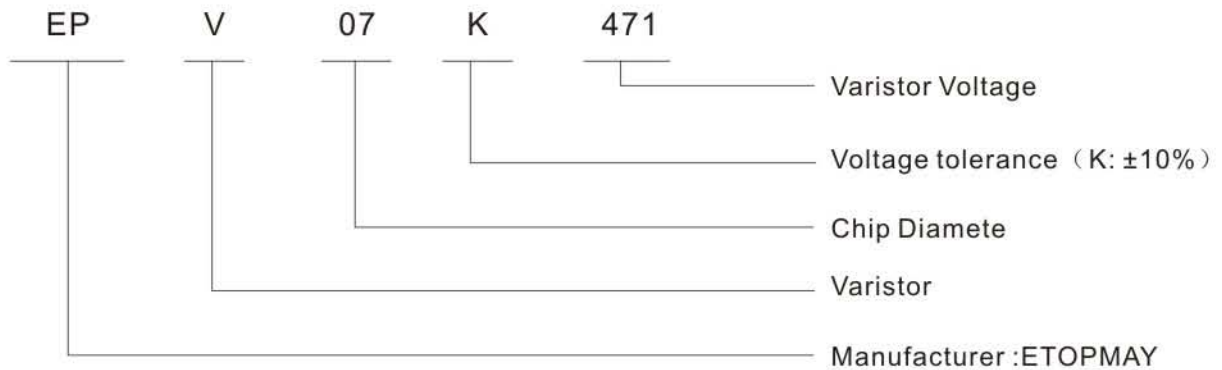
## Feature and Application

The varistor is a kind of semiconductor ceramic component which uses the zinc oxide as the main rawmaterial. The resistance value has a non-linear change with the applied voltage. It has good characteristics of small volume, large withstanding surge current.

It is mainly used in semiconductor protection, surge protection in home appliances, communication and measuring devices.



## Naming Rule



## Technical Parameter

Part No.	Varistor Voltage	Max. Continuous Voltage		Max. Clamping Voltage		Max. Energy (J)		Max. Peak Current 8/20 $\mu$ s (A)			Max. Static Power	Capacitance (Reference) (1kHz)
	V	Arms (V)	DC (V)	Vc (V)	Ip(A)	10 /1000 $\mu$ S	2ms	1time	2time	10time	W	pF
EPV05K180	18 (16~20)	11	14	40	1	0.6	0.4	250	125	50	0.01	1550
EPV07K180				36	2.5	1.1	0.9	500	250	100	0.02	3400
EPV10K180				36	5	2.6	2.2	1000	500	225	0.05	7300
EPV14K180				36	10	5.2	4.3	2000	1000	500	0.1	7000
EPV20K180				36	20	13	12	3000	2000	1000	0.2	5000
EPV05K220	22 (20~24)	14	18	48	1	0.7	0.5	250	125	50	0.01	1250
EPV07K220				43	2.5	1.3	1.1	500	250	100	0.02	2700
EPV10K220				43	5	3.2	2.6	1000	500	225	0.05	5500
EPV14K220				43	10	6.3	5.3	2000	1000	500	0.1	14000
EPV20K220				43	20	16	14	3000	2000	1000	0.2	29000
EPV05K270	27 (24~30)	17	22	60	1	0.9	0.7	250	125	50	0.01	1000
EPV07K270				53	2.5	1.6	1.3	500	250	100	0.02	1900
EPV10K270				53	5	3.9	3.2	1000	500	225	0.05	3900
EPV14K270				53	10	7.8	6.5	2000	1000	500	0.1	9500
EPV20K270				53	20	19	17	3000	2000	1000	0.2	21000

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Part No.	Varistor Voltage	Max. Continuous Voltage		Max. Clamping Voltage		Max. Energy (J)		Max. Peak Current 8/20 $\mu$ s (A)			Max. Static Power	Capacitance (Reference) (kHz)
	V	Arms (V)	DC (V)	Vc(V)	Ip(A)	10/1000 $\mu$ s	2ms	1time	2time	10time	W	pF
EPV05K330	33 (30~36)	20	26	73	1	1.1	0.8	250	125	50	0.01	900
EPV07K330				65	2.5	2	1.6	500	250	100	0.02	1450
EPV10K330				65	5	4.8	4	1000	500	225	0.05	2900
EPV14K330				65	10	9.5	7.9	2000	1000	500	0.1	7200
EPV20K330				65	20	24	21	3000	2000	1000	0.2	16000
EPV05K390	39 (35~43)	25	31	86	1	1.2	0.9	250	125	50	0.01	500
EPV07K390				77	2.5	2.4	1.9	500	250	100	0.02	1350
EPV10K390				77	5	5.6	4.7	1000	500	225	0.05	2600
EPV14K390				77	10	11	9.4	2000	1000	500	0.1	6400
EPV20K390				77	20	28	25	3000	2000	1000	0.2	14000
EPV05K470	47 (42~52)	30	38	104	1	1.5	1.1	250	125	50	0.01	450
EPV07K470				93	2.5	2.8	2.3	500	250	100	0.02	1150
EPV10K470				93	5	6.8	5.6	1000	500	225	0.05	2100
EPV14K470				93	10	14	11	2000	1000	500	0.1	5200
EPV20K470				93	20	34	30	3000	2000	1000	0.2	12500
EPV05K560	56 (50~62)	35	45	123	1	1.8	1.3	250	125	50	0.01	400
EPV07K560				110	2.5	3.4	2.7	500	250	100	0.02	940
EPV10K560				110	5	8.1	6.7	1000	500	225	0.05	1750
EPV14K560				110	10	16	13	2000	1000	500	0.1	4400
EPV20K560				110	20	41	36	3000	2000	1000	0.2	10500
EPV05K680	68 (61~75)	40	56	150	1	2.2	1.6	250	125	50	0.01	350
EPV07K680				135	2.5	4.1	3.3	500	250	100	0.02	700
EPV10K680				135	5	9.8	8.2	1000	500	225	0.05	1300
EPV14K680				135	10	20	16	2000	1000	500	0.1	3300
EPV20K680				135	20	49	44	3000	2000	1000	0.2	7000
EPV05K820	82 (74~90)	50	65	145	5	3.5	2.5	800	600	150	0.01	250
EPV07K820				135	10	7	5	1750	1250	550	0.02	550
EPV10K820				135	25	14	10	3500	2500	1000	0.05	1800
EPV14K820				135	50	28	20	6000	5000	2000	0.1	2900
EPV20K820				135	100	56	40	10000	7000	3000	0.2	5500

## Technical Parameter

Part No.	Varistor Voltage	Max. Continuous Voltage		Max. Clamping Voltage		Max. Energy (J)		Max. Peak Current 8/20 $\mu$ s (A)			Max. Static Power	Capacitance (Reference) (1kHz)
	V	Arms (V)	DC (V)	Vc(V)	Ip(A)	10/1000 $\mu$ S	2ms	1time	2time	10time	W	pF
EPV05K101	100(90~110)	60	85	175	5	4	3	800	600	150	0.1	200
EPV07K101				165	10	8.5	6	1750	1250	550	0.25	500
EPV10K101				165	2.5	17	12	3500	2500	1000	0.4	1400
EPV14K101				165	50	35	25	6000	5000	2000	0.6	2400
EPV20K101				165	100	70	50	10000	7000	3000	1	4700
EPV05K121	120(108~132)	75	100	210	5	5	3.5	800	600	150	0.1	170
EPV07K121				200	10	10	7	1750	1250	550	0.25	450
EPV10K121				200	25	20	14.5	3500	2500	1000	0.4	1100
EPV14K121				200	50	42	30	6000	5000	2000	0.6	1900
EPV20K121				200	100	85	60	10000	7000	3000	1	3800
EPV05K151	150(135~165)	95	125	260	5	6.5	4.5	800	600	150	0.1	140
EPV07K151				250	10	13	9	1750	1250	550	0.25	350
EPV10K151				250	25	25	18	3500	2500	1000	0.4	900
EPV14K151				250	50	53	37.5	6000	5000	2000	0.6	1500
EPV20K151				250	100	106	75	10000	7000	3000	1	3000
EPV05K181	180(162~198)	115	150	315	5	7.5	5	800	600	150	0.1	120
EPV07K181				300	10	15	11	1750	1250	550	0.25	350
EPV10K181				300	25	30	21	3500	2500	1000	0.4	750
EPV20K181				300	100	120	85	10000	7000	3000	1	2500
EPV05K201	200(180~220)	130	170	355	5	8.5	6	800	600	150	0.1	80
EPV07K201				340	10	17.5	12.5	1750	1250	550	0.25	250
EPV10K201				340	25	35	25	3500	2500	1000	0.4	500
EPV14K201				340	50	70	50	6000	5000	2000	0.6	1000
EPV20K201				340	100	140	100	10000	7000	3000	1	2000
EPV05K221	220(198~242)	140	180	380	5	9	6.5	800	600	150	0.1	70
EPV07K221				360	10	19	13.5	1750	1250	550	0.25	250
EPV10K221				360	25	39	27.5	3500	2500	1000	0.4	450
EPV14K221				360	50	78	55	6000	5000	2000	0.6	1000
EPV20K221				360	100	155	110	10000	7000	3000	1	2000



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Part No.	Varistor Voltage	Max. Continuous Voltage		Max. Clamping Voltage		Max. Energy (J)		Max. Peak Current 8/20 $\mu$ s (A)			Max. Static Power	Capacitance (Reference) (1kHz)
	V	Arms (V)	DC (V)	Vc(V)	Ip(A)	10/1000 $\mu$ S	2ms	1time	2time	10time	W	pF
EPV05K241	240(216~264)	150	200	415	5	10.5	7.5	800	600	150	0.1	70
EPV07K241				395	10	21	15	1750	1250	550	0.25	200
EPV10K241				395	25	42	30	3500	2500	1000	0.4	400
EPV14K241				395	50	84	60	6000	5000	2000	0.6	900
EPV20K241				395	100	168	120	10000	7000	3000	1	1800
EPV05K271	270(243~297)	175	225	475	5	11	8	800	600	150	0.1	65
EPV07K271				455	10	24	17	1750	1250	550	0.25	170
EPV10K271				455	25	49	35	3500	2500	1000	0.4	350
EPV14K271				455	50	99	70	6000	5000	2000	0.6	750
EPV20K271				455	100	190	135	10000	7000	3000	1	1600
EPV05K331	330(297~363)	210	275	580	5	13	9.5	800	600	150	0.1	65
EPV07K331				550	10	28	20	1750	1250	550	0.25	150
EPV10K331				550	25	58	42	3500	2500	1000	0.4	330
EPV14K331				550	50	115	80	6000	5000	2000	0.6	650
EPV20K331				550	100	228	160	10000	6500	3000	1	1400
EPV05K361	360(324~396)	230	300	620	5	16	11	800	600	150	0.1	50
EPV07K361				595	10	32	23	1750	1250	550	0.25	130
EPV10K361				595	25	65	45	3500	2500	1000	0.4	300
EPV14K361				595	50	130	90	6000	5000	2000	0.6	550
EPV20K361				595	100	255	180	10000	6500	3000	1	1200
EPV05K391	390(351~429)	250	320	675	5	17	12	800	400	150	0.1	50
EPV07K391				650	10	35	25	1750	1250	550	0.25	130
EPV10K391				650	25	70	50	3500	2500	1000	0.4	270
EPV14K391				650	50	140	100	6000	5000	2000	0.6	500
EPV20K391				650	100	275	195	10000	7000	3000	1	1000
EPV05K431	430(387~473)	275	350	745	5	20	13.5	800	600	150	0.1	45
EPV07K431				710	10	40	27.5	1750	1250	550	0.25	110
EPV10K431				710	25	80	55	3500	2500	1000	0.4	250
EPV14K431				710	50	155	110	6000	4500	2000	0.6	450
EPV20K431				710	100	303	215	10000	6500	3000	1	900

## Technical Parameter

Part No.	Varistor Voltage	Max. Continuous Voltage		Max. Clamping Voltage		Max. Energy (J)		Max. Peak Current 8/20 $\mu$ s (A)			Max. Static Power	Capacitance (Reference) (kHz)
	V	Arms	DC	Vc(V)	Ip(A)	10/1000 $\mu$ s	2ms	1time	2time	10time	W	pF
EPV05K471	470(423~517)	300	385	810	5	21	15	800	600	150	0.1	40
EPV07K471				775	10	42	30	1750	1250	550	0.25	100
EPV10K471				775	25	85	60	3500	2500	1000	0.4	230
EPV14K471				775	50	175	125	6000	4500	2000	0.6	400
EPV20K471				775	100	350	250	10000	6500	3000	1	900
EPV07K511	511(459~561)	320	410	845	10	45	30	1750	1250	550	0.25	38
EPV10K511				845	25	92	67	3500	2500	1000	0.4	210
EPV14K511				845	50	190	136	6000	4500	2000	0.6	350
EPV20K511				845	100	382	273	10000	6500	3000	1	800
EPV10K561	560(504~616)	350	455	925	25	92	67	3500	2500	1000	0.4	190
EPV14K561				925	50	190	136	5000	4500	2000	0.6	300
EPV20K561				925	100	382	273	7500	6500	3000	1	700
EPV10K621	620(558~682)	380	505	1025	25	92	67	3500	2500	800	0.4	130
EPV14K621				1025	50	190	136	5000	4500	1750	0.6	250
EPV20K621				1025	100	382	273	7500	6500	2250	1	500
EPV10K681	680(612~748)	420	560	1120	25	92	67	3500	2500	800	0.4	130
EPV14K681				1120	50	190	36	5000	4500	1750	0.6	250
EPV20K681				1120	100	382	273	7500	6500	2250	1	460
EPV10K751	750(675~825)	460	615	1240	25	100	70	3500	2500	800	0.4	120
EPV14K751				1240	50	210	150	5000	4500	1750	0.6	230
EPV20K751				1240	100	420	300	7500	6500	2250	1	420
EPV10K781	780(702~858)	485	640	1290	25	100	70	3500	2500	800	0.4	120
EPV14K781				1290	50	210	150	5000	4500	1750	0.6	230
EPV20K781				1290	100	420	300	7500	6500	2250	1	420
EPV10K821	820(738~902)	510	670	1355	25	110	80	3500	2500	800	0.4	110
EPV14K821				1355	50	235	165	5000	4500	1750	0.6	200
EPV20K821				1355	100	460	325	7500	6500	2250	1	400
EPV10K911	910(819~100)	550	745	1500	25	130	90	3500	2500	800	0.4	100
EPV14K911				1500	50	255	180	5000	4500	1750	0.6	180
EPV20K911				1500	100	510	360	7500	6500	2250	1	350
EPV10K102	1000(900~1100)	625	825	1650	25	140	100	3500	2500	800	0.4	90
EPV14K102				1650	50	280	200	5000	4500	1750	0.6	150
EPV20K102				1650	100	565	400	7500	6500	2250	1	320
EPV10K112	1100(990~1210)	680	895	1815	25	155	110	3500	2500	800	0.4	80
EPV14K112				1815	50	310	220	5000	4500	1750	0.6	150
EPV20K112				1815	100	620	440	7500	6500	2250	1	300
EPV14K182	1800(1620~1980)	1000	1465	2970	50	510	360	5000	4500	1750	0.6	100
EPV20K182				2970	100	1020	720	7500	6500	2250	1	200

Note: 1. The varistor voltage of standard type, the series of O5K, it is tested under 0.1mA. The series of 07K, 10K, 14K, 20K, it is under the 1mA.  
 2. 05K, 07K, 10K, 14K, 20K means diameter  $\phi$ 5mm,  $\phi$ 7mm,  $\phi$ 10mm,  $\phi$ 14mm,  $\phi$ 20mm  
 3. K means varistor voltage  $\pm$ 10%, the last letter means numbers of zero.

**φ5 Series**

Part No	Dmax	Tmax	W±1.0	d±0.1	Hmax	Lmin
EPV05K180	7.5	3.5	5.0	0.6	3.0	20
EPV05K220	7.5	3.54	5.0	0.6	3.0	20
EPV05K270	7.5	3.62	5.0	0.6	3.0	20
EPV05K330	7.5	3.7	5.0	0.6	3.0	20
EPV05K390	7.5	3.64	5.0	0.6	3.0	20
EPV05K470	7.5	3.7	5.0	0.6	3.0	20
EPV05K560	7.5	3.73	5.0	0.6	3.0	20
EPV05K680	7.5	3.8	5.0	0.6	3.0	20
EPV05K820	7.5	4	5.0	0.6	3.0	20
EPV05K101	7.5	4.1	5.0	0.6	3.0	20

Part No	Dmax	Tmax	W±0.5	d±0.1	Hmax	Lmin
EPV05K151	7.5	4.4	5.0	0.6	3.0	20
EPV05K181	7.5	4.5	5.0	0.6	3.0	20
EPV05K201	7.5	3.7	5.0	0.6	3.0	20
EPV05K221	7.5	3.75	5.0	0.6	3.0	20
EPV05K241	7.5	3.88	5.0	0.6	3.0	20
EPV05K271	7.5	4.01	5.0	0.6	3.0	20
EPV05K301	7.5	4.14	5.0	0.6	3.0	20
EPV05K331	7.5	4.27	5.0	0.6	3.0	20
EPV05K361	7.5	4.4	5.0	0.6	3.0	20
EPV05K391	7.5	4.57	5.0	0.6	3.0	20
EPV05K431	7.5	4.74	5.0	0.6	3.0	20
EPV05K471	7.5	4.92	5.0	0.6	3.0	20

**φ7 Series**

Part No	Dmax	Tmax	W±1.0	d±0.1	Hmax	Lmin
EPV07K180	8.5	3.5	5.0	0.6	3.0	20
EPV07K220	8.5	3.54	5.0	0.6	3.0	20
EPV07K270	8.5	3.62	5.0	0.6	3.0	20
EPV07K330	8.5	3.7	5.0	0.6	3.0	20
EPV07K390	8.5	3.64	5.0	0.6	3.0	20
EPV07K470	8.5	3.7	5.0	0.6	3.0	20
EPV07K560	8.5	3.73	5.0	0.6	3.0	20
EPV07K680	8.5	3.8	5.0	0.6	3.0	20
EPV07K820	9.0	4	5.0	0.6	3.0	20
EPV07K101	9.0	4.1	5.0	0.6	3.0	20
EPV07K121	9.0	4.3	5.0	0.6	3.0	20
EPV07K151	9.0	4.4	5.0	0.6	3.0	20
EPV07K181	9.0	4.5	5.0	0.6	3.0	20
EPV07K201	9.0	3.7	5.0	0.6	3.0	20
EPV07K221	9.0	3.75	5.0	0.6	3.0	20
EPV07K241	9.0	3.88	5.0	0.6	3.0	20
EPV07K271	9.0	4.01	5.0	0.6	3.0	20
EPV07K301	9.0	4.14	5.0	0.6	3.0	20
EPV07K331	9.0	4.27	5.0	0.6	3.0	20
EPV07K361	9.0	4.4	5.0	0.6	3.0	20
EPV07K391	9.0	4.57	5.0	0.6	3.0	20
EPV07K431	9.0	4.74	5.0	0.6	3.0	20
EPV07K471	9.0	4.92	5.0	0.6	3.0	20
EPV07K511	9.0	5.13	5.0	0.6	3.0	20
EPV07K561	9.0	5.39	5.0	0.6	3.0	20
EPV07K621	9.0	5.65	5.0	0.6	3.0	20
EPV07K681	9.0	5.95	5.0	0.6	3.0	20



**φ10 Series**

Part No	Dmax	Tmax	W±1.0	d±0.1	Hmax	Lmin
EPV10K180	12.5	3.7	7.5	0.7	3.0	20
EPV10K220	12.5	3.74	7.5	0.7	3.0	20
EPV10K270	12.5	3.82	7.5	0.7	3.0	20
EPV10K330	12.5	3.9	7.5	0.7	3.0	20
EPV10K390	12.5	3.84	7.5	0.7	3.0	20
EPV10K470	12.5	3.9	7.5	0.7	3.0	20
EPV10K560	12.5	3.93	7.5	0.7	3.0	20
EPV10K680	12.5	4	7.5	0.7	3.0	20
EPV10K820	13.5	4.2	7.5	0.7	3.0	20
EPV10K101	13.5	4.3	7.5	0.7	3.0	20
EPV10K121	13.5	4.5	7.5	0.7	3.0	20
EPV10K151	13.5	4.6	7.5	0.7	3.0	20
EPV10K181	13.5	4.7	7.5	0.7	3.0	20
EPV10K201	13.5	3.9	7.5	0.7	3.0	20
EPV10K221	13.5	3.95	7.5	0.7	3.0	20
EPV10K241	13.5	4.08	7.5	0.7	3.0	20
EPV10K271	13.5	4.21	7.5	0.7	3.0	20
EPV10K301	13.5	4.34	7.5	0.7	3.0	20
EPV10K331	13.5	4.47	7.5	0.7	3.0	20
EPV10K361	13.5	4.6	7.5	0.7	3.0	20
EPV10K391	13.5	4.77	7.5	0.7	3.0	20
EPV10K431	13.5	4.94	7.5	0.7	3.0	20
EPV10K471	13.5	5.12	7.5	0.7	3.0	20
EPV10K511	13.5	5.33	7.5	0.7	3.0	20
EPV10K561	13.5	5.59	7.5	0.7	3.0	20
EPV10K621	13.5	5.85	7.5	0.7	3.0	20
EPV10K681	13.5	6.15	7.5	0.7	3.0	20
EPV10K751	13.5	6.46	7.5	0.7	3.0	20
EPV10K781	13.5	6.55	7.5	0.7	3.0	20
EPV10K821	13.5	6.85	7.5	0.7	3.0	20
EPV10K911	13.5	7.23	7.5	0.7	3.0	20
EPV10K102	13.5	7.67	7.5	0.7	3.0	20
EPV10K112	13.5	8.3	7.5	0.7	3.0	20



φ14 Series

Part No	Dmax	Tmax	W±1.0	d±0.1	Hmax	Lmin
EPV14K180	16.0	3.9	7.5	0.78	3.0	20
EPV14K220	16.0	3.94	7.5	0.78	3.0	20
EPV14K270	16.0	4.02	7.5	0.78	3.0	20
EPV14K330	16.0	4.1	7.5	0.78	3.0	20
EPV14K390	16.0	4.04	7.5	0.78	3.0	20
EPV14K470	16.0	4.1	7.5	0.78	3.0	20
EPV14K560	16.0	4.13	7.5	0.78	3.0	20
EPV14K680	16.0	4.2	7.5	0.78	3.0	20
EPV14K820	16.5	4.4	7.5	0.78	3.0	20
EPV14K101	16.5	4.5	7.5	0.78	3.0	20
EPV14K121	16.5	4.7	7.5	0.78	3.0	20
EPV14K151	16.5	4.8	7.5	0.78	3.0	20
EPV14K181	16.5	4.9	7.5	0.78	3.0	20
EPV14K201	16.5	4.1	7.5	0.78	3.0	20
EPV14K221	16.5	4.15	7.5	0.78	3.0	20
EPV14K241	16.5	4.28	7.5	0.78	3.0	20
EPV14K271	16.5	4.41	7.5	0.78	3.0	20
EPV14K301	16.5	4.54	7.5	0.78	3.0	20
EPV14K331	16.5	4.67	7.5	0.78	3.0	20
EPV14K361	16.5	4.8	7.5	0.78	3.0	20
EPV14K391	16.5	4.97	7.5	0.78	3.0	20
EPV14K431	16.5	5.14	7.5	0.78	3.0	20
EPV14K471	16.5	5.32	7.5	0.78	3.0	20
EPV14K511	16.5	5.53	7.5	0.78	3.0	20
EPV14K561	16.5	5.79	7.5	0.78	3.0	20
EPV14K621	16.5	6.05	7.5	0.78	3.0	20
EPV14K681	16.5	6.35	7.5	0.78	3.0	20
EPV14K751	16.5	6.66	7.5	0.78	3.0	20
EPV14K781	16.5	6.75	7.5	0.78	3.0	20
EPV14K821	16.5	7.05	7.5	0.78	3.0	20
EPV14K911	16.5	7.43	7.5	0.78	3.0	20
EPV14K102	16.5	7.87	7.5	0.78	3.0	20
EPV14K112	16.5	8.5	7.5	0.78	3.0	20

## φ20 Series

Part No	Dmax	Tmax	W±1.0	d±0.1	Hmax	Lmin
EPV20K180	23.0	4.3	10.0	1.0	4.0	20
EPV20K220	23.0	4.34	10.0	1.0	4.0	20
EPV20K270	23.0	4.42	10.0	1.0	4.0	20
EPV20K330	23.0	4.5	10.0	1.0	4.0	20
EPV20K390	23.0	4.44	10.0	1.0	4.0	20
EPV20K470	23.0	4.5	10.0	1.0	4.0	20
EPV20K560	23.0	4.53	10.0	1.0	4.0	20
EPV20K680	23.0	4.6	10.0	1.0	4.0	20
EPV20K820	23.5	4.8	10.0	1.0	4.0	20
EPV20K101	23.5	4.9	10.0	1.0	4.0	20
EPV20K121	23.5	5.1	10.0	1.0	4.0	20
EPV20K151	23.5	5.2	10.0	1.0	4.0	20
EPV20K181	23.5	5.3	10.0	1.0	4.0	20
EPV20K201	23.5	4.5	10.0	1.0	4.0	20
EPV20K221	23.5	4.55	10.0	1.0	4.0	20
EPV20K241	23.5	4.68	10.0	1.0	4.0	20
EPV20K271	23.5	4.81	10.0	1.0	4.0	20
EPV20K301	23.5	4.94	10.0	1.0	4.0	20
EPV20K331	23.5	5.07	10.0	1.0	4.0	20
EPV20K361	23.5	5.2	10.0	1.0	4.0	20
EPV20K391	23.5	5.37	10.0	1.0	4.0	20
EPV20K431	23.5	5.54	10.0	1.0	4.0	20
EPV20K471	23.5	5.72	10.0	1.0	4.0	20
EPV20K511	23.5	5.93	10.0	1.0	4.0	20
EPV20K561	23.5	6.19	10.0	1.0	4.0	20
EPV20K621	23.5	6.45	10.0	1.0	4.0	20
EPV20K681	23.5	6.75	10.0	1.0	4.0	20
EPV20K751	23.5	7.06	10.0	1.0	4.0	20
EPV20K781	23.5	7.15	10.0	1.0	4.0	20
EPV20K821	23.5	7.45	10.0	1.0	4.0	20
EPV20K911	23.5	7.83	10.0	1.0	4.0	20
EPV20K102	23.5	8.27	10.0	1.0	4.0	20
EPV20K112	23.5	8.9	10.0	1.0	4.0	20

## Certificates of Product

Certificate Type	Certificate No.	Approved product	Range of products
UL	E224824	EPV Varistor	EPV05K820-471 EPV07K820-471 EPV10K820-182 EPV14K820-182 EPV20K820-182
VDE	40018747	EPV Varistor	EPV10K820-112 EPV14K820-112 EPV20K820-112
CQC	CQC03001004469	EPV Varistor	EPV05K180-471 EPV07K180-471 EPV10K180-112 EPV14K180-112 EPV20K180-112

## Performance Requirement and Testing Method

References	Testing Method		Criteria
Varistor Voltage	We use the Vc to present the voltage between two terminals through the specified current. The specified current of series 05K is 0.1 mA, and 1mA for series of 07K, 10K, 14K, 20K		To meet the specified value
Max. Continuous Voltage	Within the specified temperature, the Max. available current or DC voltage continuously applied in two terminals		To meet the specified value
Limiting Voltage	The Max. voltage between two varistor terminals when applied in the specified standard waveform (8×20μs) and specified current.		To meet the specified value
Energy Tolerance	The Max. energy the single pulse current impact at a time. 10/1000μs or 2ms square wave. Current* Voltage* time is called energy tolerance. The change rate of varistor voltage keeps in the range of ±10%		To meet the specified value
Max. Peak Current	One Time: The Max. current value that makes a pulse with 8×20μs standard waveform. The change rate of varistor voltage keeps in the range of ±10%.		To meet the specified value
	Two Times: Within 5 minutes, make the Max. current impulse with 8×20μs standard waveform for two times. The change rate of varistor voltage keeps in the range of ±10%.		To meet the specified value
Varistor Voltage Temperature Coefficient	$\frac{VC(+85^{\circ}C) - VC(+25^{\circ}C)}{VC(+25^{\circ}C)} \times \frac{1}{60} \times 100\%$		0~-0.05%/°C
Insulation Strength	Connected two terminals to be one polar and use metallic ball surround the epoxy body to be another polar, applied in the specified voltage 1 minute. ( See table as below)		No breakdown
	Varistor Voltage	Testing Voltage (AC)	
	VC≤330V	1000Vrms	
	VC>330V	2000 Vrms	
Leads Tensile Strength	After gradually applying the force specified below and keeping the unit fixed for 10s, the terminal shall be visually examined for any damage.		No obvious mechanical damage
	Leads Diameter	Tension	
	Φ0.6mm, Φ0.8mm	10N	
	Φ1.0mm	20N	
Leads Bending Strength	Fix the specimen, make leads vertically upward, and apply the force from an axial direction. The leads gradually bend 90° from a direction. Then bend another 90° from the original direction. The terminal shall be visually examined for any damage.		No obvious mechanical damage
	Leads Diameter	Tension	
	Φ0.6mm, Φ0.8mm	5N	
	Φ1.0mm	10N	



## Performance Requirement and Testing Method

References	Testing Method						Criteria
Vibration	Amplitude: 0.75mm Frequency change period: 1m (10 Hz -55 Hz -10 Hz ) Duration: 2h for three direction After repeatedly applying a single harmonic vibration according to the above table. The specimen shall be visually examined for any damage.						No obvious mechanical damage
Solderability	After dipping the terminals to a depth of approximately 2mm from the body in a soldering bath of $235^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for $2 \text{ s} \pm 0.5\text{s}$ , the terminals soldering uniformity shall be visually examined						About 95% terminal surface are covered by the soldering tin
Resistance to soldering heat	After dipping leads into a solder bath with temperature $260 \pm 5^{\circ}\text{C}$ to a point 2-2.5mm from the body of the specimen, be held there for $10\text{s} \pm 1\text{s}$ and then be stored at room temperature and normal humidity for 1-2 h. The change of Varistor voltage shall be measured and the specimen shall be visually examined.						$\Delta\text{VC}/\text{Vc} \leq \pm 5\%$ No obvious mechanical damage
Damp heat test	The specimen shall be subjected to temperature $40^{\circ}\text{C}$ , 90-95% humidity for 1000h without load. Then stored at room temperature and normal humidity for 1-2 h. Thereafter, the change of varistor voltage change rate shall be measured.						$\Delta\text{VC}/\text{VC} \leq \pm 5\%$
Temperature cycling test	Each temperature cycle is as below. Repeat for 5 times. Then stored at room temperature and normal humidity for 1-2 h. Thereafter, the change of varistor voltage change rate shall be measured.						$\Delta\text{VC}/\text{Vc} \leq \pm 5\%$ No obvious mechanical damage
	Step	Temperature ( $^{\circ}\text{C}$ )	Time (minutes)	Step	Temperature ( $^{\circ}\text{C}$ )	Time (minutes)	
	1	$-40 \pm 3$	$30 \pm 3$	3	$85 \pm 2$	$30 \pm 3$	
2	room temperature	$15 \pm 3$	4	room temperature	$15 \pm 3$		
Endurance at high Temperature	After having continuously applied in the Max. allowable working voltage at $85 \pm 2^{\circ}\text{C}$ for 1000h, the specimen shall be stored at room temperature and normal humidity for 1-2 h. the change of varistor voltage change rate shall be measured.						$\Delta\text{VC}/\text{VC} \leq \pm 10\%$