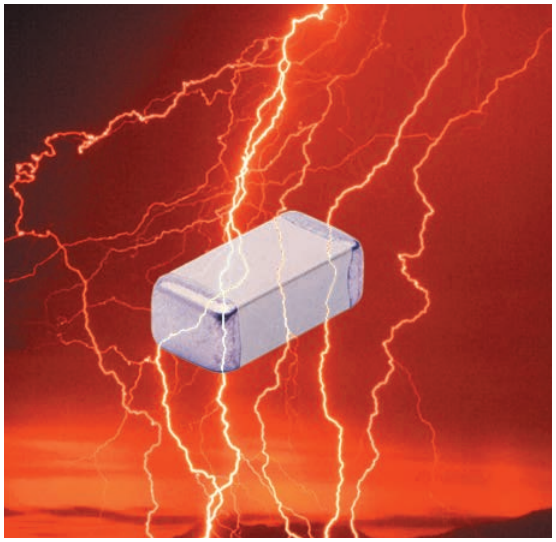
# High Voltage Surface Mount MLCCs 250 - 6,000 VDC



These high voltage capacitors feature a special internal electrode design which reduces voltage concentrations by distributing voltage gradients throughout the entire capacitor.
This unique design also affords increased capacitance values in a given case size and voltage rating. The capacitors are designed and manufactured to the general requirement of EIA198 and are subjected to a 100% electrical testing making them well suited for a wide variety of telecommunication, commercial, and industrial applications.

## Applications

- Analog & Digital Modems
- Lighting Ballast Circuits
- DC-DC Converters
- LAN/WAN Interface
- Voltage Multipliers
- Back-lighting Inverters

Polyterm® soft termination option for demanding environments & processes available on select parts, please contact the factory.

## Case Size

| JDI /EIA | | INCHES | (MM) |
|---|---|---|---|
| R15/0805 | L | .080 ±.010 | (2.03 ±.25) |
| | W | .050 ±.010 | (1.27 ±.25) |
| | T | .055 Max. | (1.40) |
| | E/B | .020 ±.010 | (0.51±.25) |
| R18/1206 | L | .125 ±.010 | (3.17 ±.25) |
| | W | .062 ±.010 | (1.57 ±.25) |
| | T | .067 Max. | (1.70) |
| | E/B | .020 ±.010 | (0.51±.25) |
| S41/1210 | L | .125 ±.010 | (3.18 ±.25) |
| | W | .095 ±.010 | (2.41 ±.25) |
| | T | .080 Max. | (2.03) |
| | E/B | .020 ±.010 | (0.51±.25) |
| R29/1808 | L | .185 ±.020 | (4.70 ±.51) |
| | W | .080 ±.010 | (2.03 ±.25) |
| | T | .085 Max. | (2.16) |
| | E/B | .020 ±.010 | (0.51±.25) |

## Capacitance Selection

| Rated Voltage | NP0 Dielectric | | X7R Dielectric | |
|---|---|---|---|---|
| | Minimum | Maximum | Minimum | Maximum |
| 250 VDC | - | - | 1000 pF | 0.022 µF |
| 500 VDC | 10 pF | 680 pF | 1000 pF | 0.010 µF |
| 630 VDC | 10 pF | 560 pF | 1000 pF | 6800 pF |
| 1000 VDC | 10 pF | 390 pF | 100 pF | 2700 pF |
| 250 VDC | - | - | 1000 pF | 0.068 µF |
| 500 VDC | 10 pF | 1500 pF | 1000 pF | 0.033 µF |
| 630 VDC | 10 pF | 1200 pF | 1000 pF | 0.027 µF |
| 1000 VDC | 10 pF | 1000 pF | 100 pF | 0.010 µF |
| 2000 VDC | 10 pF | 220 pF | 100 pF | 4700 pF |
| 3000 VDC | 10 pF | 82 pF | 100 pF | 1000 pF |
| 250 VDC | - | - | 1000 pF | 0.150 µF |
| 500 VDC | 10 pF | 3900 pF | 1000 pF | 0.068 µF |
| 630 VDC | 10 pF | 2700 pF | 1000 pF | 0.047 µF |
| 1000 VDC | 10 pF | 1800 pF | 100 pF | 0.015 µF |
| 2000 VDC | 10 pF | 560 pF | 100 pF | 4700 pF |
| 3000 VDC | 10 pF | 220 pF | 100 pF | 1000 pF |
| 500 VDC | 10 pF | 4700 pF | 1000 pF | 0.100 µF |
| 630 VDC | 10 pF | 3300 pF | 1000 pF | 0.047 µF |
| 1000 VDC | 1.0 pF | 2200 pF | 100 pF | 0.022 µF |
| 2000 VDC | 1.0 pF | 820 pF | 100 pF | 0.010 µF |
| 3000 VDC | 1.0 pF | 470 pF | 100 pF | 3300 pF |
| 4000 VDC | 1.0 pF | 180 pF | 100 pF | 1800 pF |
| 5000 VDC | 1.0 pF | 75 pF | 47 pF | 390 pF |
| 6000 VDC | 1.0 pF | 75 pF | 47 pF | 150 pF |

Available cap. values include these significant retma values and their multiples: 1.0 1.2 1.5 1.8 2.2 2.7 3.3 3.9 4.7 5.6 6.8 8.2
( 1.0 = 1.0, 10, 100, 1000, etc.) Consult factory for non-retma values and sizes or voltages not shown.

# High Voltage Surface Mount MLCCs 250 - 6,000 VDC

RoHS

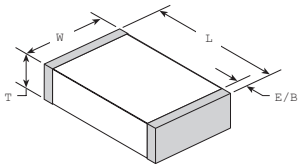
## Case Size

| JDI /EIA | | INCHES | (MM) |
|---|---|---|---|
| **S43 / 1812** | | | |
| | L | .177 ±.012 | (4.50 ±.30) |
| | W | .125 ±.010 | (3.17 ±.25) |
| | T | .110 Max. | (2.80) |
| | E/B | .025 ±.015 | (0.64±.38) |
| **S49 / 1825** | | | |
| | L | .180 ±.010 | (4.57 ±.25) |
| | W | .250 ±.010 | (6.35 ±.25) |
| | T | .140 Max. | (3.56) |
| | E/B | .025 ±.015 | (0.64±.38) |
| **S47 / 2220** | | | |
| | L | .225 ±.015 | (5.72 ±.38) |
| | W | .200 ±.015 | (5.08 ±.38) |
| | T | .150 Max. | (3.81) |
| | E/B | .025 ±.015 | (0.64±.38) |
| **S48 / 2225** | | | |
| | L | .225 ±.010 | (5.72 ±.25) |
| | W | .255 ±.015 | (6.48 ±.38) |
| | T | .160 Max. | (4.06) |
| | E/B | .025 ±.015 | (0.64±.38) |

## Capacitance Selection

| RATED VOLTAGE | NP0 DIELECTRIC | | X7R DIELECTRIC | |
|---|---|---|---|---|
| | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM |
| 250 VDC | - | - | 0.010 µF | 0.470 uF |
| 500 VDC | 100 pF | 8200 pF | 1000 pF | 0.330 uF |
| 630 VDC | 100 pF | 6800 pF | 1000 pF | 0.120 µF |
| 1000 VDC | 10 pF | 5600 pF | 1000 pF | 0.100 µF |
| 2000 VDC | 10 pF | 1800 pF | 100 pF | 0.010 µF |
| 3000 VDC | 10 pF | 1000 pF | 100 pF | 4700 pF |
| 4000 VDC | 10 pF | 390 pF | 100 pF | 1200 pF |
| 5000 VDC | 10 pF | 150 pF | 100 pF | 820 pF |
| 6000 VDC | 10 pF | 150 pF | 10 pF | 330 pF |
| 500 VDC | 100 pF | 0.018 µF | 0.01 µF | 0.390 µF |
| 630 VDC | 100 pF | 0.015 µF | 0.01 µF | 0.270 µF |
| 1000 VDC | 10 pF | 0.012 µF | 1000 pF | 0.180 µF |
| 2000 VDC | 10 pF | 5600 pF | 100 pF | 0.039 µF |
| 3000 VDC | 10 pF | 2200 pF | 100 pF | 8200 pF |
| 4000 VDC | 10 pF | 1200 pF | 100 pF | 2200 pF |
| 5000 VDC | 10 pF | 390 pF | 100 pF | 1500 pF |
| 6000 VDC | 10 pF | 390 pF | 100 pF | 820 pF |
| 500 VDC | 1000 pF | 0.018 µF | 0.01 µF | 0.470 µF |
| 630 VDC | 1000 pF | 0.018 µF | 0.01 µF | 0.270 µF |
| 1000 VDC | 100 pF | 0.015 µF | 1000 pF | 0.120 µF |
| 2000 VDC | 100 pF | 5600 pF | 1000 pF | 0.039 µF |
| 3000 VDC | 10 pF | 2700 pF | 100 pF | 0.010 µF |
| 4000 VDC | 10 pF | 1500 pF | 100 pF | 2700 pF |
| 5000 VDC | 10 pF | 470 pF | 100 pF | 1500 pF |
| 6000 VDC | 10 pF | 470 pF | 100 pF | 820 pF |
| 500 VDC | 1000 pF | 0.027 µF | 0.01 µF | 0.560 µF |
| 630 VDC | 1000 pF | 0.022 µF | 0.01 µF | 0.390 µF |
| 1000 VDC | 100 pF | 0.018 µF | 1000 pF | 0.180 µF |
| 2000 VDC | 100 pF | 8200 pF | 1000 pF | 0.056 µF |
| 3000 VDC | 10 pF | 3300 pF | 100 pF | 0.012 µF |
| 4000 VDC | 10 pF | 1800 pF | 100 pF | 3300 pF |
| 5000 VDC | 10 pF | 470 pF | 100 pF | 2700 pF |
| 6000 VDC | 10 pF | 470 pF | 100 pF | 1200 pF |

Available cap. values include these significant retma values and their multiples: 1.0 1.2 1.5 1.8 2.2 2.7 3.3 3.9 4.7 5.6 6.8 8.2
( 1.0 = 1.0, 10, 100, 1000, etc.) Consult factory for non-retma values and sizes or voltages not shown.




## Electrical Characteristics

Meets the standard NP0 & X7R dielectric specifications listed on page 39

**DIELECTRIC WITHSTANDING VOLTAGE** DWV = 1.5 X rated WVDC for ratings 500-999 WVDC,
DWV = 1.2 X rated WVDC for ratings ≥ 1,000 WVDC

NOTE: Capacitors may require a surface coating to prevent external arcing. Solder mask should not be used beneath capacitors. For more information see JDI Tech Note "Surface Arc Season"

## How to Order High Voltage Surface Mount

P/N written: 202R18W102KV4E

| 202 | R18 | W | 102 | K | V | 4 | E |
|---|---|---|---|---|---|---|---|
| **VOLTAGE** | **SIZE** | **DIELECTRIC** | **CAPACITANCE** | **TOLERANCE** | **TERMINATION** | **MARKING** | **PACKING** |
| 501 = 500 V<br>631 = 630 V<br>102 = 1000 V<br>202 = 2000 V<br>302 = 3000 V<br>402 = 4000 V<br>502 = 5000 V<br>602 = 6000 V | R15 = 0805<br>R18 = 1206<br>R29 = 1808<br>S41 = 1210<br>S43 = 1812<br>S47 = 2220<br>S48 = 2225<br>S49 = 1825 | N = NP0<br>W = X7R | 1st two digits are significant; third digit denotes number of zeros.<br>102 = 1000 pF<br>104 = 0.10 µF | J = ± 5%<br>K = ± 10%<br>M = ± 20% | V = NI Barrier with 100% Sn Plating (Matte)<br>F = Polyterm flexible termination<br>T = SnPb | 4 = Unmarked<br>6 = EIA Code | E = Embossed 7"<br>T = Punched 7"<br>No code = bulk<br>Tape specs. per EIA RS481 |

# Mouser Electronics

Authorized Distributor

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Johanson:

501S43W153KF4E 501R18W103KV4E 202S43W102KV4E 102S41W103KV4E 102S43W473KV4E
302R29W102KV4E 202S43W472KV4E 202R18W102MV4E 202R18N220KV4E 102R18W102KV4E
102R18N101JV4E 202S41W332KV4E 202R29W222KV4E 501R18N101KV4E 102R29W183KV4E
501R18W102MV4E 102R18W472KV4E 102R18W511KV4E 202R18W471KV4E 102R18W222KV4E
501R18N102JV4E 202S41N331JV4E 302S43N221KV4E 102R18N151JV4E 102R15N330KV4E 202S43W682KV4E
202R18N221JV4E 102S43W473MV4E 631R18W103KV4E 102S41W562KV4E 102R15W102KV4E
501S41W333KV4E 202S43W332KV4E 202R18N151JV4E 631R18W472KV4E 102S41W103MV4E
102R29W102KV4E 202S43W103KV4E 501S41N102JV4E 202S41W272KV4E 501R18W102KV4E
102R18W101KV4E 302R29N150JV4E 202R29W102KV4E 102R18W222MV4E 202R18N470JV4E
302S43W102KV4E 202S43N102KV4E 501R15W102KV4E 501R18W471KV4E 202S49W682KV4E
501S41W472KV4E 202R18W102KV4E 202S49W103KV4E 501R15N470JV4T 202S43W472KF4E
102S49W154MF4E 501S43W223KF4E 102R29W103KV4E 202S48W223KF4E 202S48W393KF4E
202S41W102KF4E 501R15W103KV4E 202S43N221KF4E 202S49W682MV4E 302S43W222JF4E
202S49W223KV4E 202R18N101JV4E 501S43W104KV4E 102S43W473KF4E 501R15N101JV4T 302R29N220JF4E
501S41W333KF4E 202S43W103MV4E 102R15W102KF4E 202S43W472MF4E 202R18N680KF4E
202S41W222KV4E 101S41J335MF4E 102R18N220JV4E 202R18N680JF4E 102S47W223KF4E
102S47W184MF4E 500S41J106KF4E 501S41W223MF4E 631R18W103KF4E 202S41W102KV4E
501S49W104KF4E 631R18N221JF4E 302S43W332KV4E 501S47W474KF4E 202S49W103MV4E
101S41J475MF4E 501S43W473KF4E 302R29W331KF4E 102S47W184KF4E 102S49W154KF4E
501S41W473KF4E 501S41W223KF4E 202S48W223MF4E