Series MHP

This range was designed specifically for high voltage and high R.F. current applications. The glass encapsulation affords protection against corona, contaminants and humidity and the wide fine silver terminations, which are brazed to the monolithic element, assure minimum inductance and high R.F. current capabilities. The wide leads offer the design engineer a choice of mounting methods to suit individual equipment requirements. Non-standard values, special selection tolerances, alternative dielectrics and other mechanical configurations are available. For further details contact our technical department.

- ❑ Glass encapsulated.
- ❑ R.F. Voltages 250 to 5000V r.m.s.
- ❑ R.F. Current Rating 12A r.m.s.
- ❑ Wide fine silver terminations for minimum inductance and high current capability.
- ❑ Multilayer construction for high power handling
- ❑ May be soldered, brazed or mechanically mounted.
- ❑ 'Q' 10000min. at 1MHz and 25°C for C≤1000pF.
- ❑ -55°C to +125°C operation.

Technical Data

Temperature Range -55°C to +125°C

Capacitance Tolerance ±10%±5% ±0.5pF(10pF and below)

Capacitance Temperature Coefficient +95±25ppm/°C at 1MHz over the temperature range - 55°C to +125°C (see graph page 32, fig 2).

Capacitance Long Term Stability When stressed at 150% of rated voltage for 2000 hours at +125°C the change in capacitance should not exceed 0.5% or 0.5pF, whichever is the greater, of the value measured, at 25°C

'Q' 10000 min. at 1MHz and +25°C for capacitance values not exceeding 1000pF; 5000 min. at 1KHz and +25°C for capacitance values greater than 1000pF

Insulation Resistance at +25°C ≥ 10^6MΩ

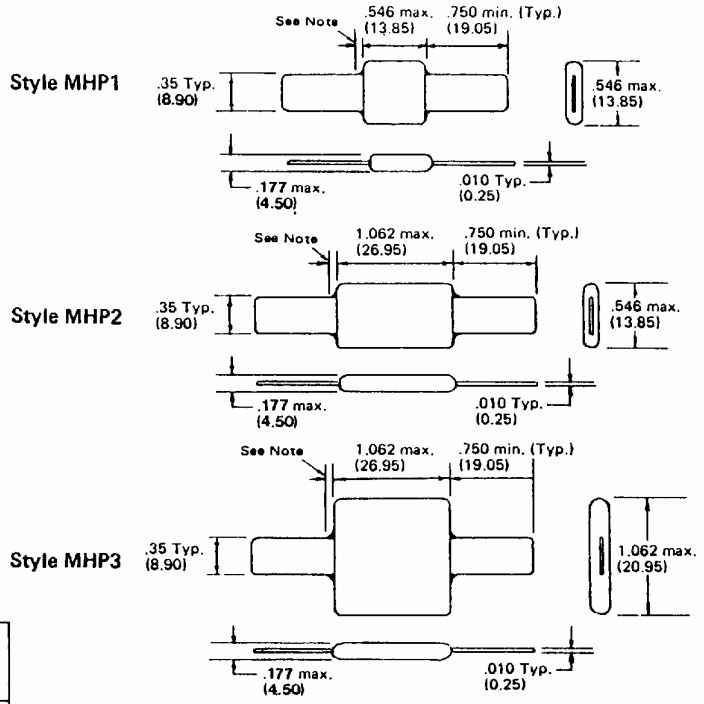
at +125°C ≥ 10^5MΩ

Typical Characteristics: see pages 32-35

Standard Capacity Values

Style	Capacitance Range (pF) E24	WV d.c	Test Voltage d.c
MHP1	10-390	3600	7200
	430-680	2500	5000
	750-2200	1000	2000
	2400-3000	600	1200
MHP2	10-75	7000	10000
MHP3	82-150	7000	14000
	160-330	5000	10000
	360-620	3600	7200

Outline Drawings



All dimensions in inches (mm)

Note: Allow .059 (1.50) max. for meniscus between body and lead.

Fig. 1 Percent Capacitance Change vs Temperature °C

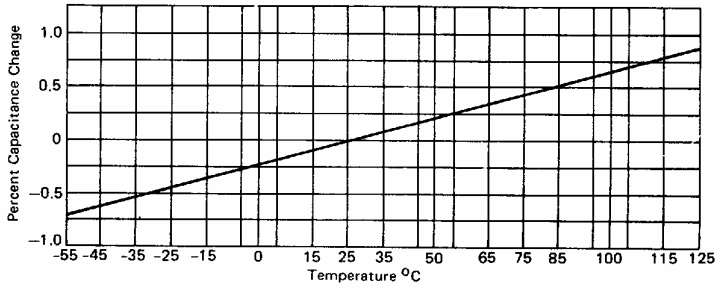


Fig. 2 Average T.C. vs Temperature °C at 1MHz

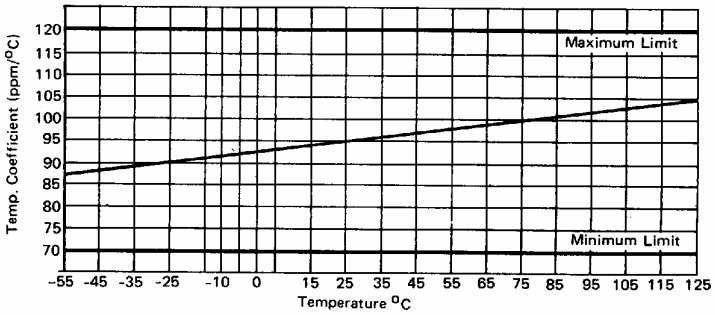


Fig. 3 Insulation Resistance vs Temperature °C

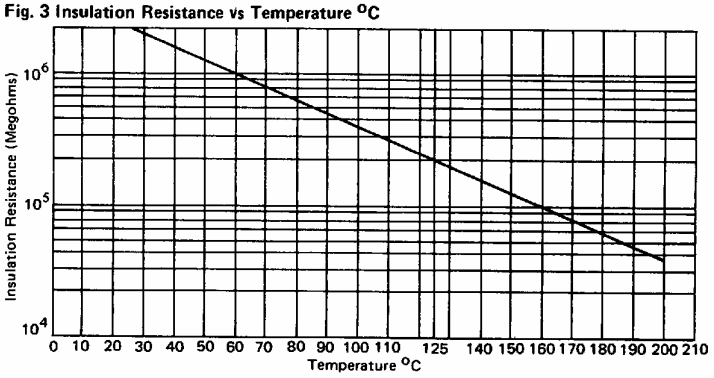


Fig. 4 Dissipation Factor vs Temperature °C

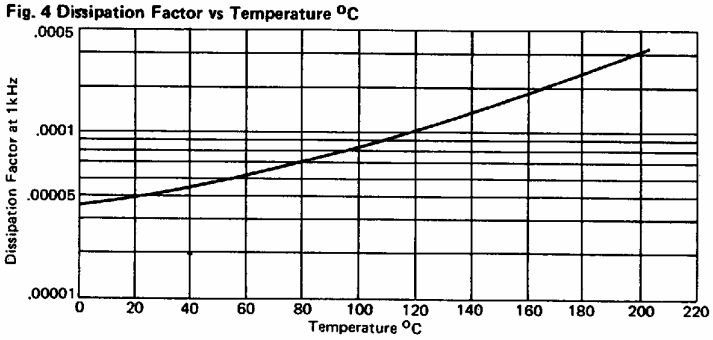


Fig. 5 Typical Retrace Characteristics

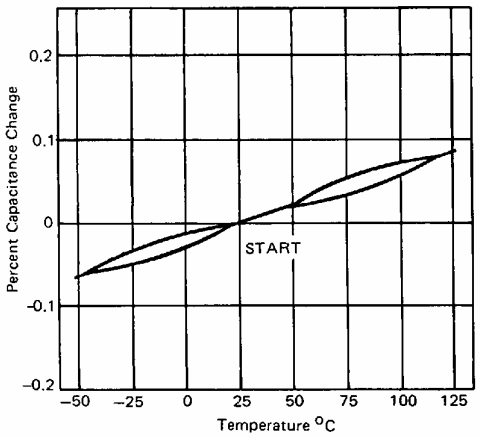


Fig. 6 Capacitance Drift vs Capacitance

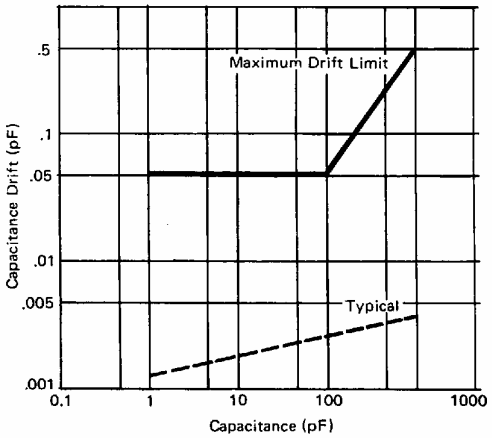


Fig. 7 Typical 'Q' vs Frequency

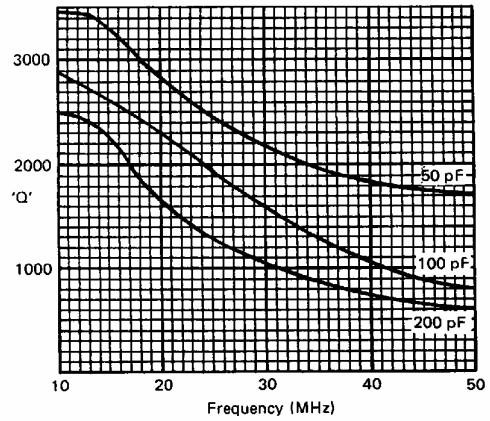
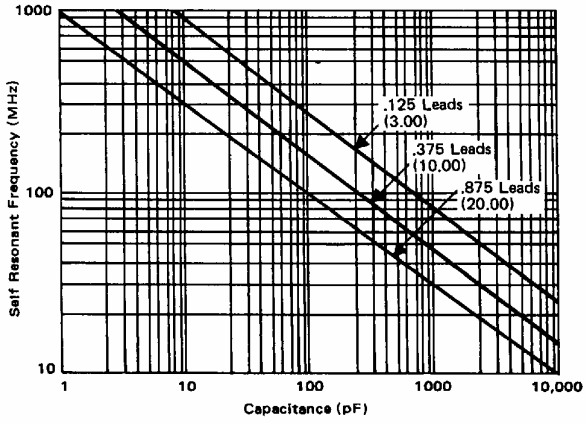


Fig. 9 Self-Resonant Frequency vs Capacitance of MHQ Capacitors



At the operating frequency the capacitive impedance is calculated as:

$Z_c = \frac{1}{2\pi fC}$

Were f is the frequency and C denotes the capacitance.

1. If $Z_C > Z_{VL}$,the voltage limiting impedance shown in the table, then the capacitor is voltage limited.
2. If $Z_C < Z_{IL}$, the current limiting impedance shown in the table, than the capacitor is current limited.
3. If $Z_{IL} < Z_C < Z_{VL}$, the capacitor is reactive power limited. Voltage and current is calculated according to the formulae:

$$V = \sqrt{P_R \times Z_C} \qquad I = \sqrt{\frac{P_R}{Z_C}}$$

where P_R denotes the reactive power rating shown in the table.

RF Rating and Limiting Data for Leaded Devices

Style	Capacitance Range (pF)	RF at 25° c		Limiting Impedance (OHMS)		Reactive Power Rating KW
		Voltage r.m.s	Current r.m.s	Voltage	Current	
MHQx2	0.5-130	300	1.4	450	100	0.2
MHQX3	150-470		2	167	135	0.54
MHQX4	510-680		3	128	111	0.7
	750-1000	200		111		
MHQX5	1100-2000	300	5	90	40	1.0
	2200-3000	200		40		
MPVA 81	10-360	500	3.5	166		1
MPVA 83	390-1000		5.5	100		2
MPVC 81	10-360	500	3.5	150		2
MPVC 83	390-1000		5.5	100		4
MPVS 81	10-130	2000	3.5	4000	81.6	1
MPVS 82	150-360			2000	163.3	2
MPVS 83	390-1000		5.5	1000	132.2	4
MPVI 81	10-130	2000	3.5	2000	163.5	2
MPVI 82	150-360			1000	326.5	4
MPVI 83	390-1000		5.5	500	264	8
MPVO 10	5-91	500	3.5	150		2
	100-220	200				
	240-300	100				
MHP 1	10-390	2500	12	520.8	83.3	12
	430-680	1800		540	41.7	6
	750-2200	700		81.7	41.7	6
	2400-3000	425		60.2	20.8	3
MHP 2	10-75	5000	12	1388.9	125.0	18
MHP 3	82-150	5000	12	1388.9	125.0	18
	160-330	3500		680.6	125.0	18
	360-620	2500		520.8	83.3	12

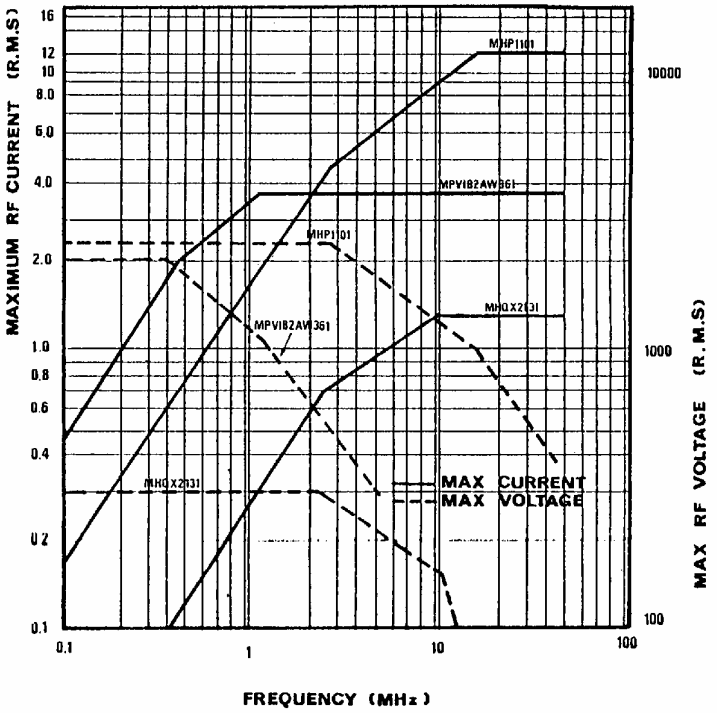
Standard capacitance values (pF)

MHP1					MHP2		MHP3	
10	33	100	330	1.000	10	33	82	240
11	36	110	360	1.100	11	36	91	270
12	39	120	390	1.200	12	39	100	300
13	43	130	430	1.300	13	43	110	330
15	47	150	470	1.500	15	47	120	360
16	51	160	510	1.600	16	51	130	390
18	56	180	560	1.800	18	56	150	430
20	62	200	620	2.000	20	62	160	470
22	68	220	680	2.200	22	68	180	510
24	75	240	750	2.400	24	75	200	560
27	82	270	820	2.700	27		220	620
30	91	300	910	3.000	30			

Series MHP, MHQ, MPV

Electrical derating factors

For operation between 85°C and 150°C the adjacent derating factors apply for the MPV, MHQ, MHP capacitors.
For operation above 150°C and up to 200°C consult Technical Department.



Derating Factor Table

	RF Voltage Limited (V)	RF Current I (A)	Reactive Power Limited
MHQ MPV	- 1.25%/°C	- 0.4%/°C	- 0.5%/°C
MHP	- 0.16%/°C	- 0.4%/°C	- 0.5%/°C

Ordering Information

MHP	**1**	**15**	**1**	**K**
Type designation	**Case Size** 1 2 3	**Capacitance Code** First two digits of capacitance value in pF.	**No. of Zeros** Following the first two digits of capacitance value in pF.	**Tolerance** *D = ±.5pF (10pF & below) J = ± 5% K = ± 10%

* For values below 10pF on MHP2 Style consult our technical department.
Example shown is a style MHP1 150pF ± 10% with a maximum WV d.c. of 3600.

MPVS 81	**AW**	**201**	**J**	**S**
Series Designation	**Lead Style** AW= Axial Wire RW= Radial Wire only for MPVO Series P = Pellet	**Capacitance Code** First two digits of capacitance in pF - Third digit is multiplier eg: no of zeros.	**Tolerance Code** K ± 10% J ± 5% G ± 2% F ± 1% D ± 0.5pF C ± 0.25pF B ± 0.1 pF Special option to 0.1% consult Tech. DEPT.	S = Short Lead L = Long Lead Option