



PRODUCT SELECTOR

| Aluminum Electrolytic Capacitors | | | | | | | |
|---|---------------|------------|-----------------|--------------|--|---|----------|
| SERIES | CAPACITANCE | WVDC | TEMP. RANGE | LOAD LIFE | FEATURES | APPLICATIONS | Pages |
| Series Chart | | | | | | | 5 |
| General Specifications | | | | | | | 6 |
| Standard Test Methods | | | | | | | 7 |
| Supercapacitors | | | | | | | |
| *DCN | 1.5 to 400F | 2.7 to 5.4 | -20°C to +70°C | 10 Years | High capacitance | Battery alternative, valve actuation, car stereo systems, electric vehicles | 8-9 |
| DLR | 4F to 220F | 2.3 to 2.5 | -20°C to +70°C | 1000 | High capacitance | Battery alternative, valve actuation, car stereo systems, electric vehicles | 10-11 |
| Application guidelines for Supercapacitors | | | | | | | 12-13 |
| Aluminum Polymer Capacitors | | | | | | | |
| AFA | 47 to 22 | 2.5 to 16 | -55°C to +105°C | 2000 | Very Low ESR, Temperature stable, High frequency | Switching power supplies Audio video, microprocessors | Internet |
| AFB | 100 to 2700 | 2.5 to 16 | -55°C to +105°C | 2000 | Very Low ESR, Temperature stable, High frequency | Switching power supplies Audio video, microprocessors | Internet |
| Aluminum Electrolytic Capacitors | | | | | | | |
| Surface Mount | | | | | | | |
| SML | .47 to 1000 | 4 to 100 | -40°C to +85°C | 1000 | Vertical Chip | General Purpose, Filtering, blocking bypass | 14-16 |
| SMH | .47 to 470 | 6.3 to 50 | -55°C to +105°C | 1000 | Extended Temperature, Vertical chip | General Purpose, Filtering, blocking bypass | 17-18 |
| AXZ | 4.7 to 1500 | 6.3 to 50 | -55°C to +105°C | 2000 | Low Impedance-High Ripple Current | Switching power supplies, input filtering | 19-21 |
| *ACZ | 4.7 to 1500 | 6.3 to 50 | -55°C to +105°C | 1000 to 2000 | Low impedance, High ripple Current | Switching power supplies, input filtering | 22-24 |
| NPS | .1 to 47 | 6.3 to 50 | -40°C to +85°C | 1000 | Polarity Reversing, Crossovers Circuits | Speaker Crossovers, polarity reversing circuits | 25-26 |
| UCA | 10 to 330 | 10 to 50 | -40°C to +125°C | 1000 to 2000 | High Temperature | General purpose | Internet |
| LCA | 0.1 to 100 | 6.3 to 50 | -40°C to +85°C | 2000 | Low leakage | Timing, Tantalum Alternative | Internet |
| GAZ | 1 to 100 | 6.3 to 50 | -55°C to +105°C | 1000 | Low Impedance-High Ripple Current-low profile | Switching power supplies, input filtering | Internet |
| NCN | .1 to 47 | 6.3 to 50 | -40°C to +105°C | 1000 | Polarity Reversing, Crossover Circuits | Speaker Crossovers, polarity reversing circuits | Internet |
| Tape and Reel Specifications | | | | | | | 27 |
| Soldering Profile and Land Pattern | | | | | | | 28 |
| Special Order Options for Leaded Electrolytic Capacitors/ Taping suffixes | | | | | | | 29 |
| Axial Taping | | | | | | | 30 |
| Radial Taping | | | | | | | 31 |
| Radial cut and form | | | | | | | 32 |
| Radial Lead Capacitors | | | | | | | |
| General Purpose | | | | | | | |
| CKR/CKS | 0.1 to 22,000 | 6.3 to 450 | -40°C to +85°C | 2000 | General Purpose | General Purpose, Filtering, blocking bypass | 33-37 |
| SAK | 1 to 10,000 | 6.3 to 400 | -40°C to +85°C | 2000 | Low Profile | General Purpose, Filtering, blocking bypass | 38-40 |
| RSS | 1.0 to 2200 | 6.3 to 50 | -40°C to +85°C | 1000 | Small Size | General Purpose, Filtering, blocking bypass | 41-42 |
| PUM | 4.7 to 220 | 6.3 to 50 | -40°C to +85°C | 1000 | High C/V, Small Size | General Purpose, Filtering, blocking bypass | 43-44 |
| CKH/CKE | 0.1 to 22,000 | 6.3 to 450 | -55°C to +105°C | 2000 | Extended Life | General Purpose, Filtering, blocking bypass | 45-50 |
| FXM | 0.1 to 10,000 | 6.3 to 400 | -55°C to +105°C | 1000 | Low Profile, High temperature | General Purpose, Filtering, blocking bypass | 51-54 |
| SVF | 0.1 to 50 | 4 to 50 | -40°C to +85°C | 1000 | 5mm height General Purpose | General Purpose, Filtering, blocking bypass | Internet |
| PGM | 0.1 to 100 | 6.3 to 50 | -55°C to +105°C | 1000 | Extended Temperature (+105°C) 7mm height | General Purpose, Filtering, blocking bypass | Internet |
| STF | 0.1 to 100 | 4 to 50 | -55°C to +105°C | 1000 | General Purpose, 5mm height | General Purpose, Filtering, blocking bypass | Internet |
| HSM | 1 to 4700 | 10 to 63 | -40°C to +125°C | 2000 | General Purpose, High Temperature | General Purpose, automotive | Internet |

* Denotes a new product





PRODUCT SELECTOR

| SERIES | CAPACITANCE | WVDC | TEMP. RANGE | LOAD LIFE | FEATURES | APPLICATIONS | Pages |
|---------------------------------------|------------------|--------------------------------|-----------------------------------|----------------|---|--|----------|
| KXM | .47 to 15,000 | 6.3 to 100 | -55°C to +105°C | 5000 | High Frequency, High reliability Low impedance | Switching power supplies, input filtering | 55-59 |
| *KBM | .47 to 15,000 | 6.3 to 100 | -55°C to +105°C | 4000 to 10000 | High Frequency, High reliability Low impedance | Switching power supplies, input filtering | 60-62 |
| RZM | .47 to 15,000 | 6.3 to 50 | -55°C to +105°C | 2000 to 3000 | Small Size-High Frequency | Switching power supplies, input filtering | 63-66 |
| RZS | 22 to 22,000 | 6.3 to 63 | -55°C to +105°C | 2000 | High Frequency, Low ESR | Switching power supplies, input filtering | 67-69 |
| TXK | 3.3 to 330 | 160 to 450 | -40°C to +105°C | 5000 | High Frequency - High Voltage | Ballast, Switching power supplies | 70-72 |
| JZM | 470 to 4700 | 6.3 to 25 | -40°C to +105°C | 2000 | Very Low ESR, Temperature stable | Switching power supplies, input filtering | Internet |
| *KFM | 6.8 to 220 | 160 to 450 | -40°C to +105°C | 8000 to 10,000 | High Frequency-High Voltage | Ballast, Switching power supplies | Internet |
| Low Leakage, Bipolar | | | | | | | |
| RLS | 0.15 to 1,000 | 6.3 to 63 | -40°C to +85°C | 2000 | Timing Circuits, Tantalum Alternative | Timing, Tantalum Alternative | 73-75 |
| BPS | .47 to 1,000 | 10 to 100 | -40°C to +85°C | 2000 | Polarity Reversing, Crossover Circuits | Speaker Crossovers, polarity reversing circuits | 76-78 |
| PLM | .1 to 100 | 6.3 to 50 | -40°C to +85°C | 1000 | Small Size-Tantalum Alternative, 7mm height | Timing, Tantalum Alternative | Internet |
| PBM | .47 to 100 | 6.3 to 50 | -40°C to +85°C | 1000 | Small Size, 7mm height | Speaker Crossovers, polarity reversing circuits | Internet |
| Axial Lead | | | | | | | |
| TTA | .47 to 22000 | 10 to 450 | -40°C to +85°C | 2000 | General Purpose | General Purpose, Filtering, blocking bypass | 79-82 |
| TMA | .47 to 22000 | 6.3 to 450 | -40°C to +105°C | 1000 | General Purpose, High Temperature | General Purpose, Filtering, blocking bypass | 83-86 |
| TLS | 0.1 to 100 | 10 to 50 | -40°C to +85°C | 2000 | Timing Circuits, Tantalum Alternative | Timing, Tantalum Alternative | 87-89 |
| BPA | .47 to 1000 | 16 to 100 | -40°C to +85°C | 2000 | Polarity Reversing, Crossover Circuits | Speaker Crossovers, | 90-91 |
| HST | .1 to 4700 | 10 to 63 | -40°C to +125°C | 2000 | General Purpose, High Temperatures | General Purpose, automotive | Internet |
| Large Can | | | | | | | |
| LBA | 47 to 47,000 | 10 to 500 | -40°C to +85°C | 2000 | High Ripple Current, Power Supplies | Filtering, energy storage | 92-96 |
| LBB | 47 to 47000 | 16 to 450 | -40°C to +85°C | 3000 | High Ripple Current, Extended Life | Power supply filtering, energy storage | 97-102 |
| *LMH | 68 to 2700 | 160 to 450 | -25°C to +105°C | 2000 | High Ripple Current, Power Supplies (+105°C) | Filtering, energy storage | 103-106 |
| LMB | 47 to 33000 | 16 to 450 | -40°C to +105°C | 3000 | High Ripple Current, Power Supplies (+105°C) | Power supply filtering, energy storage | 107-112 |
| LMX | 47 to 1800 | 200 to 450 | -25°C to +105°C | 5000 | High Ripple Current, Power Supplies (+105°C) | Power supply filtering, energy storage | 113-116 |
| LMU | 47 to 4700 | 10 to 500 | -40°C to +105°C | 2000 | High Ripple Current, Power Supplies (+105°C) | Filtering, Energy storage | Internet |
| Lugs | | | | | | | |
| LKP | 270 to 680,000 | 6.3 to 450 | -40°C to +85°C | 2000 | High Ripple Current, Power Supplies | Power supply filtering, energy storage | Internet |
| LRP | 1000 to 150,000 | 10 to 250 | -40°C to +105°C | 2000 | High Ripple Current, Power Supplies (+105°C) | Power supply filtering, energy storage | Internet |
| *LDG | up to 1.5 Farads | 6.3 to 500 | -40°C to +85°C -40°C to +105°C | 1000 to 5000 | Custom made | Power supply filtering, energy storage | 119 |
| Film Capacitor General Specifications | | | | | | | |
| Film Capacitor Series Chart | | | | | | | 120 |
| Mechanical Specifications | | | | | | | 121 |
| Axial Taping | | | | | | | 122 |
| Radial Cut and Form | | | | | | | 123 |
| Polyester Film | | | | | | | |
| Metallized | | | | | | | |
| MWR | .001 to 22 | 50 to 1500 (30 to 300) | -55°C to +125°C | 2000 | General Purpose | Bypass, Coupling, filtering, Blocking | 124-127 |
| *MTR | .001 to 150 | 63 to 1000 | -55°C to +105°C | 2000 | General Purpose | Bypass, Coupling, filtering, Blocking | Internet |
| MWS | .0015 to .47 | 2500 to 10000 (500 to 1200) | -55°C to +105°C | 2000 | General Purpose, High voltage | Voltage Multipliers, High DC voltage applications | 128-130 |

* Denotes a new product





PRODUCT SELECTOR

| SERIES | CAPACITANCE | WVDC (VAC) | TEMP. RANGE | LOAD LIFE | FEATURES | APPLICATIONS | Pages |
|--|---------------|------------------------------|-----------------|-------------|---|--|----------|
| MSR | .01 to 10 | 100 to 1000 (63 to 250) | -55°C to +125°C | 2000 | General Purpose | Bypass, Coupling, filtering, Blocking | 131-133 |
| MMR | .01 to 10 | 100 to 630 (63 to 250) | -55°C to +105°C | 1000 | General Purpose | Bypass, Coupling, filtering, Blocking | 134-135 |
| MTB | .0001 to 100 | 63 to 100 | -55°C to +105°C | 2000 | General Purpose | Bypass, Coupling, filtering, Blocking | Internet |
| Environmental Endurance Graph | | | | | | | 136-137 |
| FFR | .001 to .22 | 100(63) | -55°C to +125°C | 2000 | General Purpose | Audio, Bypass, Coupling, filtering | Internet |
| UMR | .001 to .47 | 100(63) | -25°C to +85°C | 2000 | Ceramic alternative | Audio, Bypass, Coupling | Internet |
| Metallized Polyphenylene Sulphide | | | | | | | |
| MLR | 0.1 to .36 | 100 | -40°C to +125°C | 1000 | Low loss, temperature stable | Bypass, Coupling, filtering, Blocking polycarbonate alternative | 138-139 |
| Metallized Polypropylene | | | | | | | |
| MPW | .001 to 10 | 160 to 630 | -55°C to +105°C | 2000 | General Purpose | AC Circuits, Audio, Digital, Pulse Discharge | 140-142 |
| MPR | .01 to 2.2 | 250 to 630 (200 to 250) | -55°C to +105°C | 2000 | General Purpose | AC Circuits, Audio, Digital, Pulse Discharge | 143-144 |
| Power Capacitor Selector Guide | | | | | | | 145 |
| High Frequency | | | | | | | |
| PHB | .1 to 60 | 250 to 850 (160 to 450) | -40°C to +85°C | 100000 | High Frequency-high current | Switching power supplies, Ballasts, Motor Run, Resonant Circuits | 146-152 |
| PHC | .15 to 60 | 250 to 850 (160 to 450) | -40°C to +85°C | 100000 | High frequency-high current | Switching power supplies, Ballasts, Motor Run, Resonant Circuits | 153-157 |
| *DCB | 7.5 to 55 | 700 to 1100 | -40°C to +85°C | 100000 | High frequency-high current | Switching power supplies, Ballasts, Motor Run, Resonant Circuits | Internet |
| *MHB | 1 to 60 | 370 to 800 | -40°C to +100°C | 100000 | High frequency-high current | Switching power supplies, Ballasts, Motor Run, Resonant Circuits | Internet |
| MPH | 1.0 to 30 | 100, 200, 400 | -55°C to +105°C | 1000 | High current-high frequency | High Frequency AC Circuits, High Current Power Supplies | Internet |
| MPL | 1.0 to 30 | 100, 200, 400 | -55°C to +105°C | 1000 | High current-high frequency lug terminals | High Frequency AC Circuits, High Current Power Supplies | Internet |
| High Pulse Current | | | | | | | |
| PPB | .001 to 6.8 | 250 to 2,000 (100 to 700) | -55°C to +105°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 158-161 |
| PPR | .0022 to 3.9 | 630 to 2000 | -55°C to +105°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 162-165 |
| *FPB | .001 to .22 | 630 to 2000 | -25°C to +85°C | 2000 | High dv/dt, Low ESR, High voltage | RC networks, Noise suppression Switching circuits, ballasts | 166-167 |
| *PWS | .001 to .47 | 630 to 2000 | -55°C to +105°C | 1Fit | High dv/dt | SNUBBER | 168-170 |
| Snubber | | | | | | | |
| PPA | .0047 to 6.8 | 700 to 3,000 (380 to 750) | -40°C to +85°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 171-175 |
| *FPA | .01 to 2 | 850 to 3,000 | -40°C to +85°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 176-177 |
| *FPF | .015 to 1.5 | 850 to 3,000 (380 to 750) | -40°C to +85°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 178-179 |
| PSB/RSB | 0.0047 to 5.6 | 700 to 3,000 (380 to 750) | -40°C to +85°C | 10000 | High voltage- high ripple current | Snubbers, Switching power supplies, SCR Communication | 180-188 |
| PPS | .0068 to 5.6 | 700 to 3,000 (380 to 750) | -40°C to +85°C | 10000 | High voltage-high dv/dt | Snubbers, Switching power supplies, Motor Speed Controls | Internet |
| Direct Mount Snubber | | | | | | | |
| *FPL | .1 to 3 | 1000 to 2000 | -40°C to +85°C | 2000 | High voltage - high dv/dt | Snubbers, Switching power supplies, SCR Communication | 189-195 |
| PMB/RMB | .047 to 5.6 | 700 to 3,000 (380 to 750) | -40°C to +85°C | 10000 | High current - high frequency lug terminals | IGBT Snubbers, Direct Mount | 196-199 |
| PMC | 1.5 to 60 | 250 to 700 | -40°C to +85°C | 10000 | High current - high frequency lug | Resonant Circuits, SMPS, IGBT Snubbers | Internet |
| Motor Run | | | | | | | |
| *MAR | .22 to 60 | 150 VAC to | -40°C to +85°C | 30000 | Motor Run | Motor Run | 200-203 |
| MAB | .1 to 33 | 150 VAC to 600 VAC | -25°C to +85°C | 30000 | Motor Run - safety agency approved | Motor Run Safety Approved, VAC | 204-209 |
| *ME | 1 to 45 | 170 to 600VAC | -25°C to +85°C | 600 | Motor Run-safety agency approved | Motor run, General purpose AC | Internet |
| *MER | 1 to 100 | 250VAC to 600VAC | -25°C to +70°C | 600 | Motor Run-safety agency approved | Motor run, General purpose AC | Internet |
| *MP | 1 to 40 | 250VAC to 600VAC | -25°C to +70°C | 600 to 6000 | Motor Run-safety agency approved | Motor run, General purpose AC | Internet |
| *MPRP | 1 to 100 | 250VAC to 600VAC | -25°C to +105°C | 600 to 6000 | Motor Run-safety agency approved | Motor run, General purpose AC | Internet |

* Denotes a new product





PRODUCT SELECTOR

| SERIES | CAPACITANCE | WVDC (VAC) | TEMP. RANGE | dv/dt | FEATURES | APPLICATIONS | Pages |
|----------------------------|-------------------|-------------|-----------------|-------|-----------------------------------|----------------------|----------|
| EMI/RFI suppression | | | | | | | |
| MKP | .0047 to 10 | 275/310 VAC | -40°C to +110°C | 2000 | Class X2 - safety agency approved | EMI, RFI Suppression | 210-212 |
| Ceramic Capacitors | | | | | | | |
| BCR | 1pF to 680pF | 50 | -55°C to +125°C | 1000 | Temperature stable | Tuned Circuits | Internet |
| GCR | .001 to .1 | 50 | -30°C to +85°C | 1000 | General Purpose | Bypass, Coupling | Internet |
| GHR | 100pF to 10,000pF | 1,000 | -10°C to +85°C | 1000 | General Purpose | Bypass, Coupling | Internet |
| GMR | .01 to .2 | 12 | -30°C to +85°C | 1000 | General Purpose | Bypass, Coupling | Internet |
| GQR | .001 to .01 | 500 | -30°C to +85°C | 1000 | General Purpose | Bypass, Coupling | Internet |
| Formulas | | | | | | | 213 |
| Glossary | | | | | | | 214 |
| Life Expectancy | | | | | | | 215 |
| Index | | | | | | | 216 |

* Denotes a new product

