

#### FEATURES

Small Size - Self Healing - Low Cost

#### APPLICATIONS

General Purpose - Bypass - Coupling - Blocking

|                                                                           |                                                             |     |                    |                                 |                       |      |  |
|---------------------------------------------------------------------------|-------------------------------------------------------------|-----|--------------------|---------------------------------|-----------------------|------|--|
| Operating Temperature Range                                               | <b>-55°C to +125°C</b>                                      |     |                    |                                 |                       |      |  |
| Capacitance Tolerance                                                     | ±10% at 1 kHz, 25°C<br>+5% optional                         |     |                    |                                 |                       |      |  |
| Peak, AC voltage (50/60 Hz)                                               | WVDC                                                        | 100 | 250                | 400                             | 630                   | 1000 |  |
|                                                                           | VAC                                                         | 63  | 160                | 200                             | 220                   | 250  |  |
|                                                                           | For T>+85°C , The voltage must be decreased by 1.25% per °C |     |                    |                                 |                       |      |  |
| Dissipation Factor (MAX)<br>25°C                                          | Frequency (kHz)                                             |     | Dissipation Factor |                                 |                       |      |  |
|                                                                           | 1                                                           |     | 1.0%               |                                 |                       |      |  |
|                                                                           | 10                                                          |     | 1.5%               |                                 |                       |      |  |
| Insulation Resistance<br>@25°C (<70% RH)for 1 minute at<br>100VDC applied | WVDC                                                        |     | Capacitance        |                                 | Insulation Resistance |      |  |
|                                                                           | ≤100                                                        |     | ≤0.33μF            |                                 | 15000 MΩ              |      |  |
|                                                                           | >100                                                        |     | >0.33μF            |                                 | 30000 MΩ              |      |  |
|                                                                           | ≤100                                                        |     | ≤0.33μF            |                                 | 5000 MΩxμF            |      |  |
|                                                                           | >100                                                        |     | >0.33μF            |                                 | 10000 MΩxμF           |      |  |
| Load Life                                                                 | 2000 Hours, +85C with 125% of rated voltage                 |     |                    |                                 |                       |      |  |
|                                                                           | Capacitance Change                                          |     |                    | ≤5% of initially measured value |                       |      |  |
|                                                                           | Dissipation Factor                                          |     |                    | ≤0.005 at 1kHz and 25°C         |                       |      |  |
|                                                                           | Insulation Resistance                                       |     |                    | ≥50% of maximum specified value |                       |      |  |
| Damp Heat test                                                            | 1000 Hours, 93%RH(+/-2%), +40°C 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 <75%RH                          |     |                    |                                 |                       |      |  |
| Capacitance Temperature Coefficient                                       | +400 ppm/°C, ±200ppm/°C                                     |     |                    |                                 |                       |      |  |
| Dielectric Strength                                                       | Terminal to Terminal                                        |     |                    |                                 |                       |      |  |
|                                                                           | 160% of VDC applied for 5 Seconds and 25°C                  |     |                    |                                 |                       |      |  |
| Dielectric Construction                                                   | Polyester<br>Metallized film                                |     |                    |                                 |                       |      |  |
| Coating                                                                   | Flame Retardant epoxy resin (UL94V0)                        |     |                    |                                 |                       |      |  |
| Leads                                                                     | Lead free tinned                                            |     |                    |                                 |                       |      |  |



|         |      |     |      |      |      |
|---------|------|-----|------|------|------|
| L MAX   | 10.5 | 12  | 18.5 | 26   | 31   |
| S+1.0   | 7.5  | 10  | 15   | 22.5 | 27.5 |
| G MAX   | 1.5  | 1.5 | 1.5  | 1.5  | 1.5  |
| d +0.05 | 0.6  | 0.6 | 0.8  | 0.8  | 0.8  |

# MSR

## Metallized Polyester Epoxy Dipped Radial Lead

| WVDC | Capacitance<br>( $\mu$ F) | IC PART NUMBER             | dv/dt<br>(V/ $\mu$ sec.) | Dims LxHxT (mm) | S (MM) | d (MM) |
|------|---------------------------|----------------------------|--------------------------|-----------------|--------|--------|
| 100  | 0.047                     | <a href="#">473MSR100K</a> | 35                       | 10.5x9.5x6      | 7.5    | 0.6    |
| 100  | 0.068                     | <a href="#">683MSR100K</a> | 35                       | 10.5x9.5x6      | 7.5    | 0.6    |
| 100  | 0.1                       | <a href="#">104MSR100K</a> | 30                       | 12.5x8.5x5.5    | 10     | 0.6    |
| 100  | 0.15                      | <a href="#">154MSR100K</a> | 30                       | 13x9x5.5        | 10     | 0.6    |
| 100  | 0.22                      | <a href="#">224MSR100K</a> | 30                       | 13x10x6.5       | 10     | 0.6    |
| 100  | 0.33                      | <a href="#">334MSR100K</a> | 20                       | 17.5x10x5.5     | 15     | 0.8    |
| 100  | 0.47                      | <a href="#">474MSR100K</a> | 20                       | 18x11x7         | 15     | 0.8    |
| 100  | 0.68                      | <a href="#">684MSR100K</a> | 20                       | 18.5x12.5x7.5   | 15     | 0.8    |
| 100  | 1                         | <a href="#">105MSR100K</a> | 20                       | 18.5x13.5x8.5   | 15     | 0.8    |
| 100  | 1.5                       | <a href="#">155MSR100K</a> | 10                       | 22.5x14.5x8     | 20     | 0.8    |
| 100  | 2.2                       | <a href="#">225MSR100K</a> | 10                       | 22.5x16.5x10    | 20     | 0.8    |
| 100  | 3.3                       | <a href="#">335MSR100K</a> | 10                       | 22.5x20x12      | 20     | 0.8    |
| 100  | 4.7                       | <a href="#">475MSR100K</a> | 5                        | 30x20.5x11      | 27.5   | 0.8    |
| 100  | 6.8                       | <a href="#">685MSR100K</a> | 5                        | 32x23.5x14.5    | 27.5   | 0.8    |
| 100  | 10                        | <a href="#">106MSR100K</a> | 5                        | 32x28.5x17.5    | 27.5   | 0.8    |
| 250  | 0.015                     | <a href="#">153MSR250K</a> | 110                      | 10.5x9.5x5.5    | 7.5    | 0.6    |
| 250  | 0.022                     | <a href="#">223MSR250K</a> | 110                      | 10.5x9.5x5.5    | 7.5    | 0.6    |
| 250  | 0.033                     | <a href="#">333MSR250K</a> | 110                      | 10.5x9.5x6      | 7.5    | 0.6    |
| 250  | 0.047                     | <a href="#">473MSR250K</a> | 110                      | 12.5x9x5        | 10     | 0.6    |
| 250  | 0.068                     | <a href="#">683MSR250K</a> | 110                      | 12.5x10x5       | 10     | 0.6    |
| 250  | 0.1                       | <a href="#">104MSR250K</a> | 110                      | 13x10x6.5       | 10     | 0.6    |
| 250  | 0.15                      | <a href="#">154MSR250K</a> | 110                      | 13x13x7         | 10     | 0.6    |
| 250  | 0.22                      | <a href="#">224MSR250K</a> | 45                       | 18x11.5x6       | 15     | 0.8    |
| 250  | 0.33                      | <a href="#">334MSR250K</a> | 45                       | 18.5x12x7       | 15     | 0.8    |
| 250  | 0.47                      | <a href="#">474MSR250K</a> | 20                       | 22.5x12.5x7.5   | 20     | 0.8    |
| 250  | 0.68                      | <a href="#">684MSR250K</a> | 20                       | 22.5x13.5x8.5   | 20     | 0.8    |
| 250  | 1                         | <a href="#">105MSR250K</a> | 20                       | 22.5x15x10      | 20     | 0.8    |
| 250  | 1.5                       | <a href="#">155MSR250K</a> | 15                       | 30x17.5x9.5     | 27.5   | 0.8    |
| 250  | 2.2                       | <a href="#">225MSR250K</a> | 15                       | 30.5x22x12      | 27.5   | 0.8    |
| 400  | 0.01                      | <a href="#">103MSR400K</a> | 160                      | 10.5x9x5.5      | 7.5    | 0.6    |
| 400  | 0.015                     | <a href="#">153MSR400K</a> | 160                      | 10.5x9.5x5.5    | 7.5    | 0.6    |
| 400  | 0.022                     | <a href="#">223MSR400K</a> | 160                      | 13x9.5x6        | 10     | 0.6    |

| WVDC | Capacitance<br>( $\mu$ F) | IC PART NUMBER             | dv/dt<br>(V/ $\mu$ sec.) | Dims LxHxT (mm) | S (MM) | d (MM) |
|------|---------------------------|----------------------------|--------------------------|-----------------|--------|--------|
| 400  | 0.033                     | <a href="#">333MSR400K</a> | 160                      | 13x10.5x6.5     | 10     | 0.6    |
| 400  | 0.047                     | <a href="#">473MSR400K</a> | 160                      | 13x11x7         | 10     | 0.6    |
| 400  | 0.068                     | <a href="#">683MSR400K</a> | 65                       | 17.5x10x5.5     | 15     | 0.8    |
| 400  | 0.1                       | <a href="#">104MSR400K</a> | 65                       | 18.5x12x7       | 15     | 0.8    |
| 400  | 0.15                      | <a href="#">154MSR400K</a> | 65                       | 18.5x13.5x8     | 15     | 0.8    |
| 400  | 0.22                      | <a href="#">224MSR400K</a> | 30                       | 22.5x14.5x8     | 20     | 0.8    |
| 400  | 0.33                      | <a href="#">334MSR400K</a> | 30                       | 22.5x15x9       | 20     | 0.8    |
| 400  | 0.47                      | <a href="#">474MSR400K</a> | 30                       | 23.5x19x10.5    | 20     | 0.8    |
| 400  | 0.68                      | <a href="#">684MSR400K</a> | 25                       | 32x19x12        | 27.5   | 0.8    |
| 400  | 1                         | <a href="#">105MSR400K</a> | 25                       | 30.5x21x12.5    | 27.5   | 0.8    |
| 630  | 0.01                      | <a href="#">103MSR630K</a> | 200                      | 13x10x6         | 10     | 0.6    |
| 630  | 0.015                     | <a href="#">153MSR630K</a> | 200                      | 13x10.5x6.5     | 10     | 0.6    |
| 630  | 0.022                     | <a href="#">223MSR630K</a> | 200                      | 13x12.5x7.5     | 10     | 0.6    |
| 630  | 0.033                     | <a href="#">333MSR630K</a> | 90                       | 18.5x12x6.5     | 15     | 0.8    |
| 630  | 0.047                     | <a href="#">473MSR630K</a> | 90                       | 18x12.5x7.5     | 15     | 0.6    |
| 630  | 0.068                     | <a href="#">683MSR630K</a> | 90                       | 18.5x14x8.5     | 15     | 0.8    |
| 630  | 0.1                       | <a href="#">104MSR630K</a> | 90                       | 18.5x15.5x10    | 15     | 0.8    |
| 630  | 0.15                      | <a href="#">154MSR630K</a> | 35                       | 22.5x16.5x9.5   | 20     | 0.8    |
| 630  | 0.22                      | <a href="#">224MSR630K</a> | 35                       | 22.5x19x11.5    | 20     | 0.8    |
| 630  | 0.33                      | <a href="#">334MSR630K</a> | 30                       | 32x19x12        | 27.5   | 0.8    |
| 630  | 0.47                      | <a href="#">474MSR630K</a> | 30                       | 32x22x13.5      | 27.5   | 0.8    |
| 630  | 0.68                      | <a href="#">684MSR630K</a> | 30                       | 33x24.5x14      | 27.5   | 0.8    |
| 1000 | 0.01                      | <a href="#">103MSR102K</a> | 80                       | 14x11.5x7       | 10     | 0.6    |
| 1000 | 0.015                     | <a href="#">153MSR102K</a> | 80                       | 14x11.5x8       | 10     | 0.6    |
| 1000 | 0.022                     | <a href="#">223MSR102K</a> | 40                       | 19x12.5x8.5     | 15     | 0.8    |
| 1000 | 0.033                     | <a href="#">333MSR102K</a> | 40                       | 19.5x14x9.5     | 15     | 0.8    |
| 1000 | 0.047                     | <a href="#">473MSR102K</a> | 33                       | 27x14x9         | 22.5   | 0.8    |
| 1000 | 0.068                     | <a href="#">683MSR102K</a> | 33                       | 27x15x10        | 22.5   | 0.8    |
| 1000 | 0.1                       | <a href="#">104MSR102K</a> | 33                       | 27x16.5x11.5    | 22.5   | 0.8    |
| 1000 | 0.22                      | <a href="#">224MSR102K</a> | 20                       | 32.5x22.5x14.5  | 27.5   | 0.8    |
| 1000 | 0.33                      | <a href="#">334MSR102K</a> | 20                       | 32.5x25.5x16    | 27.5   | 0.8    |
| 1000 | 0.47                      | <a href="#">474MSR102K</a> | 20                       | 32.5x26.5x18.5  | 27.5   | 0.8    |