Technical specifications for 5 kA, normal-duty distribution 6 kV VariSTAR MOV disks

Application

The VariSTAR™ MOV (Metal Oxide Varistor) disks described in this technical data sheet are for use as active elements in IEC 5 kA and IEEE normal-duty distribution-class surge arresters, when applied in an appropriately designed arrester.

Polymer housed arrester designs:

Use the glass collared AV6NG series VariSTAR disks, when applying disks to a polymer-housed arrester, where the dielectric strength of the material in direct contact with the disks exceeds the dielectric strength of air.

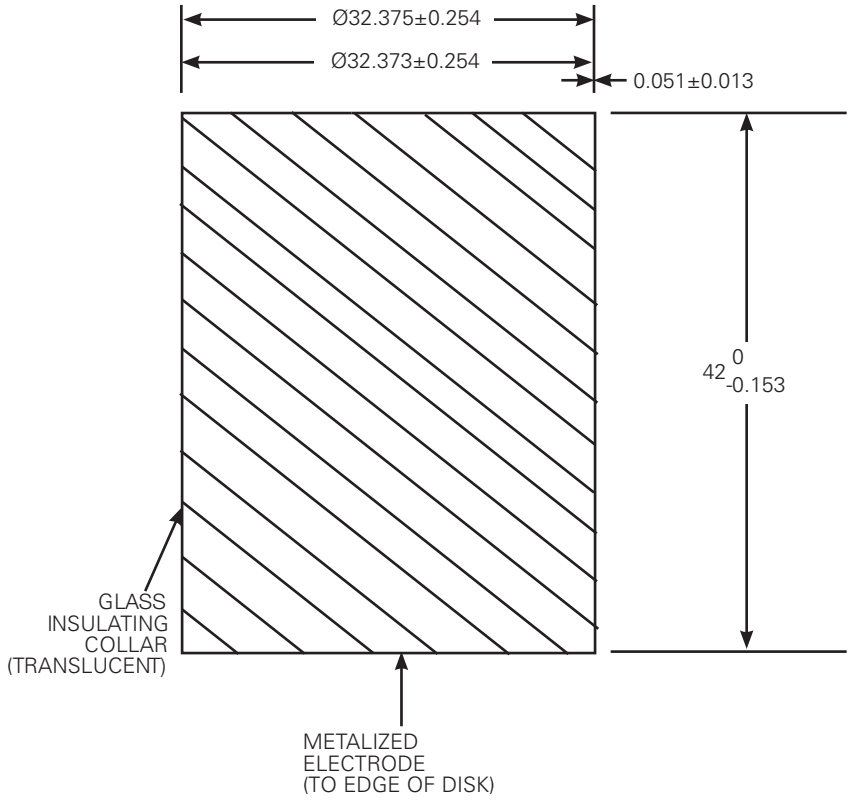

Figure 1. Dimensions AV6NG VariSTAR Disk in mm.

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Table 1. Suggested usage and class ratings

Catalog number	Suggested U_r (Rating)	Suggested U_c (MCOV)	IEC LD current withstand	ANSI LCLD class	IEC high current ANSI HCSD	I_{ref}
AV6NGPA	6.00 kV	5.26 kV	150 A 2000 µs	75 A 2000 µs	65 kA	3 mA

Table 2. Maximum residual voltages

					8/20 µs wave forms					
Catalog number	Suggested U_r (Rating)	Suggested U_c (MCOV)	0.5 µsec (ANSI) kV @ 5 kA	1.0 µsec (IEC) kV @ 5 kA	kV pk @ 1.5 kA	kV pk @ 3 kA	kV pk @ 5 kA	kV pk @ 10 kA	kV pk @ 20 kA	kV pk @ 40 kA
AV6NGPA	6.00 kV	5.26 kV	21.2	21.0	17.2	18.6	20.0	21.8	24.9	28.9

Discharge voltage vs. impulse current for 5 kA disks

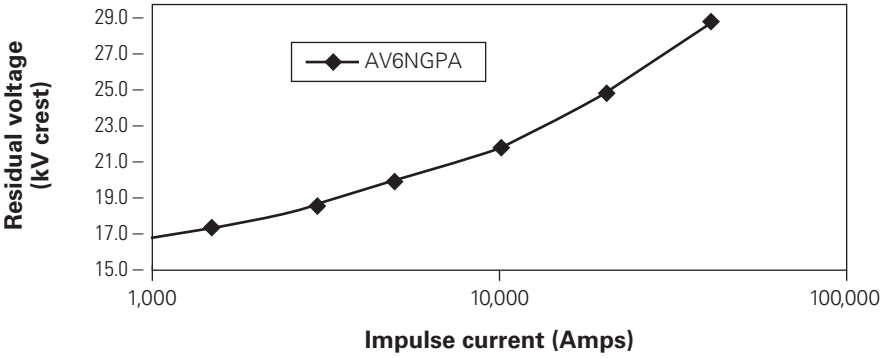


Figure 2. Maximum residual voltage vs. impulse current.

Table 3. Guaranteed characteristics based on 100% testing

Catalog number	Min V1mA/cm^2 (kV, DC)	Max V_{5kA}(kV)
AV6NGPA	10.2	20.0

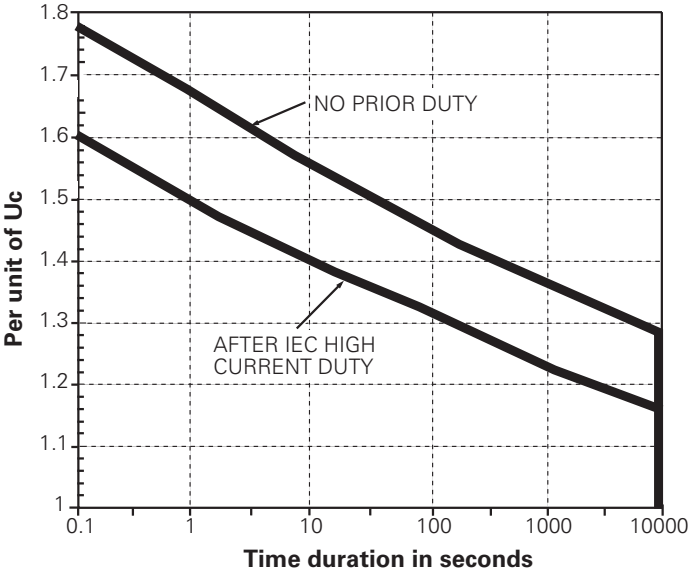


Figure 3. Temporary overvoltage capability, 60 °C.

Note: The TOV capability will depend on the design and thermal capability of the arrester. The above TOV curve represents a typical Eaton design.

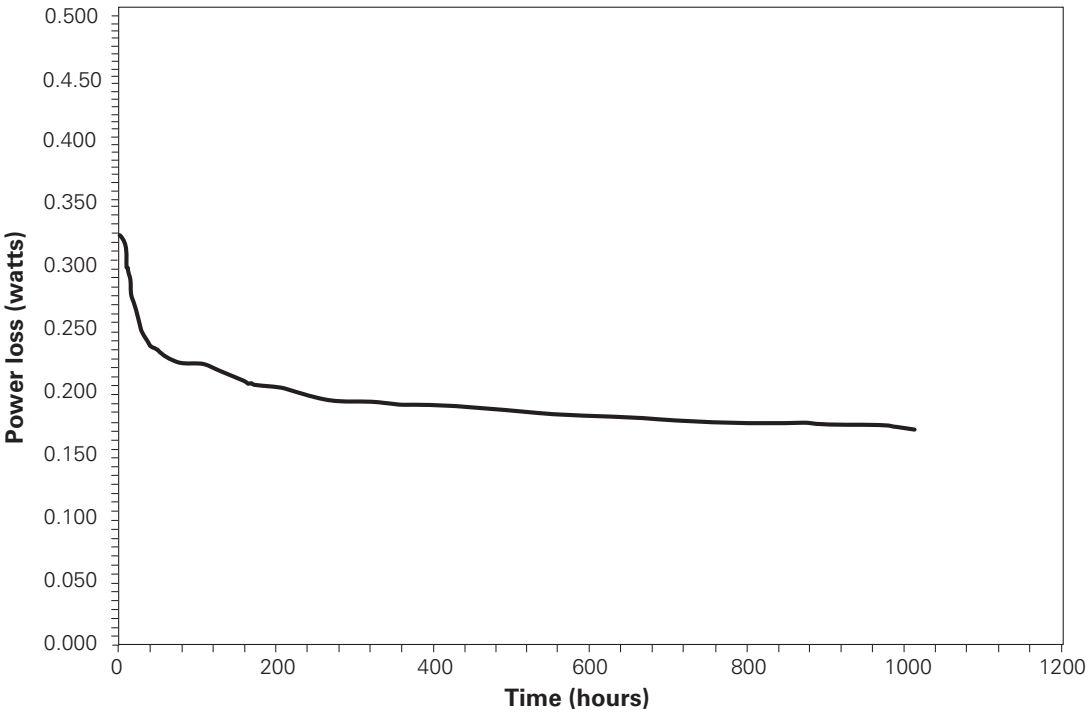


Figure 4. Aging curve AV6NG VariSTAR disks.

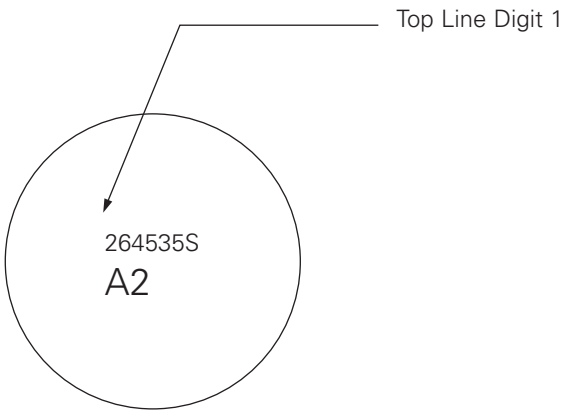
Aging factors based on the IEC and ANSI 1000 hour power loss tests are guaranteed to be less than or equal to 1. The 1000 hour test is performed at 115 °C, which is equivalent to 110 years with the operating temperature at 40 °C and operating voltages less than or equal to Uc.

Factory routine tests performed on each disk

- Physical inspection
- Residual voltage measurement (referenced to 5 kA, 8/20 µs)
- V1mA/cm2 (DC voltage at 8.6 mA)
- Power loss @ 0.551 of V1mA/cm^2 voltage

Storage and handling

The VariSTAR MOV disks are packaged on wooden pallets and secured for ocean container shipment. The pallet/boxes shall be stored indoors until the purchaser's acceptance test. Once opened, the disks shall be stored in a dry and clean environment to avoid moisture or other contaminants to collect on the disk surface. The MOV disk should not be handled with bare hands. A latex or other non-fibrous glove should be used to prevent contaminants from compromising the collar of the disk.



Top line:

Digit 1 .....Factory no. (May be numeral or letter designation)

Digit 2 .....Last digit of year of manufacture

Digits 3, 4, 5, 6 .....Factory lot number

Digit 7 .....Factory use only

Second line:

Digit 1 .....Rating code (See Table 4 below)

Digit 2 .....Factory use only

Figure 5. Disk identification system.

Table 4. Disk Category

Catalog number	Min. V1mA/cm^2 (kV DC)	Max. V5 kA (kV)	8/20 µs wave forms		Min. Vref @ Iref of 3 mA (kV)
			Test voltage kV rms	Watts @ 20° C	
AV6NGPA	—	20.0	5.36	0.33	6.80 kV

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