

# Type MMWA Polyester Film Capacitors

## Metallized Axial Leads



## High Capacitance, High Voltage

**Type MMWA** axial-leaded, metallized polyester film capacitors incorporate compact, non-inductive extended foil windings with epoxy end seals to offer excellent moisture resistance and capacitance stability over the operating temperature range. Metallized polyester provides self-healing characteristics that help prevent permanent shorting due to high voltage transient.

## Specifications

**Voltage Range:** 50-1,000 Vdc (35-480 Vac, 60Hz)

**Capacitance Range:** .01-10  $\mu$ F

**Capacitance Tolerance:**  $\pm 10\%$  (K) standard  
 $\pm 5\%$  (J) optional

**Operating Temperature Range:** -55°C to 125°C\*

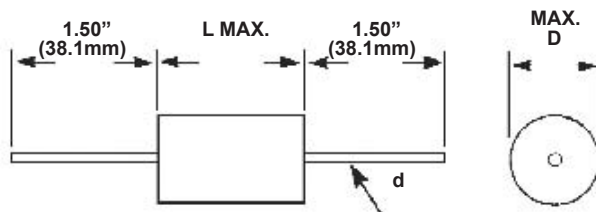
\*Full-rated voltage at 85°C—Derate linearly to 50%-rated voltage at 125°C

**Dielectric Strength:** 200% (1 minute)

**Dissipation Factor:** .75% Max. (25°C, 1 kHz)

**Insulation Resistance:** 10,000 M $\Omega$  x  $\mu$ F  
30,000 M $\Omega$  Min.

**Life Test:** 500 Hours at 85°C at 125% Rated Voltage



TINNED COPPER-CLAD STEEL LEADS

**NOTE:** Other capacitance values, sizes and performance specifications are available. Contact us.

## Ratings and Dimensions

## Normally Stocked

| Cap.<br>( $\mu$ F) | Catalog<br>Part Number | D<br>Inches (mm) | L<br>Inches (mm) | d<br>Inches (mm) | dV/dt<br>V/ $\mu$ s |
|--------------------|------------------------|------------------|------------------|------------------|---------------------|
| 50 Vdc (35 Vac)    |                        |                  |                  |                  |                     |
| 0.100              | MMWA05P1K              | 0.220 (5.6)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.150              | MMWA05P15K             | 0.210 (5.3)      | 0.687 (17.4)     | 0.020 (0.5)      | 20                  |
| 0.220              | MMWA05P22K             | 0.240 (6.1)      | 0.687 (17.4)     | 0.020 (0.5)      | 20                  |
| 0.330              | MMWA05P33K             | 0.280 (7.1)      | 0.687 (17.4)     | 0.024 (0.6)      | 20                  |
| 0.470              | MMWA05P47K             | 0.320 (8.1)      | 0.687 (17.4)     | 0.024 (0.6)      | 20                  |
| 0.680              | MMWA05P68K             | 0.290 (7.4)      | 1.000 (25.4)     | 0.024 (0.6)      | 9                   |
| 1.000              | MMWA05W1K              | 0.335 (8.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 9                   |
| 1.500              | MMWA05W1P5K            | 0.355 (9.0)      | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 2.000              | MMWA05W2K              | 0.400 (10.2)     | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 3.000              | MMWA05W3K              | 0.475 (12.1)     | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 4.000              | MMWA05W4K              | 0.505 (12.8)     | 1.375 (34.9)     | 0.024 (0.6)      | 5                   |
| 5.000              | MMWA05W5K              | 0.525 (13.3)     | 1.500 (38.1)     | 0.024 (0.6)      | 4                   |
| 6.000              | MMWA05W6K              | 0.585 (14.9)     | 1.500 (38.1)     | 0.032 (0.8)      | 4                   |
| 7.000              | MMWA05W7K              | 0.625 (15.9)     | 1.500 (38.1)     | 0.032 (0.8)      | 4                   |
| 8.000              | MMWA05W8K              | 0.669 (17.0)     | 1.500 (38.1)     | 0.040 (1.0)      | 4                   |
| 9.000              | MMWA05W9K              | 0.700 (17.8)     | 1.500 (38.1)     | 0.040 (1.0)      | 4                   |
| 10.000             | MMWA05W10K             | 0.670 (17.0)     | 1.750 (44.4)     | 0.040 (1.0)      | 4                   |

| Cap.<br>( $\mu$ F) | Catalog<br>Part Number | D<br>Inches (mm) | L<br>Inches (mm) | d<br>Inches (mm) | dV/dt<br>V/ $\mu$ s |
|--------------------|------------------------|------------------|------------------|------------------|---------------------|
| 100 Vdc (65 Vac)   |                        |                  |                  |                  |                     |
| 0.010              | MMWA1S1K               | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.015              | MMWA1S15K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.022              | MMWA1S22K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.033              | MMWA1S33K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.047              | MMWA1S47K              | 0.217 (5.5)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.068              | MMWA1S68K              | 0.217 (5.5)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.100              | MMWA1P1K               | 0.236 (6.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 36                  |
| 0.150              | MMWA1P15K              | 0.236 (6.0)      | 0.687 (17.4)     | 0.020 (0.5)      | 20                  |
| 0.220              | MMWA1P22K              | 0.256 (6.5)      | 0.687 (17.4)     | 0.020 (0.5)      | 20                  |
| 0.330              | MMWA1P33K              | 0.295 (7.5)      | 0.687 (17.4)     | 0.024 (0.6)      | 20                  |
| 0.470              | MMWA1P47K              | 0.320 (8.1)      | 0.687 (17.4)     | 0.024 (0.6)      | 20                  |
| 0.680              | MMWA1P68K              | 0.320 (8.1)      | 1.000 (25.4)     | 0.024 (0.6)      | 9                   |
| 1.000              | MMWA1W1K               | 0.374 (9.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 9                   |
| 1.500              | MMWA1W1P5K             | 0.374 (9.5)      | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 2.000              | MMWA1W2K               | 0.400 (10.2)     | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 3.000              | MMWA1W3K               | 0.475 (12.1)     | 1.250 (31.7)     | 0.024 (0.6)      | 9                   |
| 4.000              | MMWA1W4K               | 0.505 (12.8)     | 1.375 (34.9)     | 0.032 (0.8)      | 5                   |

# Type MMWA Polyester Film Capacitors

| Cap.<br>( $\mu$ F)           | Catalog<br>Part Number | D<br>Inches (mm) | L<br>Inches (mm) | d<br>Inches (mm) | dV/dt<br>V/ $\mu$ s |
|------------------------------|------------------------|------------------|------------------|------------------|---------------------|
| 5.000                        | MMWA1W5K               | 0.525 (13.3)     | 1.500 (38.1)     | 0.032 (0.8)      | 4                   |
| 6.000                        | MMWA1W6K               | 0.585 (14.9)     | 1.500 (38.1)     | 0.032 (0.8)      | 4                   |
| 7.000                        | MMWA1W7K               | 0.625 (15.9)     | 1.500 (38.1)     | 0.032 (0.8)      | 4                   |
| 8.000                        | MMWA1W8K               | 0.669 (17.0)     | 1.500 (38.1)     | 0.040 (1.0)      | 4                   |
| 9.000                        | MMWA1W9K               | 0.700 (17.8)     | 1.500 (38.1)     | 0.040 (1.0)      | 4                   |
| 10.000                       | MMWA1W10K              | 0.768 (19.5)     | 1.750 (44.4)     | 0.040 (1.0)      | 3                   |
| <b>200/250 Vdc (125 Vac)</b> |                        |                  |                  |                  |                     |
| 0.010                        | MMWA2S1K               | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 52                  |
| 0.015                        | MMWA2S15K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 52                  |
| 0.022                        | MMWA2S22K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 52                  |
| 0.033                        | MMWA2S33K              | 0.197 (5.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 52                  |
| 0.047                        | MMWA2S47K              | 0.217 (5.5)      | 0.562 (14.3)     | 0.020 (0.5)      | 52                  |
| 0.068                        | MMWA2S68K              | 0.200 (5.1)      | 0.687 (17.4)     | 0.020 (0.5)      | 29                  |
| 0.100                        | MMWA2P1K               | 0.240 (6.1)      | 0.687 (17.4)     | 0.020 (0.5)      | 29                  |
| 0.150                        | MMWA2P15K              | 0.276 (7.0)      | 0.687 (17.4)     | 0.024 (0.6)      | 29                  |
| 0.220                        | MMWA2P22K              | 0.310 (7.9)      | 0.687 (17.4)     | 0.024 (0.6)      | 29                  |
| 0.330                        | MMWA2P33K              | 0.365 (9.3)      | 0.728 (18.5)     | 0.024 (0.6)      | 29                  |
| 0.470                        | MMWA2P47K              | 0.374 (9.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 14                  |
| 0.680                        | MMWA2P68K              | 0.365 (9.3)      | 1.000 (25.4)     | 0.024 (0.6)      | 14                  |
| 1.000                        | MMWA2W1K               | 0.430 (10.9)     | 1.062 (27.0)     | 0.024 (0.6)      | 14                  |
| 1.500                        | MMWA2W1P5K             | 0.465 (11.8)     | 1.250 (31.7)     | 0.024 (0.6)      | 14                  |
| 2.000                        | MMWA2W2K               | 0.525 (13.3)     | 1.250 (31.7)     | 0.032 (0.8)      | 14                  |
| 3.000                        | MMWA2W3K               | 0.555 (14.1)     | 1.500 (38.1)     | 0.032 (0.8)      | 6                   |
| 3.500                        | MMWA2W3P5K             | 0.610 (15.5)     | 1.500 (38.1)     | 0.032 (0.8)      | 6                   |
| 4.000                        | MMWA2W4K               | 0.590 (15.0)     | 1.750 (44.4)     | 0.032 (0.8)      | 5                   |
| 5.000                        | MMWA2W5K               | 0.669 (17.0)     | 1.750 (44.4)     | 0.040 (1.0)      | 5                   |
| 6.000                        | MMWA2W6K               | 0.705 (17.9)     | 1.750 (44.4)     | 0.040 (1.0)      | 5                   |
| <b>400 Vdc (200 Vac)</b>     |                        |                  |                  |                  |                     |
| 0.010                        | MMWA4S1K               | 0.217 (5.5)      | 0.562 (14.3)     | 0.020 (0.5)      | 82                  |
| 0.015                        | MMWA4S15K              | 0.217 (5.5)      | 0.562 (14.3)     | 0.020 (0.5)      | 82                  |
| 0.022                        | MMWA4S22K              | 0.236 (6.0)      | 0.562 (14.3)     | 0.020 (0.5)      | 82                  |
| 0.033                        | MMWA4S33K              | 0.220 (5.6)      | 0.687 (17.4)     | 0.020 (0.5)      | 46                  |
| 0.047                        | MMWA4S47K              | 0.276 (7.0)      | 0.687 (17.4)     | 0.020 (0.5)      | 46                  |
| 0.068                        | MMWA4S68K              | 0.280 (7.1)      | 0.687 (17.4)     | 0.024 (0.6)      | 46                  |
| 0.100                        | MMWA4P1K               | 0.320 (8.1)      | 0.687 (17.4)     | 0.024 (0.6)      | 46                  |
| 0.150                        | MMWA4P15K              | 0.290 (7.4)      | 1.000 (25.4)     | 0.024 (0.6)      | 22                  |
| 0.220                        | MMWA4P22K              | 0.335 (8.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 22                  |
| 0.330                        | MMWA4P33K              | 0.394 (10.0)     | 1.187 (30.1)     | 0.024 (0.0)      | 22                  |
| 0.470                        | MMWA4P47K              | 0.433 (11.0)     | 1.187 (30.1)     | 0.024 (0.6)      | 22                  |

| Cap.<br>( $\mu$ F)           | Catalog<br>Part Number | D<br>Inches (mm) | L<br>Inches (mm) | d<br>Inches (mm) | dV/dt<br>V/ $\mu$ s |
|------------------------------|------------------------|------------------|------------------|------------------|---------------------|
| 0.680                        | MMWA4P68K              | 0.433 (11.0)     | 1.500 (38.1)     | 0.024 (0.6)      | 10                  |
| 1.000                        | MMWA4W1K               | 0.470 (11.9)     | 1.750 (44.4)     | 0.024 (0.6)      | 8                   |
| 1.500                        | MMWA4W1P5K             | 0.570 (14.5)     | 1.750 (44.4)     | 0.032 (0.8)      | 8                   |
| 2.000                        | MMWA4W2K               | 0.669 (17.0)     | 1.750 (44.4)     | 0.040 (1.0)      | 8                   |
| 3.000                        | MMWA4W3K               | 0.695 (17.6)     | 2.125 (54.0)     | 0.040 (1.0)      | 6                   |
| 3.500                        | MMWA4W3P5K             | 0.745 (18.9)     | 2.125 (54.0)     | 0.040 (1.0)      | 6                   |
| 4.000                        | MMWA4W4K               | 0.790 (20.1)     | 2.125 (54.0)     | 0.040 (1.0)      | 6                   |
| 5.000                        | MMWA4W5K               | 0.870 (22.1)     | 2.125 (54.0)     | 0.040 (1.0)      | 6                   |
| <b>600/630 Vdc (250 Vac)</b> |                        |                  |                  |                  |                     |
| 0.010                        | MMWA6S1K               | 0.217 (5.5)      | 0.687 (17.4)     | 0.020 (0.5)      | 69                  |
| 0.015                        | MMWA6S15K              | 0.236 (6.0)      | 0.687 (17.4)     | 0.020 (0.5)      | 69                  |
| 0.022                        | MMWA6S22K              | 0.276 (7.0)      | 0.750 (19.0)     | 0.020 (0.5)      | 69                  |
| 0.033                        | MMWA6S33K              | 0.270 (6.9)      | 0.750 (19.0)     | 0.024 (0.6)      | 69                  |
| 0.047                        | MMWA6S47K              | 0.305 (7.7)      | 0.750 (19.0)     | 0.024 (0.6)      | 69                  |
| 0.068                        | MMWA6S68K              | 0.335 (8.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 32                  |
| 0.100                        | MMWA6P1K               | 0.374 (9.5)      | 1.000 (25.4)     | 0.024 (0.6)      | 32                  |
| 0.150                        | MMWA6P15K              | 0.413 (10.5)     | 1.187 (30.1)     | 0.024 (0.6)      | 32                  |
| 0.220                        | MMWA6P22K              | 0.430 (10.9)     | 1.250 (31.7)     | 0.024 (0.6)      | 32                  |
| 0.330                        | MMWA6P33K              | 0.480 (12.2)     | 1.250 (31.7)     | 0.024 (0.6)      | 32                  |
| 0.470                        | MMWA6P47K              | 0.470 (11.9)     | 1.750 (44.4)     | 0.024 (0.6)      | 12                  |
| 0.680                        | MMWA6P68K              | 0.570 (14.5)     | 1.750 (44.4)     | 0.032 (0.8)      | 12                  |
| 1.000                        | MMWA6W1K               | 0.685 (17.4)     | 1.750 (44.4)     | 0.040 (1.0)      | 12                  |
| 2.000                        | MMWA6W2K               | 0.805 (20.4)     | 2.250 (57.1)     | 0.040 (1.0)      | 10                  |
| 3.000                        | MMWA6W3K               | 0.945 (24.0)     | 2.250 (57.1)     | 0.040 (1.0)      | 10                  |
| <b>1000 Vdc (480 Vac)</b>    |                        |                  |                  |                  |                     |
| 0.010                        | MMWA10S1K              | 0.240 (6.1)      | 0.875 (22.2)     | 0.020 (0.5)      | 220                 |
| 0.015                        | MMWA10S15K             | 0.275 (7.0)      | 0.875 (22.2)     | 0.024 (0.6)      | 220                 |
| 0.022                        | MMWA10S22K             | 0.320 (8.1)      | 0.875 (22.2)     | 0.024 (0.6)      | 220                 |
| 0.033                        | MMWA10S33K             | 0.380 (9.6)      | 0.875 (22.2)     | 0.024 (0.6)      | 220                 |
| 0.047                        | MMWA10S47K             | 0.335 (8.5)      | 1.062 (27.0)     | 0.024 (0.6)      | 120                 |
| 0.068                        | MMWA10S68K             | 0.410 (10.4)     | 1.125 (28.6)     | 0.024 (0.6)      | 120                 |
| 0.100                        | MMWA10P1K              | 0.485 (12.3)     | 1.125 (28.6)     | 0.024 (0.6)      | 120                 |
| 0.150                        | MMWA10P15K             | 0.595 (15.1)     | 1.125 (28.6)     | 0.032 (0.8)      | 120                 |
| 0.220                        | MMWA10P22K             | 0.605 (15.4)     | 1.312 (33.3)     | 0.032 (0.8)      | 85                  |
| 0.330                        | MMWA10P33K             | 0.640 (16.3)     | 1.500 (38.1)     | 0.032 (0.8)      | 50                  |
| 0.470                        | MMWA10P47K             | 0.750 (19.0)     | 1.500 (38.1)     | 0.040 (1.0)      | 50                  |
| 0.680                        | MMWA10P68K             | 0.810 (20.6)     | 1.750 (44.4)     | 0.040 (1.0)      | 45                  |
| 1.000                        | MMWA10W1K              | 0.880 (22.3)     | 1.937 (49.2)     | 0.040 (1.0)      | 40                  |