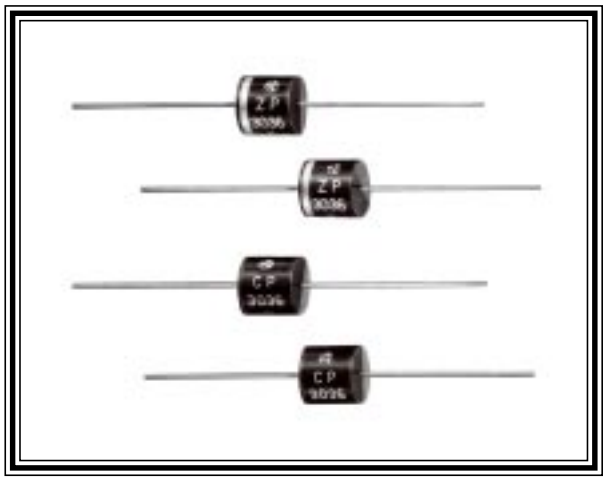
Silicon Surge Absorber ZP/CP Series

OKAYA

RSSA

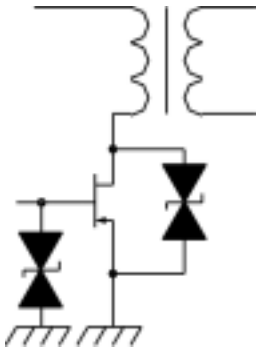
The silicon surge absorber is available in five series that support the countermeasure against a wide range of surges from low to high, including electrostatic discharges and lightning surges. The device may also be used as a constant voltage device where high voltage or high power is required.



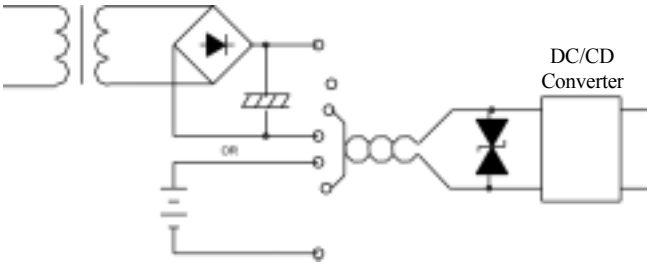
■ Features

- Fast response to rapid surges (10^{-12} sec).
- Almost no performance degradation against repetitive surges.
- Very low internal resistance during operation.
- Very small leak current.
- Mesa chip design provides high invulnerability to impulse surges.

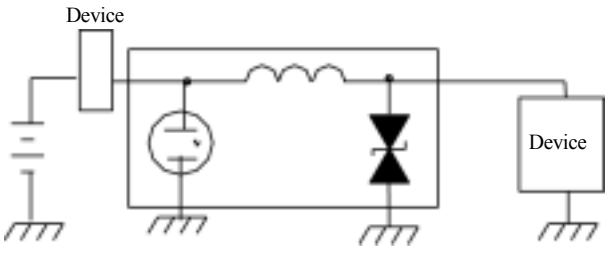
■ Applications



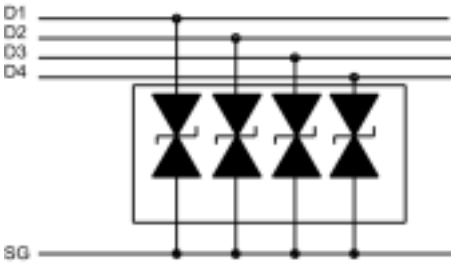
a) Protection Against Switching Surge



b) Protection of DC/CD Converter



c) Protection of Interface RS485A from Lighting Surge (Surge Absorber-Composite Surge Protector)

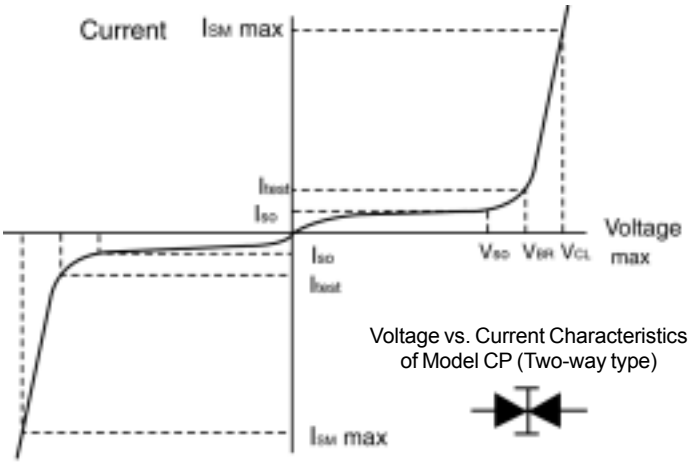


e) Protection of Data Line (Arrayed Surge Absorbers)

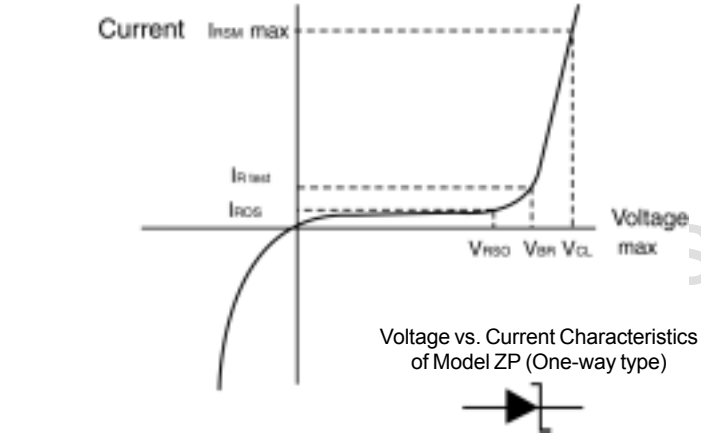
Silicon Surge Absorber ZP/CP Series

OKAYA

■ Electrical Characteristics



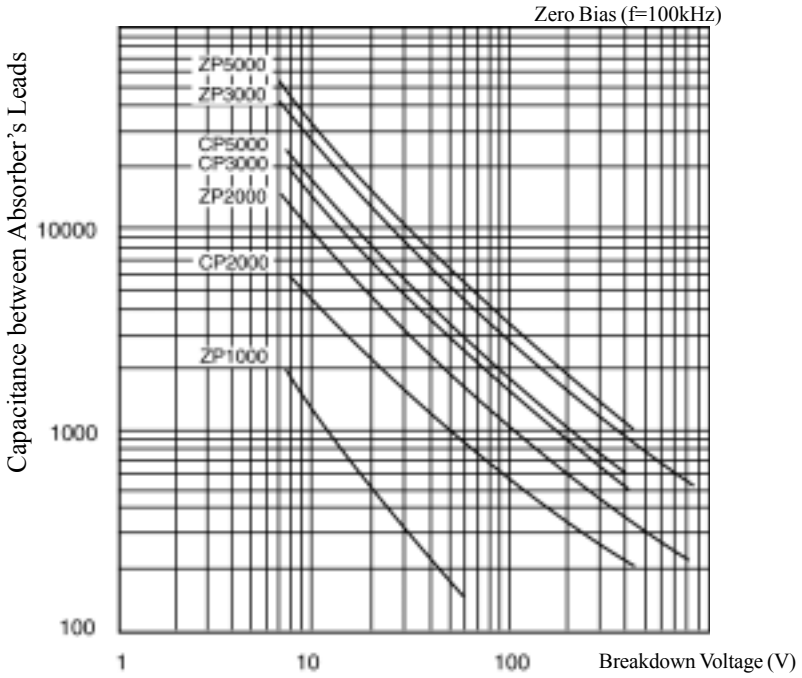
Voltage vs. Current Characteristics of Model CP (Two-way type)



Voltage vs. Current Characteristics of Model ZP (One-way type)

- Breakdown Voltage (V_{BR})
  Voltage at which avalanche current may begin to flow, normally the voltage between the surge absorber's leads when 1mA of current is applied.
- Standoff Voltage ($V_{(R)SO}$)
  A maximum voltage that can be applied to the surge absorber continuously.
- Reverse Leakage Current ($I_{(R)SO}$)
  A maximum current flowing through the surge absorber when the standoff voltage is applied to the surge absorber.
- Peak Surge Current ($I_{(R)SM\ max.}$)
  A maximum surge current that can flow through the surge absorber, but not repetitively. The waveform in the table is 8/20μsec.
- Peak Clamp Voltage ($V_{CL\ max.}$)
  A maximum voltage that may be generated between the surge absorber's leads when the peak surge current is applied to the surge absorber.
- Maximum Allowable Power ($P_{(R)SM\ max.}$)
  ($P_{(R)SM\ max.}$)= ($V_{CL\ max.}$) x ($I_{(R)SM\ max.}$)

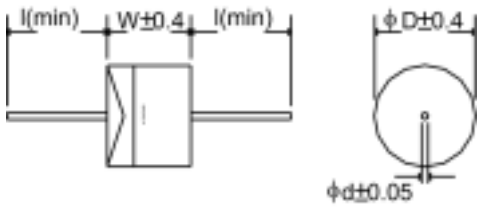
Typical Capacitance between Absorber's Leads vs. Breakdown Voltage



Silicon Surge Absorber ZP/CP Series

OKAYA

■ Physical Dimensions



Series	D	W	d	l
1000	2.8	5.0	0.6	20
2000	5.3	9.7	1.0	20
3000	8.5	8.6	1.0	20
5000	9.7	12.3	1.2	20

■1000 Series Electrical Specifications

Operating Temp.: -40°C ~+125°C
Power Dissipation: 1Watt(6KW @8/20usec)

Model	Breakdown Voltage (V_{BR}) +10% @1mA	Standoff Voltage ($V_{(R)SO}$)	Reverse Leakage Current ($I_{(R)SO}$) (μA)	Surge Waveform 8/20usec	
				Peak Pulse Voltage (V)	Peak Pulse Current (A)
□□1007	7.5	6.05	200	14.3	419.0
ZP1010	10	8.10	10	19.5	311.0
□□1012	12	9.72	5	22.7	267.0
ZP1016	16	12.90	5	28.4	213.0
□□1018	18	14.50	5	34.0	178.0
ZP1027	27	21.80	5	50.5	120.0
ZP1040	40	32.40	5	73.0	83.0
□□1050	50	40.50	5	88.0	68.9
ZP1060	60	48.60	5	114.0	52.6
ZP1075	75	60.70	5	142.0	42.2

□□ = ZP or CP Models available

■2000 Series Electrical Specifications

Operating Temp.: -40°C ~+125°C
Power Dissipation: 3Watt(18KW @8/20usec)

Model	Breakdown Voltage (V_{BR}) +10% @1mA	Standoff Voltage ($V_{(R)SO}$)	Reverse Leakage Current ($I_{(R)SO}$) (μA)	Surge Waveform 8/20usec	
				Peak Pulse Voltage (V)	Peak Pulse Current (A)
ZP2006	6.8 *	5.50	2000	13.4	1342.0
CP2007	7.5 *	6.05	1000	14.5	1241.0
□□2008	8.2 *	6.63	400	15.5	1161.0
□□2010	10	8.10	20	18.6	968.0
□□2012	12	9.72	5	21.7	829.0
□□2015	15	12.10	5	27.2	662.0
□□2018	18	14.50	5	32.5	554.0
□□2022	22	17.80	5	39.3	458.0
□□2027	27	21.80	5	48.3	373.0
□□2033	33	26.80	5	59.0	305.0
□□2039	39	31.60	5	69.7	258.0
□□2047	47	38.10	5	84.0	214.0
□□2056	56	45.50	5	100.0	180.0
□□2068	68	55.10	5	121.0	148.0
□□2082	82	66.40	5	146.0	123.0
□□2100	100	81.00	5	178.0	101.0
□□2120	120	97.00	5	212.0	85.0
□□2150	150	121.00	5	265.0	68.0
□□2180	180	146.00	5	317.0	57.0
□□2220	220	175.00	5	388.0	46.5
□□2250	250	202.00	5	442.0	40.7
□□2300	300	243.00	5	529.0	34.0
□□2350	350	284.00	5	618.0	29.1
□□2400	400	324.00	5	706.0	25.5
□□2440	440	356.00	5	776.0	23.2
ZP2500	500	405.00	5	884.0	20.3
ZP2600	600	486.00	5	1058.0	17.0
ZP2700	700	567.00	5	1236.0	14.5
ZP2800	800	648.00	5	1412.0	12.7
ZP2880	880	713.00	5	1552.0	11.7

□□ = ZP or CP models available *Test current = 10ma

Silicon Surge Absorber ZP/CP Series

OKAYA

■3000 Series Electrical Specifications

Operating Temp.: -40°C ~+125°C
Power Dissipation: 5Watt(34KW @8/20usec)

Model	Breakdown Voltage (V_{BR}) +10% @1mA	Standoff Voltage ($V_{(R)SO}$)	Reverse Leakage Current ($I_{(R)SO}$) (μA)	Surge Waveform 8/20usec	
				Peak Pulse Voltage (V)	Peak Pulse Current (A)
ZP3006	6.8 *	5.50	5000	13.3	2556.0
CP3007	7.5 *	6.05	2000	14.7	2313.0
□□3008	8.2 *	6.63	2000	15.4	2208.0
□□3010	10	8.10	100	19.8	1717.0
□□3012	12	9.72	10	23.8	1429.0
□□3015	15	12.10	10	29.7	1145.0
□□3018	18	14.50	10	35.6	995.0
□□3022	22	17.80	10	43.6	780.0
□□3027	27	21.80	10	53.6	636.0
□□3033	33	26.80	10	63.5	521.0
□□3039	39	31.60	10	77.2	440.0
□□3047	47	38.10	10	93.1	365.0
□□3056	56	45.50	10	111.0	307.0
□□3068	68	55.10	10	135.0	252.0
□□3082	82	66.40	10	162.0	210.0
□□3100	100	81.00	10	198.0	172.0
□□3120	120	97.00	10	238.0	143.0
□□3150	150	121.00	10	297.0	114.0
□□3180	180	146.00	10	356.0	96.0
□□3220	220	175.00	10	436.0	80.0
□□3250	250	202.00	10	495.0	69.0
□□3300	300	243.00	10	594.0	57.2
□□3350	350	284.00	10	693.0	49.1
□□3400	400	324.00	10	792.0	42.4
□□3440	440	356.00	10	871.0	39.0
ZP3500	500	405.00	10	990.0	34.5
ZP3600	600	486.00	10	1188.0	28.5
ZP3700	700	567.00	10	1386.0	24.5
ZP3800	800	648.00	10	1584.0	21.2
ZP3880	880	713.00	10	1742.0	19.5

□□= ZP or CP models available * Test current = 10ma

■4000 Series Electrical Specifications

Operating Temp.: -40°C ~+125°C
Power Dissipation: 6Watt(44KW @8/20usec)

Model	Breakdown Voltage (V_{BR}) +10% @1mA	Standoff Voltage ($V_{(R)SO}$)	Reverse Leakage Current ($I_{(R)SO}$) (μA)	Surge Waveform 8/20usec	
				Peak Pulse Voltage (V)	Peak Pulse Current (A)
ZP5006	6.8*	5.50	5000	13.6	3283.0
CP5007	7.5*	6.05	2000	15.1	2963.0
□□5008	8.2*	6.63	2000	15.9	2819.0
□□5010	10	8.10	100	18.5	2426.0
□□5012	12	9.72	10	22.1	2034.0
□□5015	15	12.10	10	27.6	1621.0
□□5018	18	14.50	10	35.1	1352.0
□□5022	22	17.80	10	40.5	1104.0
□□5027	27	21.80	10	49.7	901.0
□□5033	33	26.80	10	60.7	737.0
□□5039	39	31.60	10	71.9	622.0
□□5047	47	38.10	10	86.5	517.0
□□5056	56	45.50	10	103.0	434.0
□□5068	68	55.10	10	126.0	358.0
□□5082	82	66.40	10	150.0	298.0
□□5100	100	81.00	10	184.0	244.0
□□5120	120	97.00	10	221.0	202.0
□□5150	150	121.00	10	276.0	162.0
□□5180	180	146.00	10	331.0	135.0
□□5220	220	175.00	10	404.0	110.0
□□5250	250	202.00	10	460.0	97.1
□□5300	300	243.00	10	552.0	79.7
□□5350	350	284.00	10	644.0	68.3
□□5400	400	324.00	10	736.0	59.7
□□5440	440	356.00	10	809.0	54.3

□□= ZP or CP models available * Test current = 10ma

OKAYA Electric America Inc. 503 Wall St., Valparaiso, IN 46383
Phone: 800-852-0122, 219-477-4488 Fax: 219-477-4856 http://www.OKAYA.com