

**SURGE SUPPRESSOR
METAL OXIDE VARISTOR
NEC-MOV SERIES**
(LOW VOLTAGE SERIES)

NV022D05 ~ NV082D05
 NV022D07 ~ NV082D07
 NV022D10 ~ NV068D10
 NV022D14 ~ NV068D14

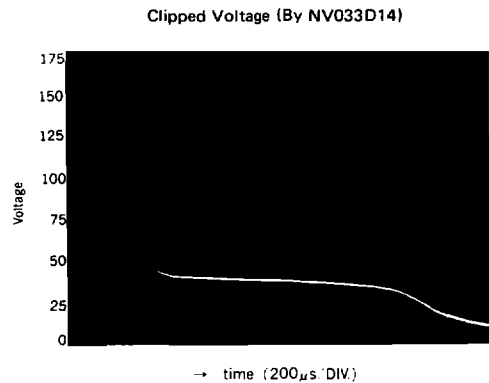
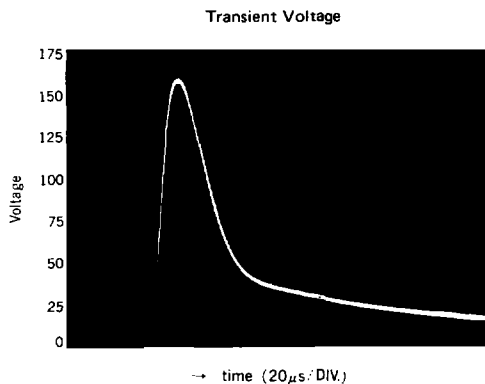
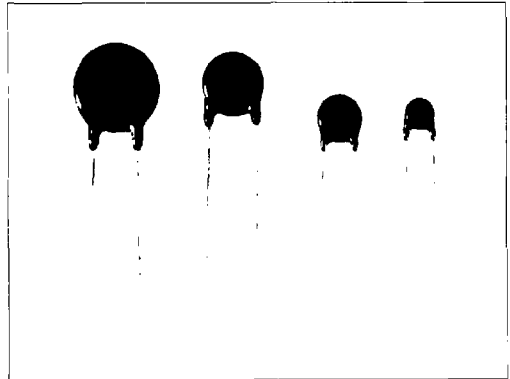
The NEC-MOV series are the best device for transient voltage protection. When exposed to high transient voltage the NEC-MOV's impedance changes from a very high value to a very low conducting value thus clamping the transient voltage to a safe level. Therefore NEC-MOV protects many electric equipment from surge voltage and keep a safe drive.

FEATURES

- Excellent transient voltage suppression characteristics.
- High surge current.
- Fast response time. (< 50 ns)
- V-I characteristics are the same in both polarity.

APPLICATIONS

- Protects equipment against failures by transient surge voltage.



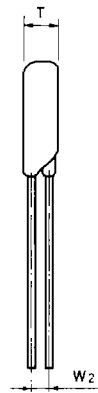
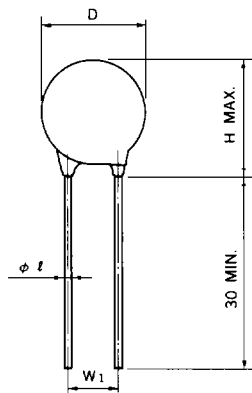
Outline Drawing (Unit : mm)

Type Number	D _{MAX.}	T _{MAX.}	W ₁	H _{MAX.}	W ₂	ℓ
NV022D05	7.0	4.2	5±1	10.0	1.1	φ 0.6
NV027D05	7.0	4.3		10.0	1.2	
NV033D05	7.0	4.3		10.0	1.3	
NV039D05	7.0	4.4		10.0	1.4	
NV047D05	7.0	4.6		10.0	1.6	
NV056D05	7.0	5.0		10.0	1.7	
NV068D05	7.0	5.3		10.0	1.9	
NV082D05	7.0	5.3		10.0	2.0	

Type Number	D _{MAX.}	T _{MAX.}	W ₁	H _{MAX.}	W ₂	ℓ
NV022D07	9.0	4.2	5±1	12.0	1.1	φ 0.6
NV027D07	9.0	4.3		12.0	1.2	
NV033D07	9.0	4.3		12.0	1.3	
NV039D07	9.0	4.4		12.0	1.4	
NV047D07	9.0	4.6		12.0	1.6	
NV056D07	9.0	5.0		12.0	1.7	
NV068D07	9.0	5.3		12.0	1.9	
NV082D07	9.0	5.3		12.0	2.0	

Type Number	D _{MAX.}	T _{MAX.}	W ₁	H _{MAX.}	W ₂	ℓ
NV022D10	12.0	4.3	7.5±1	15.0	1.3	φ 0.8
NV027D10	12.0	4.3		15.0	1.4	
NV033D10	12.0	4.3		15.0	1.5	
NV039D10	12.0	4.4		15.0	1.6	
NV047D10	12.0	4.7		15.0	1.8	
NV056D10	12.0	5.0		15.0	1.9	
NV068D10	12.0	5.3		15.0	2.1	

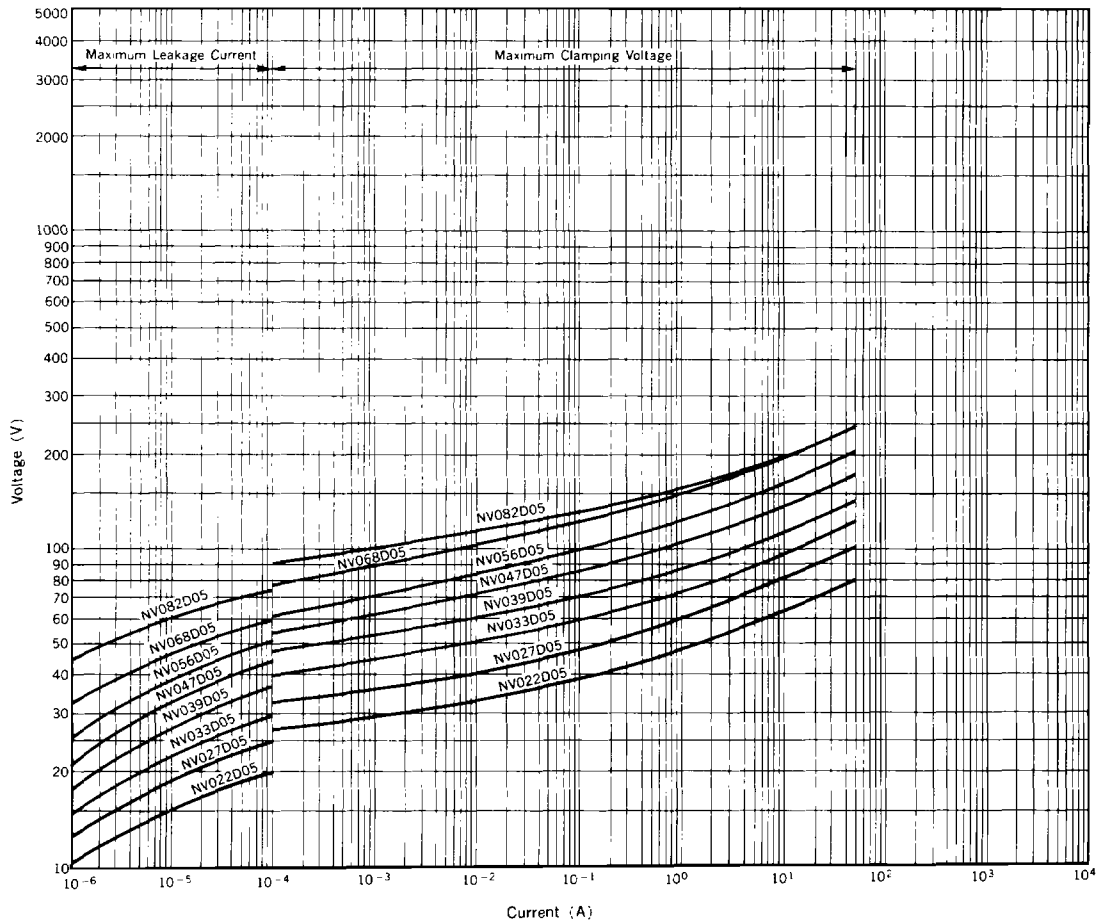
Type Number	D _{MAX.}	T _{MAX.}	W ₁	H _{MAX.}	W ₂	ℓ
NV022D14	16.0	4.3	7.5±1	21	1.3	φ 0.8
NV027D14	16.0	4.3		21	1.4	
NV033D14	16.0	4.3		21	1.5	
NV039D14	16.0	4.4		21	1.6	
NV047D14	16.0	4.7		21	1.8	
NV056D14	16.0	5.0		21	1.9	
NV068D14	16.0	5.3		21	2.1	



RATINGS AND CHARACTERISTICS (NV022D05 ~ NV082D05)

Type Number	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage	Energy	Peak Current	Operating Ambient Temperature	Storage Temperature	Capacitance (reference value)
	V _{0.1mA} (V)	A _{Crms} (V)	DC (V)	V _{1A} (V)	(J)	8x20 μs (A)	T _{opt} (°C)	T _{stg} (°C)	1 k ~ 1 MHz (pF)
NV022D05	20 ~ 27	14	18	48	0.4	50	-40 ~ 85	-40 ~ 125	300 ~ 3000
NV027D05	25 ~ 32	17	22	60	0.5				
NV033D05	30 ~ 39	20	26	73	0.6				
NV039D05	37 ~ 47	25	31	86	0.8				
NV047D05	45 ~ 54	30	38	104	1.0				
NV056D05	52 ~ 62	35	45	123	1.0				
NV068D05	60 ~ 76	40	56	150	1.2				
NV082D05	74 ~ 90	50	65	155	1.7				

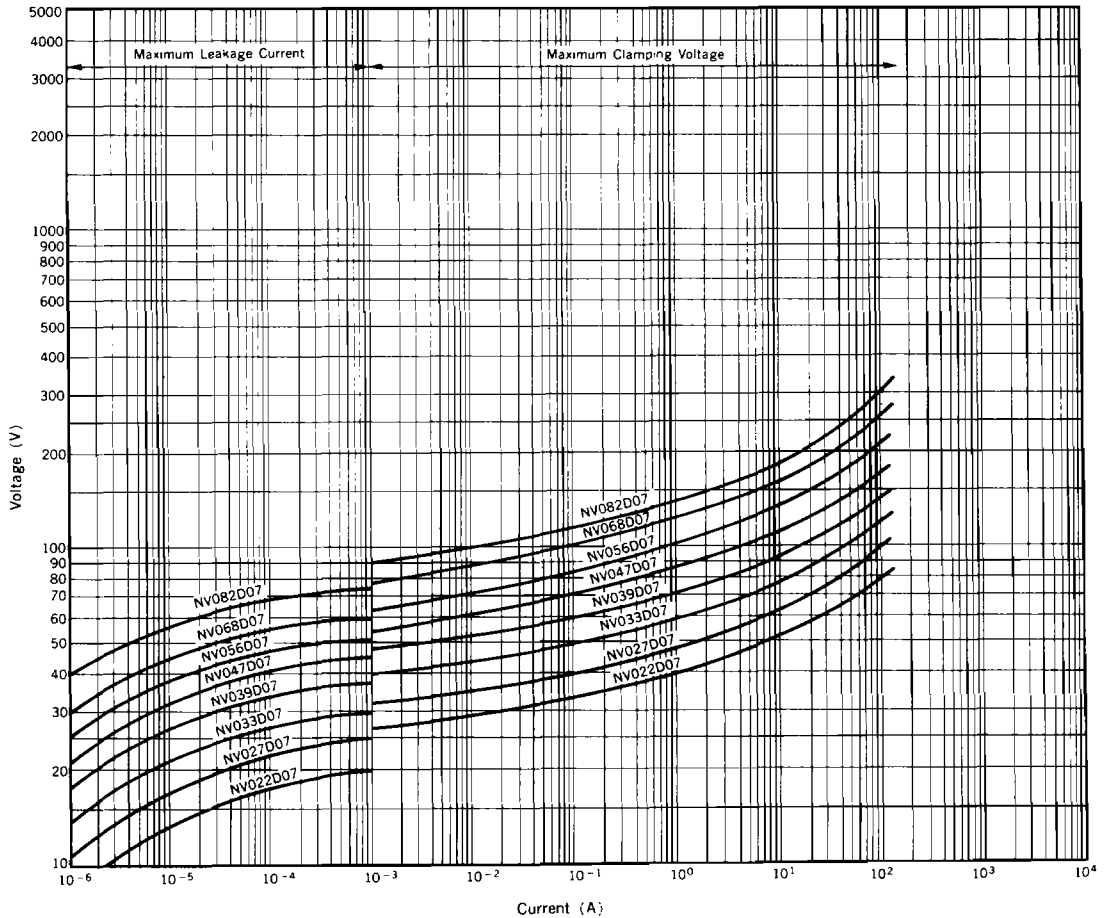
Fig. 1 V-I Characteristics



RATINGS AND CHARACTERISTICS (NV022D07 ~ NV082D07)

Type Number	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage	Energy	Peak Current	Operating Ambient Temperature	Storage Temperature	Capacitance (reference value)
	V1mA (V)	ACrms (V)	DC (V)	V2.5A (V)	(J)	8x20 μs (A)	Topt (°C)	Tstg (°C)	1 k ~ 1 MHz (pF)
NV022D07	20 ~ 27	14	18	43	0.9	125	-40 ~ 85	-40 ~ 125	500 ~ 5000
NV027D07	25 ~ 32	17	22	53	1.0				
NV033D07	30 ~ 39	20	26	65	1.2				
NV039D07	37 ~ 49	25	31	77	1.5				
NV047D07	45 ~ 54	30	38	93	1.8				
NV056D07	52 ~ 62	35	45	110	2.2				
NV068D07	60 ~ 76	40	56	135	2.5				
NV082D07	74 ~ 90	50	65	150	3.5				

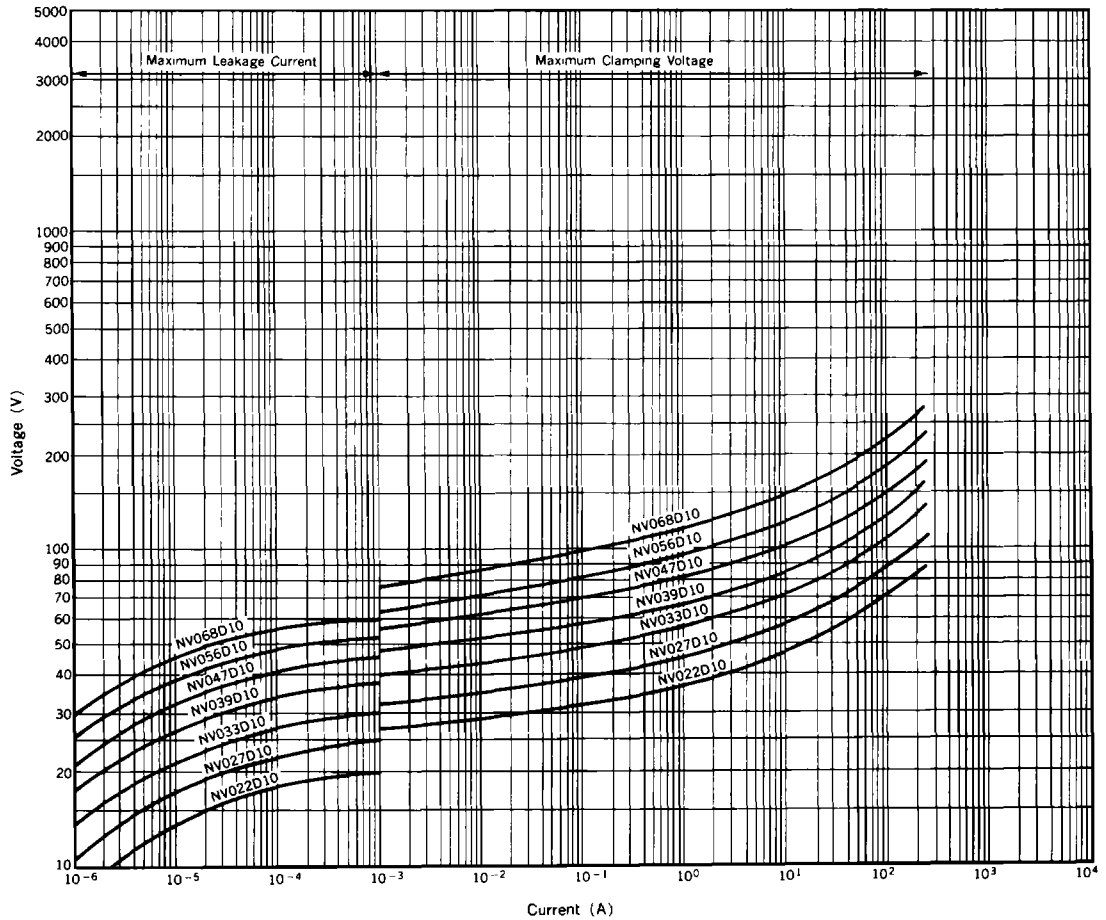
Fig. 2 V-I Characteristics



RATINGS AND CHARACTERISTICS (NV022D10 ~ NV068D10)

Type Number	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage	Energy	Peak Current	Operating Ambient Temperature	Storage Temperature	Capacitance (reference value)
	V1mA (V)	ACrms (V)	DC (V)	V5A (V)	(J)	8 × 20 μs (A)	T _{opt} (°C)	T _{stg} (°C)	1 k ~ 1 MHz (pF)
NV022D10	20 ~ 27	14	18	43	2.0	250	-40 ~ 85	-40 ~ 125	1000 ~ 5000
NV027D10	25 ~ 32	17	22	53	2.5				
NV033D10	30 ~ 39	20	26	65	3.0				
NV039D10	37 ~ 47	25	31	77	3.5				
NV047D10	45 ~ 64	30	38	93	4.5				
NV056D10	52 ~ 62	35	45	110	5.5				
NV068D10	60 ~ 76	40	56	135	6.5				

Fig. 3 V-I Characteristics



RATINGS AND CHARACTERISTICS (NV022D14 ~ NV068D14)

Type Number	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage	Energy	Peak Current	Operating Ambient Temperature	Storage Temperature	Capacitance (reference value)
	V _{1mA} (V)	ACrms (V)	DC (V)	V _{10A} (V)	(J)	8x20 μs (A)	T _{opt} (°C)	T _{stg} (°C)	1 k ~ 1 MHz (pF)
NV022D14	20 ~ 27	14	18	43	4.0	500	-40 ~ 85	-40 ~ 125	3000 ~ 10000
NV027D14	25 ~ 32	17	22	53	5.0				
NV033D14	30 ~ 39	20	26	65	6.0				
NV039D14	37 ~ 47	25	31	77	7.0				
NV047D14	45 ~ 54	30	38	93	8.5				
NV056D14	52 ~ 62	35	45	110	10.0				
NV068D14	60 ~ 76	40	56	135	12.0				

Fig. 4 V-I Characteristics

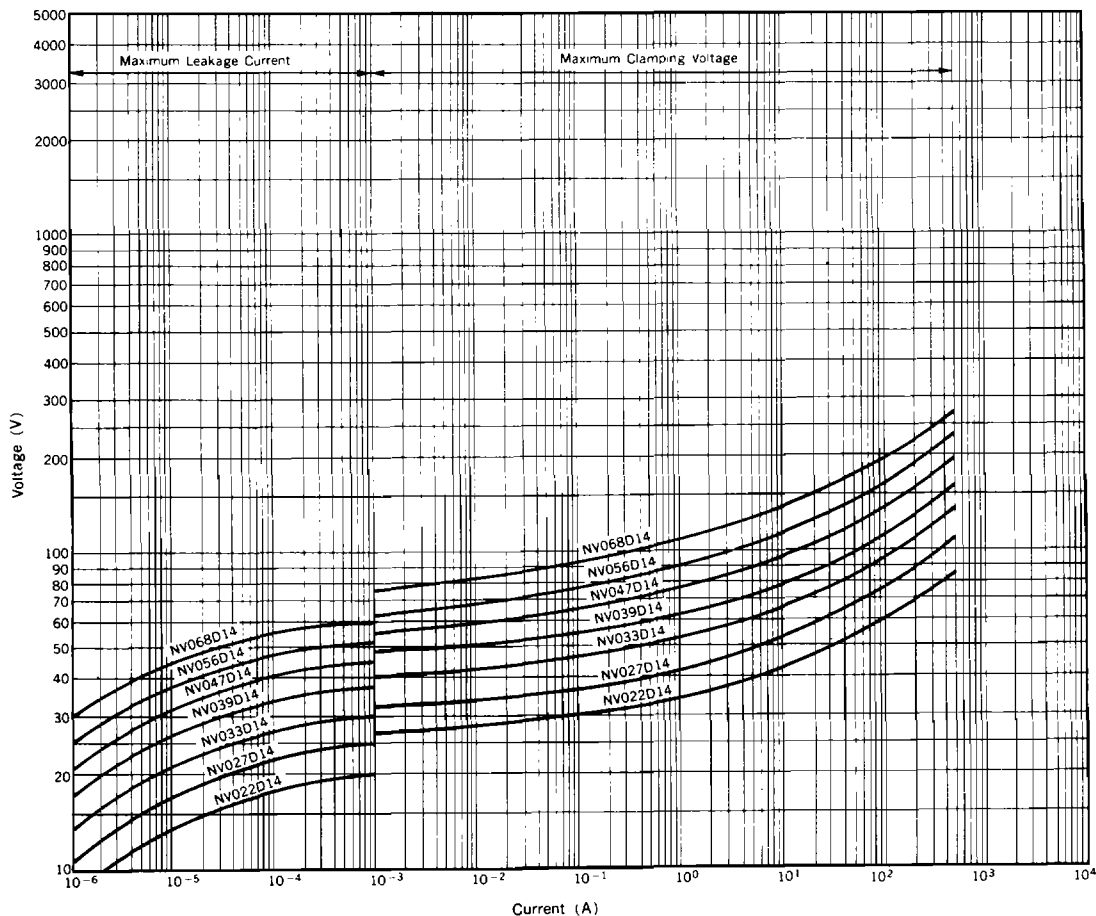


Fig. 6 Peak Current-Pulse Width Rating (Impulse Number N=2)

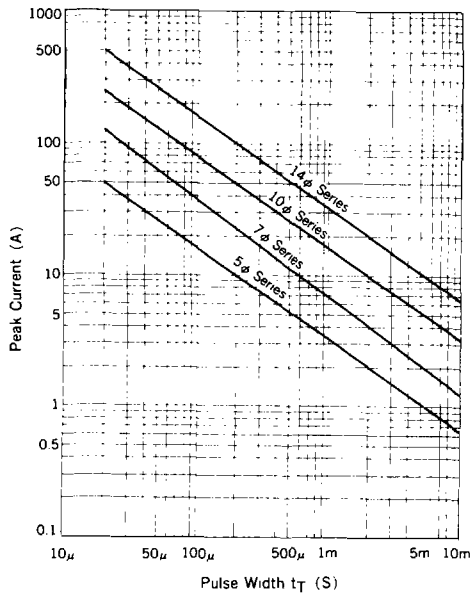
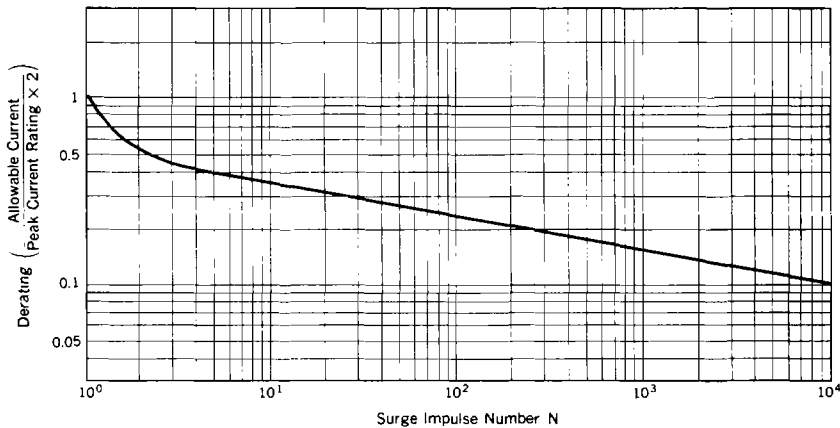


Fig. 7 Derating Curve ex. 14φ Series
 Pulse width $t_T=200 \mu s$ Impulse number $N=10^4$
 I (at $t_T=200 \mu s$) = 100 A (See Fig. 6)
 Derating (at $N=10^4$) = 0.1 (See Fig. 7)
 Allowable current $I = 100 \times 2 \times 0.1 = 20A$



NOTICE

- Applied voltage should not be over the maximum ratings.
- Should the NEC-MOV be subjected to surge current and energy levels in excess of maximum ratings, it may physically fail by package rupture or explosion of material. It is recommended that protective fusing be used in a circuit.
- When the NEC-MOV are used in a high frequency circuit, notice it's capacitance and avoid to fever.