

Multilayer Varistor for ESD pulse [DC voltage lines/High speed signal lines]

Series : **EZJZ, EZJP**



■ Features

- Excellent ESD suppression due to advanced material technology
- Meets IEC61000-4-2, Level 4 standard
- Can replace 2 Zener Diodes and 1 Capacitor
- Low capacitance versions for DC voltage lines of high speed busses
- Ultra low capacitance for signal lines of high speed busses
- Ideal usage for USB 2.0, IEEE1394, and HDMI high speed data busses
- RoHS compliant

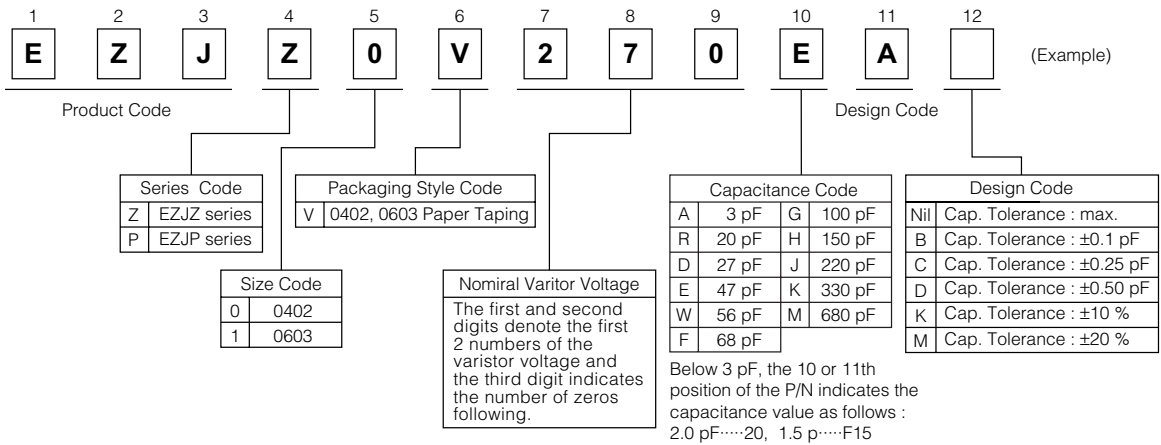
■ Handling Precautions

see pages 73 to 78

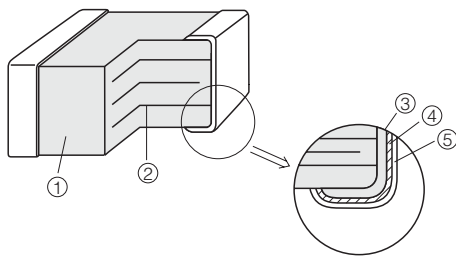
■ Packaging Specifications

see pages 72, 147

■ Explanation of Part Numbers

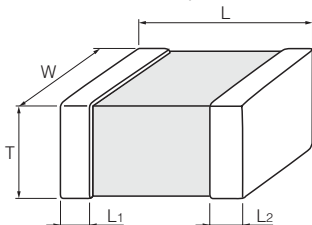


■ Construction



No.	Name	
①	Semiconductive Ceramics	
②	Internal electrode	
③		Substrate electrode
④	Terminal electrode	Intermediate electrode
⑤		External electrode

■ Dimensions in mm (not to scale)



(Unit : mm)

Size Code	Size	L	W	T	L ₁ , L ₂
0	0402	1.00±0.05	0.50±0.05	0.50±0.05	0.2±0.1
1	0603	1.6±0.1	0.8±0.1	0.8±0.1	0.3±0.2

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Multilayer Varistor, Low Capacitance Type [High speed signal lines]

■ Features

- Multilayer monolithic ceramic construction for high speed signal lines
- Ideal usage for USB 2.0, IEEE1394, and HDMI high speed data busses
- Capacitance : 0.8 to 2.1 pF typ.

■ Recommended Applications

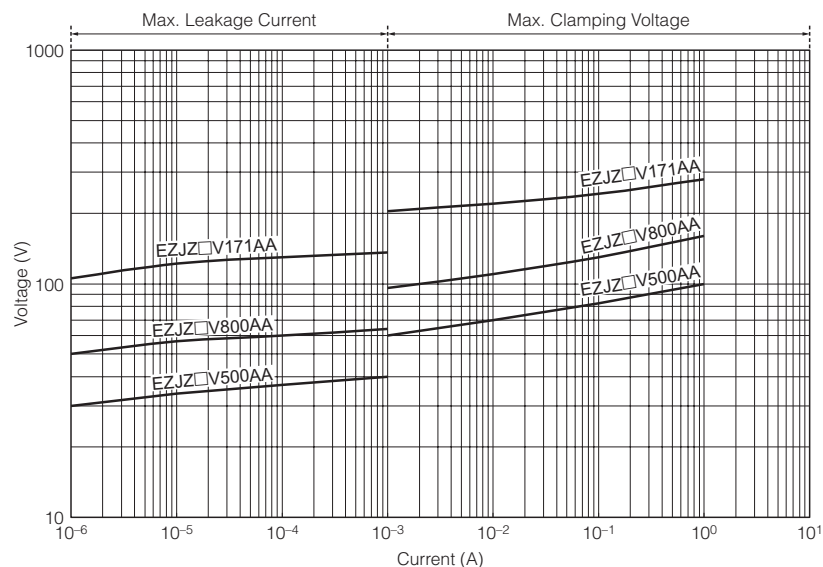
Mobile phone	Antenna circuit, External IF
DSC, DVC	USB2.0, IEEE1394
PC, PDA	USB2.0, IEEE1394, LAN1000BASE
TV, DVD	USB2.0, IEEE1394, HDMI
Game console	Controller, External IF

■ Ratings and Characteristics

Size	Part No.	Maximum allowable voltage DC (V)	Nominal varistor voltage at 1mA (V)	Capacitance (pF) at 1MHz	Maximum ESD IEC61000-4-2
0402	EZJZ0V80010	10	80	1 max. [0.8 typ.]	Contact discharge : 8kV
	EZJZ0V80015D	5	80	1.5±0.5	
	EZJZ0V500AA	5	50	3 max. [2.1 typ.]	
	EZJZ0V800AA	18	80	3 max. [2.1 typ.]	
0603	EZJZ0V171AA	18	170	3 max. [2.1 typ.]	
	EZJZ1V80010	10	80	1 max. [0.8 typ.]	
	EZJZ1V500AA	5	50	3 max. [2.1 typ.]	
	EZJZ1V800AA	18	80	3 max. [2.1 typ.]	
	EZJZ1V171AA	18	170	3 max. [2.1 typ.]	

- Operating Temperature Range : -40 to 85 °C
- * Recommend soldering method : Reflow soldering

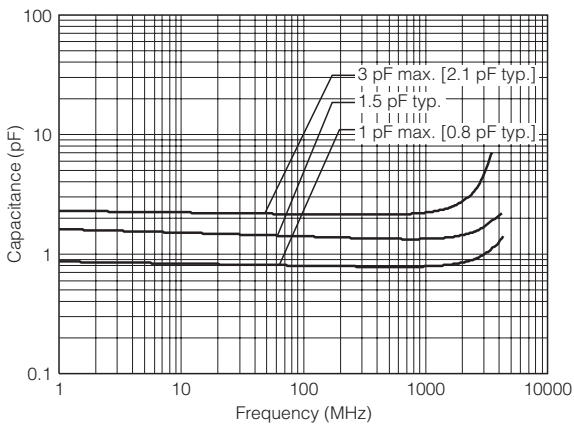
■ Voltage vs. Current



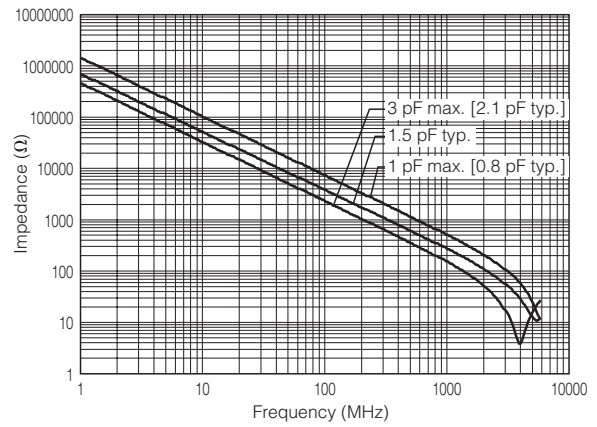
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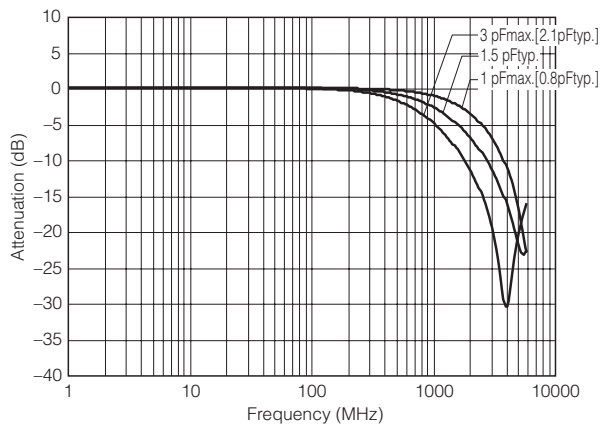
■ Frequency vs. Capacitance



■ Frequency vs. Impedance



■ Frequency vs. Transmission

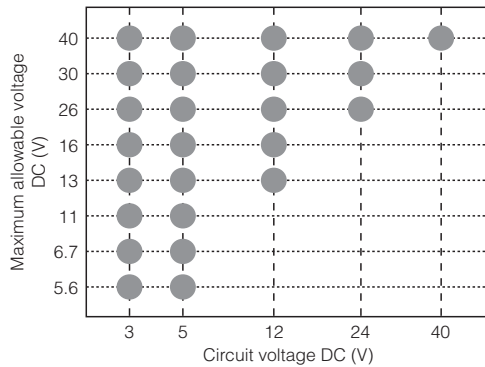


Multilayer Varistor, Low Voltage Type (Standard Type) [DC voltage lines/Low speed signal lines]

■ Features

Multilayer monolithic ceramic construction for use protecting DC voltage lines or signal lines

● Circuit voltage



● Varistor voltage : 8 to 65 V [at 1 mA]

● Capacitance : 15 to 420 pF typ. [at 1 MHz]

■ Recommended Applications

Mobile phone	SW, LCD, LED, Audio terminal, Battery pack, Memory card, External IF
DSC, DVC	SW, LCD, LED, USB
PC, PDA	SW, LCD, LED, USB
TV, DVD	Audio, Video terminal
Audio	Audio terminal, Microphone, Receiver
Game console	Controller, External IF

■ Ratings and Characteristics

Size	Part No.	Maximum allowable voltage DC (V)	Nominal varistor voltage at 1mA (V)	Capacitance (pF)		Maximum peak current at 8/20μs, 2times (A)	Maximum ESD IEC61000-4-2
				at 1MHz	at 1kHz		
0402	EZJP0V080MA	5.6	8	680 max. [420 typ.]	650 typ.	20	Contact discharge 8 kV
	EZJP0V080KA	5.6	8	330 max. [290 typ.]	480 typ.	15	
	EZJP0V080GA	5.6	8	100 max. [65 typ.]	100 typ.	3	
	EZJP0V080DA	5.6	8	27 max. [22 typ.]	33 typ.	1	
	EZJZ0V120JA	6.7	12	220 max. [150 typ.]	175 typ.	10	
	EZJZ0V180HA	11	18	150 max. [120 typ.]	140 typ.	10	
	EZJZ0V220HA	13	22	150 max. [100 typ.]	116 typ.	10	
	EZJZ0V270EA	16	27	47 max. [33 typ.]	37 typ.	10	
	EZJZ0V270RA	16	27	20 max. [15 typ.]	16.5 typ.	3	
	EZJZ0V420WA	30	42	56 max. [40 typ.]	45 typ.	10	
0603	EZJZ0V650DA	40	65	27 max. [22 typ.]	33 typ.	5	
	EZJZ1V120KA	6.7	12	330 max. [250 typ.]	290 typ.	20	
	EZJZ1V180JA	11	18	220 max. [180 typ.]	210 typ.	20	
	EZJZ1V220JA	13	22	220 max. [160 typ.]	185 typ.	20	
	EZJZ1V270GA	16	27	100 max. [85 typ.]	100 typ.	20	
	EZJZ1V270EA	16	27	47 max. [33 typ.]	37 typ.	20	
	EZJZ1V270RA	16	27	20 max. [15 typ.]	16.5 typ.	3	
	EZJZ1V330GA	26	33	100 max. [85 typ.]	100 typ.	20	
	EZJZ1V420FA	30	42	68 max. [55 typ.]	63 typ.	15	
	EZJZ1V650DA	40	65	27 max. [22 typ.]	33 typ.	5	

● Operating Temperature Range : -40 to 85 °C

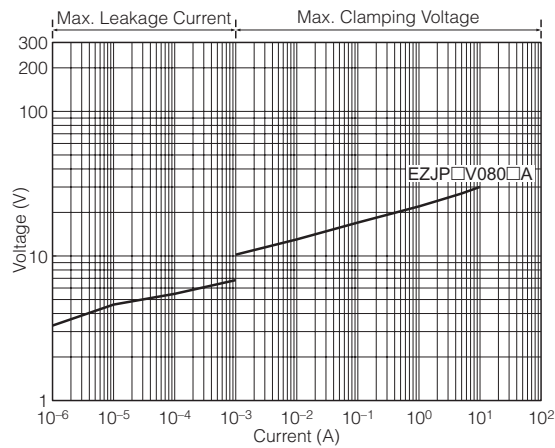
* Recommend soldering method : Reflow soldering

Maximum Allowable Voltage	Maximum DC Voltage that can be applied continuously within the operating temperature range
Varistor Voltage	Varistor starting voltage between terminals at DC 1 mA, also known as Breakdown voltage
Maximum Peak Current	Varistor's maximum current under the standard pulse 8/20μs, 2 times based
Maximum ESD	Varistor's maximum voltage under ESD based on IEC61000-4-2, 10 times (5 times of each positive-negative polarity)

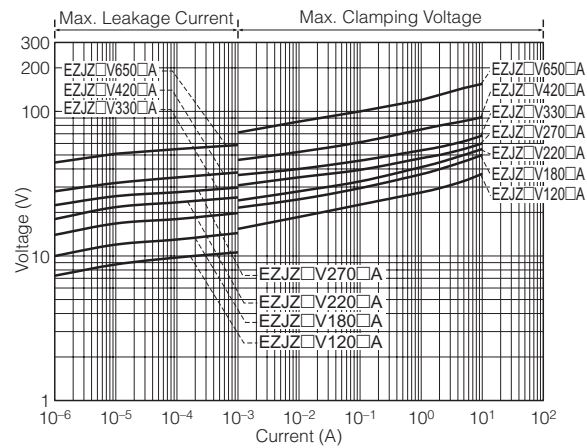
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■ Voltage vs. Current

● EZJP Series

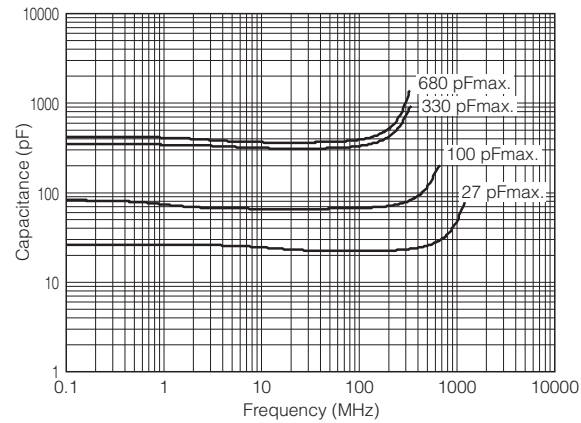


● EZJZ Series

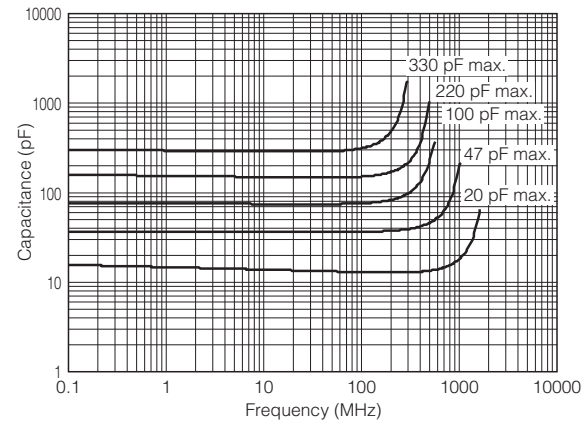


■ Frequency vs. Capacitance

● EZJP Series

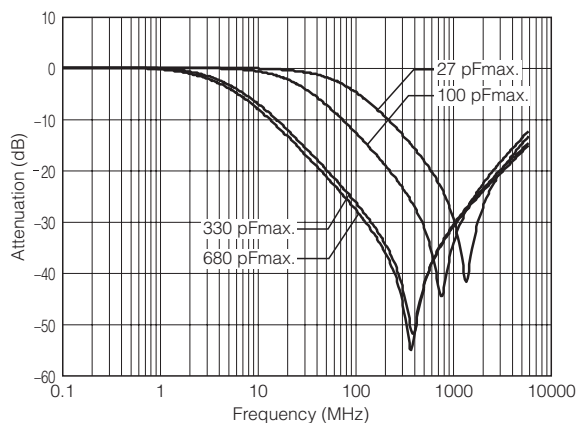


● EZJZ Series

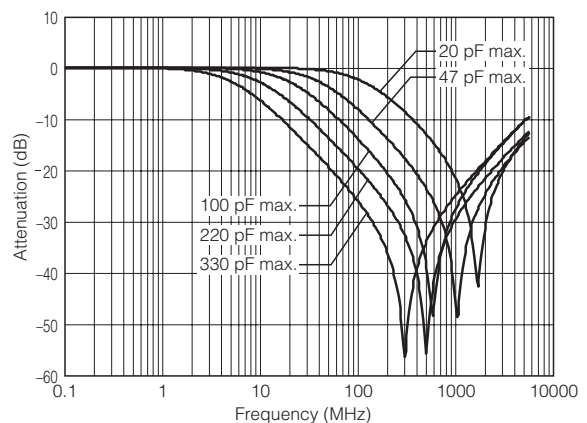


■ Frequency vs. Impedance

● EZJP Series



● EZJZ Series



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