

Panasonic® Multilayer Varistor — For DC Voltage Lines

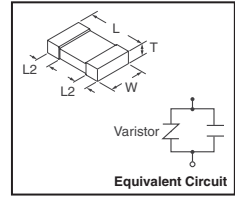
Strontium Titanate (0603 and 0805 Sizes) Surface Mount



Size	Dimensions - mm			
	L	W	T	L2
0603	1.60	0.80	0.80	0.30
0805	2.00	1.25	0.80	0.50

For EMI noise suppression and transient surge protection. **Features:** • Multilayer monolithic construction of SrTiO₃ ceramics • Low varistor voltage with high parallel capacitance • Fast response to high speed transient over voltage for ESD protection (IEC1000-4-2) • dV/dt reduction resulting from the large capacitance • Large withstanding surge and energy capabilities • Operating Temperature Range: -40°C ~ 85°C

Size	Maximum Allowable Voltage (VDC)	Varistor Voltage @ 0.1mA (V)	Typical Capacitance @ 1kHz (pF)	Maximum ESD IEC61000-4-2 (kV)	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape and Reel		Panasonic Part No.
						1	10	100		Qty.	Pricing	
						1	10	100				
0603	6	12	8200	30	P822VJCT-ND	1.04	6.42	47.01	P822VJTR-ND	4,000	338.74/M	EJZ-S1VB822
	18	30	3900	30	P392VJCT-ND	1.04	6.42	47.01	P392VJTR-ND	4,000	338.74/M	EJZ-S1VC392
	30	50	1800	30	P182VJCT-ND	1.04	6.42	47.01	P182VJTR-ND	4,000	338.74/M	EJZ-S1VD182
0805	6	12	22000	30	P223ZJCT-ND	.66	3.82	26.11	P223ZJTR-ND	5,000	168.97/M	EJZ-S2VB223
	18	30	8200	30	P822ZJCT-ND	.66	3.82	26.11	P822ZJTR-ND	2,000	188.99/M	EJZ-S2VC822
	30	50	4700	30	P472ZJCT-ND	.66	3.82	26.11	P472ZJTR-ND	2,000	188.99/M	EJZ-S2VD472

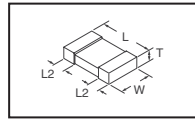


Multilayer Varistor — Low Capacitance Type for DC Voltage Lines and Low Speed Signal Lines (0201, 0402 and 0603 Sizes) Surface Mount



Features: • Multilayer monolithic construction for use in DC voltage or low speed signal line protection circuits • Operating Temperature Range: -40°C ~ 85°C **Applications:** • Mobile Phone • AV equipment • Game console • USB1.1

Size	Dimensions - mm			
	L	W	T	L2
0201	0.60	0.30	0.30	0.15
0402	1.00	0.50	0.50	0.20
0603	1.60	0.80	0.80	0.30



Size	Maximum Allowable Voltage (VDC)	Varistor Voltage @ 1mA (V)	Maximum Capacitance @ 1MHz (pF)	Maximum Peak Current @ 8/20µs, 2 times (A)	Maximum ESD IEC61000-4-2 (kV)	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape and Reel		Panasonic Part No.
							1	10	100		Qty.	Pricing	
							1	10	100				
0201	6.7	12	47	1	8	P12803CT-ND	22	1.23	7.56	P12803TR-ND	15,000	41.65/M	EJZ-ZV120EA
	5.5	8	330	20	—	P13574CT-ND	.35	1.98	12.85	P13574TR-ND	10,000	76.08/M	EJZ-ZV080KA
	6.7	12	220	10	8	P11403CT-ND	26	1.31	7.64	P11403TR-ND	10,000	37.64/M	EJZ-ZV120JA
	11	18	150	10	8	P13694CT-ND	26	1.31	7.64	P13694TR-ND	10,000	37.64/M	EJZ-ZV180HA
	13	22	150	10	8	P13695CT-ND	26	1.31	7.64	P13695TR-ND	10,000	37.64/M	EJZ-ZV220HA
0402	16	27	47	10	8	P11404CT-ND	26	1.31	7.64	P11404TR-ND	10,000	37.64/M	EJZ-ZV270EA
	30	42	56	10	8	P13696CT-ND	26	1.31	7.64	P13696TR-ND	10,000	37.64/M	EJZ-ZV420WA
	40	65	27	5	—	P13692CT-ND	28	1.55	9.56	P13692TR-ND	10,000	52.86/M	EJZ-ZV650DA
	6.7	12	330	20	8	P12005CT-ND	28	1.56	9.63	P12005TR-ND	4,000	60.06/M	EJZ-Z1V120KA
	11	18	220	20	8	P13697CT-ND	28	1.56	9.63	P13697TR-ND	4,000	60.06/M	EJZ-Z1V180JA
0603	13	22	220	20	8	P13698CT-ND	28	1.56	9.63	P13698TR-ND	4,000	60.06/M	EJZ-Z1V220JA
	16	27	47	20	—	P14189CT-ND	28	1.56	9.63	P14189TR-ND	4,000	60.06/M	EJZ-Z1V270EA
	16	27	100	20	8	P10862CT-ND	28	1.56	9.63	P10862TR-ND	4,000	60.06/M	EJZ-Z1V270GA
	16	27	20	3	—	P14190CT-ND	28	1.56	9.63	P14190TR-ND	4,000	60.06/M	EJZ-Z1V270RA
	26	33	100	20	8	P10863CT-ND	28	1.56	9.63	P10863TR-ND	4,000	60.06/M	EJZ-Z1V330GA
	30	42	68	15	8	P13699CT-ND	28	1.56	9.63	P13699TR-ND	4,000	60.06/M	EJZ-Z1V420FA
	40	65	27	5	8	P14254CT-ND	31	1.73	10.70	P14254TR-ND	4,000	66.47/M	EJZ-Z1V650DA

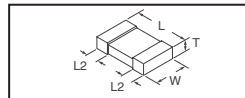
Multilayer Varistor — Ultra-Low Capacitance Type for High Speed Signal Lines

Zinc Oxide Type (0201, 0402 and 0603 Sizes) Surface Mount



Features: • Multilayer monolithic construction for use in high speed signal line protection circuits • Ultra low capacitance - less than 3pF maximum • Operating Temperature Range: -40°C ~ 85°C **Applications:** • Mobile Phone • AV equipment • Game console • USB2.0 • IEEE1394 • HDMI • LAN1000BASE

Size	Dimensions - mm			
	L	T	W	L2
0201	0.60	0.30	0.30	0.15
0402	1.00	0.50	0.50	0.20
0603	1.60	0.80	0.80	0.30



Size	Maximum Allowable Voltage (VDC)	Varistor Voltage @ 1mA (V)	Maximum Capacitance @ 1MHz (pF)	Maximum ESD IEC61000-4-2 (kV)	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape and Reel		Panasonic Part No.
						1	10	100		Qty.	Pricing	
						1	10	100				
0201	5	80	3	8	P12801CT-ND	.22	1.23	7.56	P12801TR-ND	15,000	41.65/M	EJZ-ZV800AA
	3	27	3	8	P12800CT-ND	.30	1.62	10.01	P12800TR-ND	10,000	55.26/M	EJZ-ZV270AA
	5	50	3	8	P14188CT-ND	.24	1.30	8.03	P14188TR-ND	10,000	44.05/M	EJZ-ZV500AA
	5	80	0.5	8	P12987CT-ND	.34	1.88	12.24	P12987TR-ND	10,000	72.08/M	EJZ-ZV80005
	5	80	0.5	8	P14187CT-ND	.28	1.56	9.63	P14187TR-ND	10,000	52.86/M	EJZ-ZV80015D
0402	6	39	1	4	P13575CT-ND	.46	2.59	16.83	P13575TR-ND	10,000	99.30/M	EJZ-ZV39010
	6	39	1.3	6	P13576CT-ND	.46	2.59	16.83	P13576TR-ND	10,000	99.30/M	EJZ-ZV39013
	10	80	1	8	P12802CT-ND	.28	1.56	9.63	P12802TR-ND	10,000	52.86/M	EJZ-ZV80010
	18	80	3	8	P11992CT-ND	.24	1.30	8.03	P11992TR-ND	10,000	44.05/M	EJZ-ZV800AA
	18	170	3	8	P11402CT-ND	.24	1.30	8.03	P11402TR-ND	10,000	44.05/M	EJZ-ZV171AA
0603	5	50	3	8	P14192CT-ND	.28	1.56	9.63	P14192TR-ND	4,000	60.06/M	EJZ-Z1V500AA
	6	39	1	4	P13577CT-ND	.52	3.05	20.88	P13577TR-ND	4,000	141.75/M	EJZ-Z1V39010
	10	80	1	8	P14191CT-ND	.27	1.55	10.07	P14191TR-ND	4,000	66.47/M	EJZ-Z1V80010
	18	80	3	8	P14193CT-ND	.28	1.56	9.63	P14193TR-ND	4,000	60.06/M	EJZ-Z1V800AA
	18	170	3	8	P12006CT-ND	.28	1.56	9.63	P12006TR-ND	4,000	60.06/M	EJZ-Z1V171AA

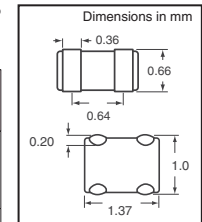
◆ RoHS Compliant

Multilayer Varistor — 2 Array Chip Type for High Speed Signal Lines



Features: • Industry's smallest capacitance suitable for high-speed multiple signal lines • 2-chip type with the noise filter function available (suitable for the audio line of mobile phones)

Size	Maximum Allowable Voltage (VDC)	Varistor Voltage @ 1mA (V)	Maximum ESD IEC61000-4-2 (kV)	Maximum Peak Current @ 8/20µs, 2 times (A)	Maximum Capacitance @ 1MHz (pF)	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape and Reel Pricing 4,000	Panasonic Part No.
							1	10	100			
							1	10	100			
0504	6.7	12	8	—	220	P11989CT-ND	.52	3.05	20.88	P11989TR-ND	141.75/M	EJZ-ZSV120JA
	16	27	—	5	22	P11987CT-ND	1.47	9.08	66.43	P11987TR-ND	478.88/M	EJZ-ZSV270CAK
	16	27	8	5	27	P11988CT-ND	.52	3.05	20.88	P11988TR-ND	141.75/M	EJZ-ZSV270DAK
	16	27	8	10	47	P11990CT-ND	.52	3.05	20.88	P11990TR-ND	141.75/M	EJZ-ZSV270EA
	18	80	8	—	3	P12058CT-ND	.52	3.05	20.88	P12058TR-ND	141.75/M	EJZ-ZSV800AA
	18	170	8	—	3	P11991CT-ND	.52	3.05	20.88	P11991TR-ND	141.75/M	EJZ-ZSV171AA



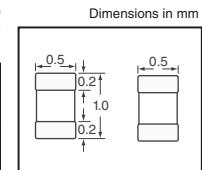
Multilayer Varistor — For High Speed Signal Lines



Panasonic's newly developed Multi-Layer Chip Varistor EXJ-POV080 Series reduces ESD suppression voltages at very low threshold voltages. It's clamping effects are reduced by 50% over existing models. It's multilayer construction and enhanced properties have enabled the EJZ-P to be used as a viable alternative to zener diodes and capacitors in high speed

signal designs (i.e.: 1 EJZ-P can replace 2 zener diodes and 1 capacitor). This is achieved by providing new ceramic materials with precise crystal particle uniformity and distribution. The EJZ-P series MLCV is available in a 0402 case size with capacitance values of 330 ~ 680pF. It meets IEC61000-4-2 standard and is ideal for USB-2.0, IEEE1354 and HDMI applications.

Size	Maximum Allowable Voltage (VDC)	Varistor Voltage @ 1mA (V)	Clamping Voltage @ 8/20µs, 1A (V) max.	Maximum Peak Current @ 8/20µs, 2 times (A)	Maximum Capacitance @ 1MHz (pF)	Digi-Key Part No.	Cut Tape Pricing			Digi-Key Part No.	Tape and Reel Pricing 10,000	Panasonic Part No.
							1	10	100			
							1	10	100			
0402	5.6	8.0	18	20	680	P14128CT-ND	.33	1.86	12.08	P14128TR-ND	71.28/M	EJZ-POV080MA
	5.6	8.0	19	15	330	P14129CT-ND	.33	1.86	12.08	P14129TR-ND	71.28/M	EJZ-POV080KA
	5.6	8.0	20	3	100	P14130CT-ND	.33	1.86	12.08	P14130TR-ND	71.28/M	EJZ-POV080GA



Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

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