

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series A – 1" x 1"</b>					
SD1543-4	90	240	67	1.0625	8-32
SD1543-5	112	300	67	1.1875	8-32
SD1543-6	135	360	67	1.3125	8-32
SD1543-7	157	420	67	1.3750	8-32
SD1543-8	180	480	67	1.5000	8-32
SD1543-9	202	540	67	1.5625	8-32
SD1543-10	225	600	67	1.6875	8-32
SD1543-11	247	660	67	1.8125	8-32
SD1543-12	270	720	67	1.8750	8-32
SD1543-13	292	780	67	2.0000	8-32
SD1543-14	315	840	67	2.0625	8-32
SD1543-15	337	900	67	2.1875	8-32
SD1543-16	360	960	67	2.3125	8-32
SD1551-17	382	1020	68	2.6250	8-32
SD1551-18	405	1080	68	2.7500	8-32
SD1551-19	427	1140	68	2.8750	8-32
SD1551-20	450	1200	68	2.9375	8-32
SD1551-21	472	1260	68	3.0625	8-32
SD1551-22	495	1320	68	3.1875	8-32
SD1551-23	517	1380	68	3.3125	8-32
SD1551-24	540	1440	68	3.3750	8-32
SD1551-25	562	1500	68	3.5000	8-32
SD1551-26	585	1560	68	3.5625	8-32
SD1551-27	607	1620	68	3.6875	8-32
SD1551-28	630	1680	68	3.8125	8-32
SD1551-29	652	1720	68	3.8750	8-32
SD1551-30	675	1800	68	4.0000	8-32

Peak discharge current - 3 Amps

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series C – 1 1/2" x 1 1/2"</b>					
SD3066-4	90	240	67	1.0625	8-32
SD3066-5	112	300	67	1.1875	8-32
SD3066-6	135	360	67	1.3125	8-32
SD3066-7	157	420	67	1.3750	8-32
SD3066-8	180	480	67	1.5000	8-32
SD3066-9	202	540	67	1.5625	8-32
SD3066-10	225	600	67	1.6875	8-32
SD3066-11	247	660	67	1.8125	8-32
SD3066-12	270	720	67	1.8750	8-32
SD3066-13	292	780	67	2.0000	8-32
SD3066-14	315	840	67	2.0625	8-32
SD3066-15	337	900	67	2.1875	8-32
SD3066-16	360	960	67	2.3125	8-32
SD3066-17	382	1020	68	2.6250	8-32
SD3066-18	405	1080	68	2.7500	8-32
SD3066-19	427	1140	68	2.8750	8-32
SD3066-20	450	1200	68	2.9375	8-32
SD3066-21	472	1260	68	3.0625	8-32
SD3066-22	495	1320	68	3.1875	8-32
SD3066-23	517	1380	68	3.3125	8-32
SD3066-24	540	1440	68	3.3750	8-32
SD3066-25	562	1500	68	3.5000	8-32
SD3066-26	585	1560	68	3.5625	8-32
SD3066-27	607	1620	68	3.6875	8-32
SD3066-28	630	1680	68	3.8125	8-32
SD3066-29	652	1720	68	3.8750	8-32
SD3066-30	675	1800	68	4.0000	8-32

Peak discharge current - 9 Amps

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series E – 2" x 2"</b>					
SD2619-4	90	240	67	1.8750	1/4-20
SD2619-5	112	300	67	2.1250	1/4-20
SD2619-6	135	360	67	2.3750	1/4-20
SD2619-7	157	420	67	2.6250	1/4-20
SD2619-8	180	480	67	2.8750	1/4-20
SD2107-9	202	540	68	3.0000	1/4-20
SD2107-10	225	600	68	3.2500	1/4-20
SD2107-11	247	660	68	3.5000	1/4-20
SD2107-12	270	720	68	3.6875	1/4-20
SD2107-13	292	780	68	3.8750	1/4-20
SD2107-14	315	840	68	4.1250	1/4-20
SD2107-15	337	900	68	4.3750	1/4-20
SD2107-16	360	960	68	4.5625	1/4-20
SD2107-17	382	1020	68	4.8125	1/4-20
SD2107-18	405	1080	68	5.0000	1/4-20
SD2107-19	427	1140	68	5.2500	1/4-20
SD2107-20	450	1200	68	5.5625	1/4-20
SD2107-21	472	1260	68	5.7500	1/4-20
SD2107-22	495	1320	68	6.0000	1/4-20
SD2107-23	517	1380	68	6.1875	1/4-20
SD2107-24	540	1440	68	6.3750	1/4-20
SD2107-25	562	1500	68	6.6250	1/4-20
SD2107-26	585	1560	68	6.8750	1/4-20
SD2107-27	607	1620	68	7.0625	1/4-20
SD2107-28	630	1680	68	7.2500	1/4-20
SD2107-29	652	1720	68	7.5000	1/4-20
SD2107-30	675	1800	68	7.7500	1/4-20

Peak discharge current - 15 Amps

Replacement Selenium Rectifiers are available on special order. Consult factory [www.cke.com](http://www.cke.com)



CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series K – 3" x 3"</b>					
SD1622-4	90	240	67	2.5000	3/8-16
SD1623-5	112	300	68	2.8750	3/8-16
SD1623-6	135	360	68	3.2500	3/8-16
SD1623-7	157	420	68	3.5000	3/8-16
SD1623-8	180	480	68	3.9375	3/8-16
SD1623-9	202	540	68	4.2500	3/8-16
SD1623-10	225	600	68	4.6250	3/8-16
SD1623-11	247	660	68	5.0000	3/8-16
SD1623-12	270	720	68	5.3125	3/8-16
SD1623-13	292	780	68	5.6875	3/8-16
SD1623-14	315	840	68	6.0000	3/8-16
SD1623-15	337	900	68	6.3750	3/8-16
SD1623-16	360	960	68	6.6875	3/8-16
SD1623-17	382	1020	68	7.0000	3/8-16
SD1623-18	405	1080	68	7.3750	3/8-16
SD1623-19	427	1140	68	7.7500	3/8-16
SD1623-20	450	1200	68	8.0625	3/8-16
SD1623-21	472	1260	68	8.4375	3/8-16
SD1623-22	495	1320	68	8.7500	3/8-16
SD1623-23	517	1380	68	9.1250	3/8-16
SD1623-24	540	1440	68	9.5000	3/8-16
SD1623-25	562	1500	68	9.8750	3/8-16
SD1623-26	585	1560	68	10.1875	3/8-16
SD1623-27	607	1620	68	10.5000	3/8-16
SD1623-28	630	1680	68	10.8750	3/8-16
SD1623-29	652	1720	68	11.2500	3/8-16
SD1623-30	675	1800	68	11.6250	3/8-16

Peak discharge current - 37 Amps

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series M – 4" x 4"</b>					
SD1598-4	90	240	67	2.6875	3/8-16
SD1599-5	112	300	68	3.1875	3/8-16
SD1599-6	135	360	68	3.5625	3/8-16
SD1599-7	157	420	68	4.0000	3/8-16
SD1599-8	180	480	68	4.3750	3/8-16
SD1599-9	202	540	68	4.8125	3/8-16
SD1599-10	225	600	68	5.2500	3/8-16
SD1599-11	247	660	68	5.6250	3/8-16
SD1599-12	270	720	68	6.0625	3/8-16
SD1599-13	292	780	68	6.5000	3/8-16
SD1599-14	315	840	68	6.9375	3/8-16
SD1599-15	337	900	68	7.3750	3/8-16
SD1599-16	360	960	68	7.8125	3/8-16
SD1599-17	382	1020	68	8.2500	3/8-16
SD1599-18	405	1080	68	8.6250	3/8-16
SD1599-19	427	1140	68	9.0625	3/8-16
SD1599-20	450	1200	68	9.4375	3/8-16
SD1599-21	472	1260	68	9.8750	3/8-16
SD1599-22	495	1320	68	10.3125	3/8-16
SD1599-23	517	1380	68	10.6250	3/8-16
SD1599-24	540	1440	68	11.0000	3/8-16
SD1599-25	562	1500	68	11.4375	3/8-16
SD1599-26	585	1560	68	11.8750	3/8-16
SD1599-27	607	1620	68	12.2500	3/8-16
SD1599-28	630	1680	68	12.6250	3/8-16
SD1599-29	652	1720	68	13.0625	3/8-16
SD1599-30	675	1800	68	13.5000	3/8-16

Peak discharge current - 70 Amps

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series S – 5" x 6"</b>					
SD1772-4	90	240	67	2.8750	3/8-16
SD1772-5	112	300	68	3.2500	3/8-16
SD1772-6	135	360	68	3.6250	3/8-16
SD1772-7	157	420	68	4.1250	3/8-16
SD1772-8	180	480	68	4.5000	3/8-16
SD1772-9	202	540	68	4.8750	3/8-16
SD1772-10	225	600	68	5.3750	3/8-16
SD1772-11	247	660	68	5.7500	3/8-16
SD1772-12	270	720	68	6.1250	3/8-16
SD1772-13	292	780	68	6.6250	3/8-16
SD1772-14	315	840	68	7.0000	3/8-16
SD1772-15	337	900	68	7.3750	3/8-16
SD1772-16	360	960	68	7.7500	3/8-16
SD1772-17	382	1020	68	8.2500	3/8-16
SD1772-18	405	1080	68	8.6250	3/8-16
SD1772-19	427	1140	68	9.0000	3/8-16
SD1772-20	450	1200	68	9.5000	3/8-16
SD1772-21	472	1260	68	9.8750	3/8-16
SD1772-22	495	1320	68	10.2500	3/8-16
SD1772-23	517	1380	68	10.6250	3/8-16
SD1772-24	540	1440	68	11.0000	3/8-16
SD1772-25	562	1500	68	11.5000	3/8-16
SD1772-26	585	1560	68	11.8750	3/8-16
SD1772-27	607	1620	68	12.2500	3/8-16
SD1772-28	630	1680	68	12.7500	3/8-16
SD1772-29	652	1720	68	13.1250	3/8-16
SD1772-30	675	1800	68	13.5000	3/8-16

Peak discharge current - amperes 130

CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series N – 6" x 7 1/4"</b>					
SD2482-4	90	240	67	2.8750	3/8-16
SD2482-5	112	300	68	3.2500	3/8-16
SD2482-6	135	360	68	3.6250	3/8-16
SD2482-7	157	420	68	4.1250	3/8-16
SD2482-8	180	480	68	4.5000	3/8-16
SD2482-9	202	540	68	4.8750	3/8-16
SD2482-10	225	600	68	5.3750	3/8-16
SD2482-11	247	660	68	5.7500	3/8-16
SD2482-12	270	720	68	6.1250	3/8-16
SD2482-13	292	780	68	6.6250	3/8-16
SD2482-14	315	840	68	7.0000	3/8-16
SD2482-15	337	900	68	7.3750	3/8-16
SD2482-16	360	960	68	7.7500	3/8-16
SD2482-17	382	1020	68	8.2500	3/8-16
SD2482-18	405	1080	68	8.6250	3/8-16
SD2482-19	427	1140	68	9.0000	3/8-16
SD2482-20	450	1200	68	9.5000	3/8-16
SD2482-21	472	1260	68	9.8750	3/8-16
SD2482-22	495	1320	68	10.2500	3/8-16
SD2482-23	517	1380	68	10.6250	3/8-16
SD2482-24	540	1440	68	11.0000	3/8-16
SD2482-25	562	1500	68	11.5000	3/8-16
SD2482-26	585	1560	68	11.8750	3/8-16
SD2482-27	607	1620	68	12.2500	3/8-16
SD2482-28	630	1680	68	12.7500	3/8-16
SD2482-29	652	1720	68	13.1250	3/8-16
SD2482-30	675	1800	68	13.5000	3/8-16

Peak discharge current - 200 Amps


 Nonpolarized versions available. Please consult factory.

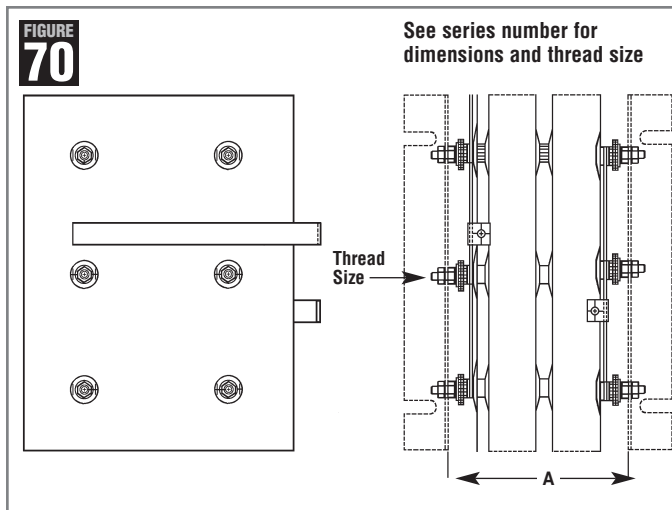
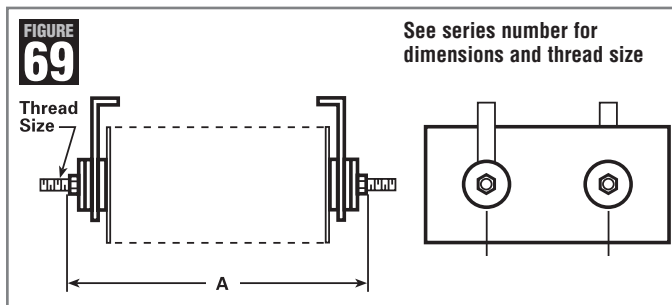
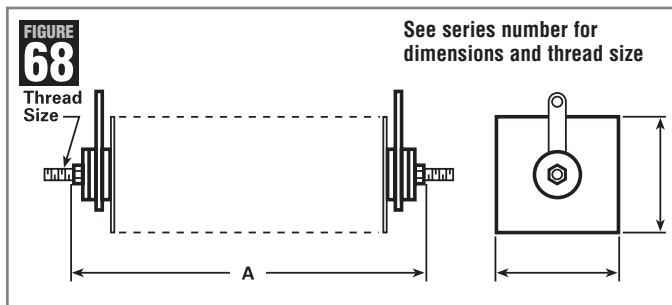
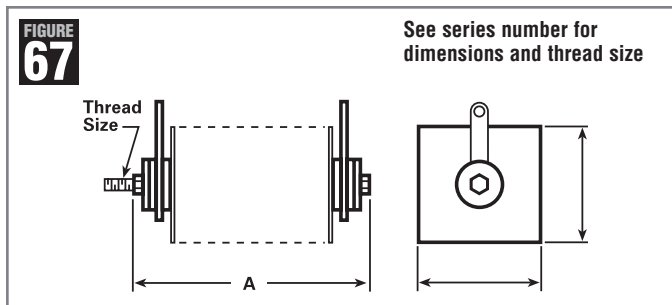


CKE Part Number	Max. DC Voltage	Max. clamping Voltage	Fig.	Dim. A (inches)	Thread size
<b>Series V – 6" x 10"</b>					
SD2399-4	90	240	69	2.8750	3/8-16
SD2399-5	112	300	69	3.2500	3/8-16
SD2399-6	135	360	69	3.6250	3/8-16
SD2399-7	157	420	69	4.1250	3/8-16
SD2399-8	180	480	69	4.5000	3/8-16
SD2399-9	202	540	69	4.8750	3/8-16
SD2399-10	225	600	69	5.3750	3/8-16
SD2399-11	247	660	69	5.7500	3/8-16
SD2399-12	270	720	69	6.1250	3/8-16
SD2399-13	292	780	69	6.6250	3/8-16
SD2399-14	315	840	69	7.0000	3/8-16
SD2399-15	337	900	69	7.3750	3/8-16
SD2399-16	360	960	69	7.7500	3/8-16
SD2399-17	382	1020	69	8.2500	3/8-16
SD2399-18	405	1080	69	8.6250	3/8-16
SD2399-19	427	1140	69	9.0000	3/8-16
SD2399-20	450	1200	69	9.5000	3/8-16
SD2399-21	472	1260	69	9.8750	3/8-16
SD2399-22	495	1320	69	10.2500	3/8-16
SD2399-23	517	1380	69	10.6250	3/8-16
SD2399-24	540	1440	69	11.0000	3/8-16
SD2399-25	562	1500	69	11.5000	3/8-16
SD2399-26	585	1560	69	11.8750	3/8-16
SD2399-27	607	1620	69	12.2500	3/8-16
SD2399-28	630	1680	69	12.7500	3/8-16
SD2399-29	652	1720	69	13.1250	3/8-16
SD2399-30	675	1800	69	13.5000	3/8-16

Peak discharge current - 270 Amps

<b>Series X – 12" x 16"</b>					
SD4359-4	90	240	70	3.0000	3/8-16
SD4359-5	112	300	70	3.3750	3/8-16
SD4359-6	135	360	70	3.7500	3/8-16
SD4359-7	157	420	70	4.0000	3/8-16
SD4359-8	180	480	70	4.3750	3/8-16
SD4359-9	202	540	70	4.7500	3/8-16
SD4359-10	225	600	70	5.1250	3/8-16
SD4359-11	247	660	70	5.5000	3/8-16
SD4359-12	270	720	70	5.7500	3/8-16
SD4359-13	292	780	70	6.1250	3/8-16
SD4359-14	315	840	70	6.5000	3/8-16
SD4359-15	337	900	70	6.8750	3/8-16
SD4359-16	360	960	70	7.2500	3/8-16
SD4359-17	382	1020	70	7.6250	3/8-16
SD4359-18	405	1080	70	8.0000	3/8-16
SD4359-19	427	1140	70	8.2500	3/8-16
SD4359-20	450	1200	70	8.6250	3/8-16
SD4359-21	472	1260	70	9.0000	3/8-16
SD4359-22	495	1320	70	9.3750	3/8-16
SD4359-23	517	1380	70	9.7500	3/8-16
SD4359-24	540	1440	70	10.0000	3/8-16
SD4359-25	562	1500	69	10.3750	3/8-16
SD4359-26	585	1560	69	10.7500	3/8-16
SD4359-27	607	1620	69	12.0000	3/8-16
SD4359-28	630	1680	69	12.3750	3/8-16
SD4359-29	652	1740	69	12.7500	3/8-16
SD4359-30	675	1800	69	13.8750	3/8-16

Peak discharge current - amperes 904



Nonpolarized versions available. Please consult factory.



# Selenium Suppressors Outperform MOV Cousins

By Rajendranath K. Maharaj, CKE, Lucernemines, PA

Used as semiconductor in rectifiers and suppressors for many years, selenium occurs naturally on the earth. Its popularity as a rectifier is fading in favor of its silicon equivalent. However, demand for selenium suppressors continues.

Depositing the elements on a metal substrate's surface produces selenium cells. This provides the cells with good thermal mass and energy dissipation as well as "self-healing" characteristics, allowing the device to survive energy discharges in excess of the rated value. Selenium's crystalline structure gives it the ability to continue functioning after a burst of energy in excess of its short pulse width rating. Its suppressor operation is comparable to a pressure relief valve—when the pressure rises, the relief valve opens, releases the pressure, and then resets itself.

Because of its unique properties, the selenium suppressor remains viable in many applications. Special clamping capabilities enable the selenium suppressor to find its own niche as transient voltage suppressor. Because of its ability to continuously dissipate power and handle long surges, it's better than MOVs or silicon suppressors for some applications.

The selenium suppressor can absorb energy levels in excess of its rated capability while maintaining its clamping characteristics on the next cycle. The layering of the suppressor onto the aluminum plate allows the suppressor's energy capabilities to follow that of a heat sink curve. This heat sink capability allows steady-state power dissipation up to 40 times that of an MOV. For a 130V suppressor, the selenium product allows steady-state dissipation of 2.5W to 80W, compared with an MOV that allows only 0.1W to 2.5W. The photo shows several selenium cells.

Manufacturers produce selenium suppressor cell plates in sizes varying from 1 in. x 1 in. to 12 in. x 16 in. that can function at a temperature of 0°C to 55°C ambient without any derating. The voltage of a selenium suppressor cell starts at 26V<sub>rms</sub> or 22.5Vdc per cell plate. Users must keep the suppressor to 75V maximum due to the dielectric ceiling of the cell. The capacitive nature of the plate allows placement in series to attain higher voltage levels.

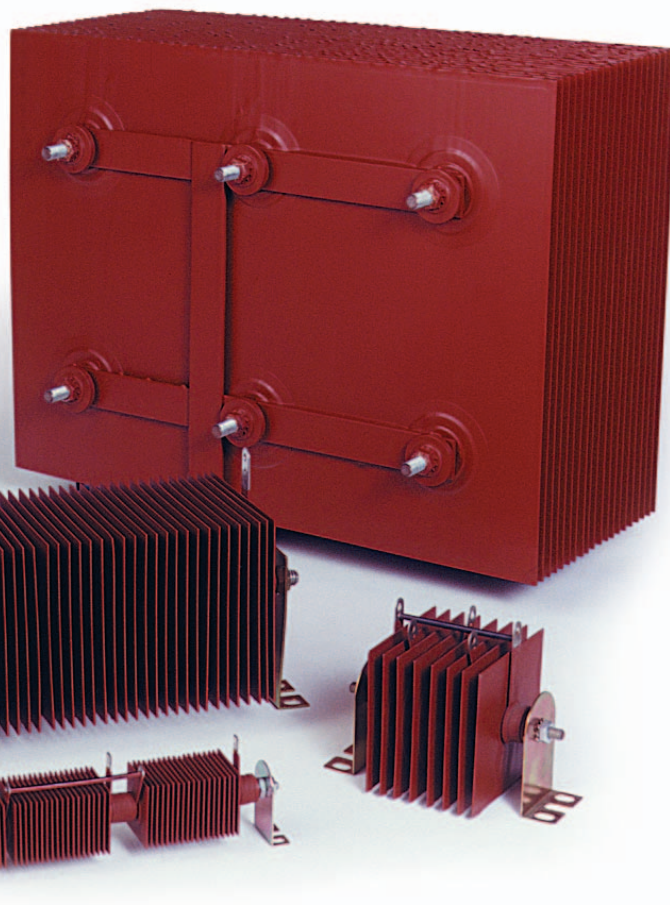
Other suppressors can handle high current, short pulse widths in the microsecond range, but the selenium suppressor can handle milli-second pulse width currents, making it a more robust suppressor than silicon devices. It has a typical response time of less than 1 ms and is capable of handling pulses with long decay times as seen in large DC motors or any inductive loads with L/R ratios in the 100 ms range.

Power conditioning systems, generators, and AC controllers are typical selenium suppressor applications. Suppressor applications are specifically used on the DC side of a rectified generator output, across SCRs on large controllers, across DC motors, and on transformers for line-to-line transient suppression.

Typical applications for selenium suppressors include:

- On the DC side of a rectified generator output.
- Across the SCRs on large controllers.
- Across DC motors.
- On transformers (for line-to-line suppression)
- Power conditioning (i.e. from power strips to service entrance).

For some devices, an MOV or a TVSS is better suited, and for others, a combination of suppressors is best. However, to the surprise of many electrical engineers, the capabilities unique to the selenium suppressor have enabled it to retain a firm place in today's market.



For more information on  
CKE's full line of polarized and  
non-polarized selenium suppressors  
from 1" x 1" through 12" x 16",  
visit our web site at  
[www.cke.com](http://www.cke.com)