

## Metallized Polyester Film Capacitors

*Axial Leaded, General Purpose*



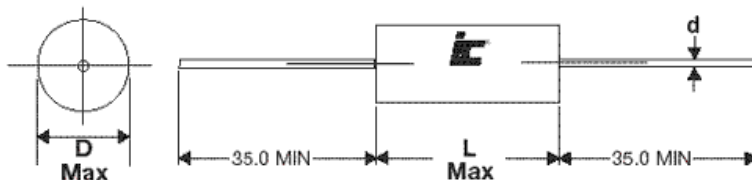
### FEATURES

Small size – Low ESR – General purpose

### APPLICATIONS

General Purpose – Bypass – Coupling – Blocking

|                                                                           |                                                                                 |    |             |     |                                 |     |         |      |      |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------|----|-------------|-----|---------------------------------|-----|---------|------|------|
| Operating Temperature Range                                               | <b>-40°C to +105°C</b>                                                          |    |             |     |                                 |     |         |      |      |
| Capacitance Tolerance                                                     | ±10% at 1 kHz, 25°C<br>+5% optional                                             |    |             |     |                                 |     |         |      |      |
| Peak, AC voltage (50/60 Hz)                                               | WVDC                                                                            | 50 | 63          | 100 | 250                             | 400 | 630     | 1000 | 1500 |
|                                                                           | VAC                                                                             | 30 | 40          | 63  | 160                             | 200 | 220     | 250  | 300  |
|                                                                           | For T>+85°C , The voltage must be decreased by 1.25% per °C                     |    |             |     |                                 |     |         |      |      |
| Dissipation Factor (MAX)<br>25°C                                          | Frequency (kHz)                                                                 |    | C<0.1uF     |     | 0.1uF<C<1.0uF                   |     | C>1.0uF |      |      |
|                                                                           | 1                                                                               |    | 0.8%        |     | 0.8%                            |     | 1.0%    |      |      |
|                                                                           | 10                                                                              |    | 1.5%        |     | 1.5%                            |     | -       |      |      |
|                                                                           | 100                                                                             |    | 3.0%        |     | -                               |     | -       |      |      |
| Insulation Resistance<br>@25°C (<70% RH)for 1 minute at<br>100VDC applied | WVDC                                                                            |    | Capacitance |     | Insulation Resistance           |     |         |      |      |
|                                                                           | ≤100WVDC                                                                        |    | ≤0.33μF     |     | 15000 MΩ                        |     |         |      |      |
|                                                                           | >100WVDC                                                                        |    | ≤0.33μF     |     | 30000 MΩ                        |     |         |      |      |
|                                                                           | <100WVDC                                                                        |    | >0.33μF     |     | 5000 MΩxμF                      |     |         |      |      |
|                                                                           | >100WVDC                                                                        |    | >0.33μF     |     | 10000 MΩxμF                     |     |         |      |      |
| Load Life                                                                 | 2000 Hours, +85C with 125% of rated voltage                                     |    |             |     |                                 |     |         |      |      |
|                                                                           | Capacitance Change                                                              |    |             |     | ≤5% of initially measured value |     |         |      |      |
|                                                                           | Dissipation Factor                                                              |    |             |     | ≤0.5% at 1kHz and 25°C          |     |         |      |      |
|                                                                           | Insulation Resistance                                                           |    |             |     | ≥50% of maximum specified value |     |         |      |      |
| Damp Heat test                                                            | 56 days at 40°C with 93%RH(+/-2%), and no voltage applied                       |    |             |     |                                 |     |         |      |      |
|                                                                           | Capacitance Change                                                              |    |             |     | ≤5% of initially measured value |     |         |      |      |
|                                                                           | Dissipation Factor                                                              |    |             |     | ≤0.005 at 1kHz and 25°C         |     |         |      |      |
|                                                                           | Insulation Resistance                                                           |    |             |     | ≥50% of maximum specified value |     |         |      |      |
| Self Inductance                                                           | <1 nano-Henry per mm of body length and lead length                             |    |             |     |                                 |     |         |      |      |
| Capacitance Drift Factor                                                  | <1.0% after 2 years at 40°C                                                     |    |             |     |                                 |     |         |      |      |
| Capacitance Temperature Coefficient                                       | +400 ppm/°C, ±200ppm/°C                                                         |    |             |     |                                 |     |         |      |      |
| Dielectric Strength                                                       | Terminal to Terminal                                                            |    |             |     |                                 |     |         |      |      |
|                                                                           | 160% of VDC applied for 2 Seconds and 25°C                                      |    |             |     |                                 |     |         |      |      |
| Dielectric Construction                                                   | Polyester                                                                       |    |             |     |                                 |     |         |      |      |
| Coating                                                                   | Metallized film Internal series connected (≥1000WVDC)                           |    |             |     |                                 |     |         |      |      |
| Leads                                                                     | Flame Retardant Polyester tape wrap (UL 510) with epoxy resin end fills(UL94V0) |    |             |     |                                 |     |         |      |      |
|                                                                           | Lead free tinned copper leads                                                   |    |             |     |                                 |     |         |      |      |



| Lead Diameter |     |
|---------------|-----|
| D             | d   |
| ≤9            | 0.6 |
| 9<D≤20        | 0.8 |
| >20           | 1.0 |

# MWR

## Metallized Polyester Axial Lead

| Capacitance (μF) | WVDC | IC PART NUMBER | dv/dt (v/μ sec.) | Dims DxL (mm) | d (MM) |
|------------------|------|----------------|------------------|---------------|--------|
| 0.001            | 630  | 102MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.001            | 1500 | 102MWR152KB    | 90               | 5.5x14.5      | 0.6    |
| 0.0015           | 630  | 152MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0015           | 1500 | 152MWR152KB    | 90               | 5.5x14.5      | 0.6    |
| 0.0022           | 630  | 222MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0022           | 1500 | 222MWR152KB    | 90               | 6x14.5        | 0.6    |
| 0.0033           | 630  | 332MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0033           | 1500 | 332MWR152KB    | 90               | 6.5x14.5      | 0.6    |
| 0.0039           | 630  | 392MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0047           | 630  | 472MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0047           | 1500 | 472MWR152KB    | 90               | 7x14.5        | 0.6    |
| 0.0068           | 630  | 682MWR630K     | 60               | 5.5x11.5      | 0.6    |
| 0.0068           | 1500 | 682MWR152KB    | 90               | 8x14.5        | 0.6    |
| 0.01             | 400  | 103MWR400K     | 14               | 5x11.5        | 0.6    |
| 0.01             | 630  | 103MWR630K     | 20               | 6x14          | 0.6    |
| 0.01             | 1000 | 103MWR102K     | 80               | 7x14.5        | 0.6    |
| 0.01             | 1500 | 103MWR152KB    | 90               | 8.5x14.5      | 0.8    |
| 0.015            | 400  | 153MWR400K     | 14               | 5.5x14.5      | 0.6    |
| 0.015            | 630  | 153MWR630K     | 20               | 6.5x14.5      | 0.6    |
| 0.015            | 1000 | 153MWR102K     | 80               | 8x14.5        | 0.6    |
| 0.015            | 1500 | 153MWR152KD    | 50               | 8.5x20.5      | 0.8    |
| 0.022            | 250  | 223MWR250K     | 10               | 5.5x11.5      | 0.6    |
| 0.022            | 400  | 223MWR400K     | 14               | 5.5x14        | 0.6    |
| 0.022            | 630  | 223MWR630K     | 20               | 8x14          | 0.6    |
| 0.022            | 1000 | 223MWR102K     | 40               | 9.5x20.5      | 0.8    |
| 0.022            | 1500 | 223MWR152KD    | 50               | 9.5x20.5      | 0.8    |
| 0.033            | 250  | 333MWR250K     | 10               | 6x11.5        | 0.6    |
| 0.033            | 400  | 333MWR400K     | 6                | 6x14          | 0.6    |
| 0.033            | 630  | 333MWR630K     | 15               | 8x20.5        | 0.6    |
| 0.033            | 1000 | 333MWR102K     | 40               | 10.5x20.5     | 0.8    |
| 0.033            | 1500 | 333MWR152KD    | 50               | 11x20.5       | 0.8    |
| 0.039            | 250  | 393MWR250K     | 10               | 6x11.5        | 0.6    |
| 0.039            | 400  | 393MWR400K     | 14               | 7x15.5        | 0.6    |
| 0.039            | 630  | 393MWR630K     | 15               | 8x20.5        | 0.6    |
| 0.047            | 250  | 473MWR250K     | 10               | 5.5x14        | 0.6    |
| 0.047            | 400  | 473MWR400K     | 6                | 7x14          | 0.6    |
| 0.047            | 630  | 473MWR630K     | 15               | 7.5x19        | 0.6    |
| 0.047            | 1000 | 473MWR102K     | 33               | 11x29         | 0.8    |
| 0.047            | 1500 | 473MWR152KG    | 40               | 11x29         | 0.8    |
| 0.068            | 100  | 683MWR100K     | 6                | 5.5x11.5      | 0.6    |
| 0.068            | 250  | 683MWR250K     | 10               | 6.5x14.5      | 0.6    |
| 0.068            | 400  | 683MWR400K     | 10               | 7.5x20.5      | 0.6    |
| 0.068            | 630  | 683MWR630K     | 15               | 9x20.5        | 0.8    |
| 0.068            | 1000 | 683MWR102K     | 33               | 12.5x29       | 0.8    |
| 0.068            | 1500 | 683MWR152KG    | 40               | 12.5x29       | 0.8    |
| 0.1              | 100  | 104MWR100K     | 6                | 6x11.5        | 0.6    |
| 0.1              | 250  | 104MWR250K     | 10               | 6x14          | 0.6    |
| 0.1              | 400  | 104MWR400K     | 10               | 7.5x19        | 0.6    |
| 0.1              | 630  | 104MWR630K     | 10               | 9x27          | 0.8    |
| 0.1              | 1000 | 104MWR102K     | 33               | 12x29         | 0.8    |
| 0.1              | 1500 | 104MWR152KJ    | 25               | 13x34         | 0.8    |
| 0.15             | 63   | 154MWR063K     | 11               | 5.5x14        | 0.6    |
| 0.15             | 100  | 154MWR100K     | 6                | 6x14          | 0.6    |
| 0.15             | 250  | 154MWR250K     | 10               | 7x14          | 0.6    |
| 0.15             | 400  | 154MWR400K     | 10               | 8.5x19        | 0.6    |
| 0.15             | 630  | 154MWR630K     | 10               | 10.5x29       | 0.8    |
| 0.15             | 1000 | 154MWR102K     | 20               | 13x34         | 0.8    |
| 0.15             | 1500 | 154MWR152KJ    | 25               | 15x34         | 0.8    |

| Capacitance (μF) | WVDC | IC PART NUMBER | dv/dt (v/μ sec.) | Dims DxL (mm) | d (MM) |
|------------------|------|----------------|------------------|---------------|--------|
| 0.22             | 50   | 224MWR050K     | 9                | 6x11.5        | 0.6    |
| 0.22             | 100  | 224MWR100K     | 6                | 6.5x14        | 0.6    |
| 0.22             | 250  | 224MWR250K     | 7                | 7x19          | 0.6    |
| 0.22             | 400  | 224MWR400K     | 6                | 8.5x27        | 0.8    |
| 0.22             | 630  | 224MWR630K     | 10               | 12.5x27       | 0.8    |
| 0.22             | 1000 | 224MWR102K     | 20               | 14.5x34       | 0.8    |
| 0.22             | 1500 | 224MWR152KJ    | 25               | 17.5x34       | 0.8    |
| 0.33             | 50   | 334MWR050K     | 9                | 6x11.5        | 0.6    |
| 0.33             | 100  | 334MWR100K     | 6                | 7.5x14        | 0.6    |
| 0.33             | 250  | 334MWR250K     | 7                | 8x19          | 0.6    |
| 0.33             | 400  | 334MWR400K     | 6                | 10x27         | 0.8    |
| 0.33             | 630  | 334MWR630K     | 6                | 13.5x34       | 0.8    |
| 0.33             | 1000 | 334MWR102K     | 20               | 17x34         | 0.8    |
| 0.33             | 1500 | 334MWR152KJ    | 25               | 20.5x34       | 1      |
| 0.47             | 50   | 474MWR050K     | 9                | 6x11.5        | 0.6    |
| 0.47             | 100  | 474MWR100K     | 6                | 7x15.5        | 0.6    |
| 0.47             | 250  | 474MWR250K     | 7                | 9.5x19        | 0.8    |
| 0.47             | 400  | 474MWR400K     | 6                | 12.5x27       | 0.8    |
| 0.47             | 630  | 474MWR630K     | 6                | 15x34         | 0.8    |
| 0.47             | 1000 | 474MWR102K     | 20               | 19.5x34       | 0.8    |
| 0.47             | 1500 | 474MWR152KJ    | 25               | 24x34         | 1      |
| 0.68             | 50   | 684MWR050K     | 9                | 6x11.5        | 0.6    |
| 0.68             | 63   | 684MWR063K     | 7                | 6.5x19        | 0.6    |
| 0.68             | 100  | 684MWR100K     | 3                | 8x19          | 0.6    |
| 0.68             | 250  | 684MWR250K     | 4                | 9.5x27        | 0.8    |
| 0.68             | 400  | 684MWR400K     | 4                | 12.5x34       | 0.8    |
| 0.68             | 630  | 684MWR630K     | 6                | 18.5x34       | 0.8    |
| 0.68             | 1500 | 684MWR152KN    | 25               | 24.5x46.5     | 1      |
| 1                | 50   | 105MWR050K     | 9                | 7.5x11.5      | 0.6    |
| 1                | 63   | 105MWR063K     | 7                | 8x20.5        | 0.6    |
| 1                | 100  | 105MWR100K     | 3                | 9.5x19        | 0.8    |
| 1                | 250  | 105MWR250K     | 4                | 10.5x27       | 0.8    |
| 1                | 400  | 105MWR400K     | 4                | 14.5x34       | 0.8    |
| 1                | 630  | 105MWR630K     | 6                | 22x34         | 1      |
| 1                | 1500 | 105MWR152KN    | 25               | 28.5x46.5     | 1      |
| 1.5              | 50   | 155MWR050K     | 9                | 8x14.5        | 0.6    |
| 1.5              | 63   | 155MWR063K     | 7                | 9.5x20.5      | 0.8    |
| 1.5              | 100  | 155MWR100K     | 2                | 9x27          | 0.8    |
| 1.5              | 250  | 155MWR250K     | 4                | 12.5x29       | 0.8    |
| 1.5              | 400  | 155MWR400K     | 4                | 17.5x34       | 0.8    |
| 1.5              | 630  | 155MWR630K     | 6                | 26.5x34       | 1      |
| 1.5              | 1500 | 155MWR152KN    | 25               | 34x46.5       | 1      |
| 2.2              | 50   | 225MWR050K     | 9                | 9x14.5        | 0.8    |
| 2.2              | 63   | 225MWR063K     | 5                | 10.5x29       | 0.8    |
| 2.2              | 100  | 225MWR100K     | 2                | 12x29         | 0.8    |
| 2.2              | 250  | 225MWR250K     | 2                | 13.5x34       | 0.8    |
| 2.2              | 400  | 225MWR400K     | 2                | 20.5x34       | 0.8    |
| 3.3              | 50   | 335MWR050K     | 6                | 10x20.5       | 0.8    |
| 3.3              | 63   | 335MWR063K     | 5                | 11x29         | 0.8    |
| 3.3              | 100  | 335MWR100K     | 2                | 13x29         | 0.8    |
| 3.3              | 250  | 335MWR250K     | 2                | 16x34         | 0.8    |
| 3.3              | 400  | 335MWR400K     | 2                | 22.5x47       | 1      |
| 4.7              | 50   | 475MWR050K     | 6                | 10.5x20.5     | 0.8    |
| 4.7              | 63   | 475MWR063K     | 5                | 12.5x29       | 0.8    |
| 4.7              | 100  | 475MWR100K     | 4                | 12.5x34       | 0.8    |
| 4.7              | 250  | 475MWR250K     | 2                | 19.5x34       | 0.8    |
| 6.8              | 50   | 685MWR050K     | 6                | 11.5x20.5     | 0.8    |
| 6.8              | 100  | 685MWR100K     | 2                | 17x34         | 0.8    |

# MWR

## Metallized Polyester Axial Lead

| Capacitance<br>( $\mu$ F) | WVDC | IC PART NUMBER    | dv/dt<br>(v/ $\mu$ sec.) | Dims DxL<br>(mm) | d (MM) |
|---------------------------|------|-------------------|--------------------------|------------------|--------|
| 6.8                       | 250  | <b>685MWR250K</b> | 5                        | 23x34            | 1      |
| 10                        | 50   | <b>106MWR050K</b> | 6                        | 13.5x20.5        | 0.8    |
| 10                        | 63   | <b>106MWR063K</b> | 4                        | 14x34            | 0.8    |
| 10                        | 100  | <b>106MWR100K</b> | 2                        | 18x34            | 0.8    |

| Capacitance<br>( $\mu$ F) | WVDC | IC PART NUMBER    | dv/dt<br>(v/ $\mu$ sec.) | Dims DxL<br>(mm) | d (MM) |
|---------------------------|------|-------------------|--------------------------|------------------|--------|
| 10                        | 250  | <b>106MWR250K</b> | 2                        | 24.5x46.5        | 1      |
| 15                        | 100  | <b>156MWR100K</b> | 2                        | 21x34            | 1      |
| 22                        | 100  | <b>226MWR100K</b> | 2                        | 22x46            | 1      |