

Type 940C through 943C Power Film Capacitors

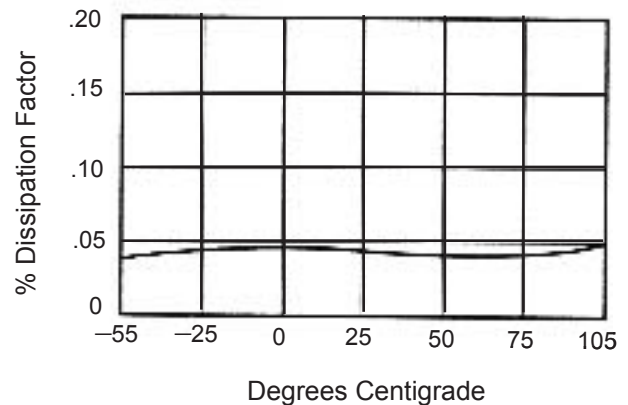
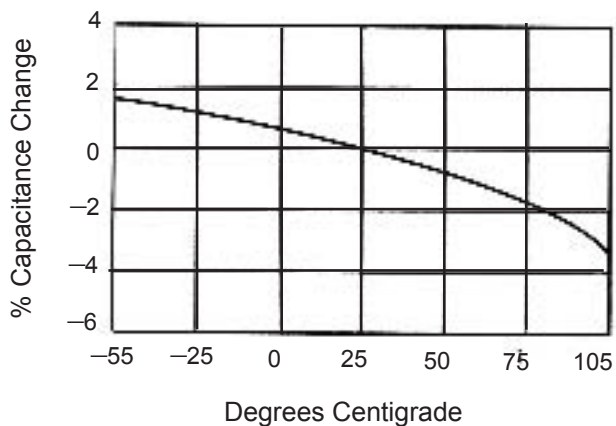
Electrical Characteristics

| | |
|--|---|
| Operating Temperature | -55 °C to +105 °C *Full rated voltage at 85 °C, derate linearly to 50% rated voltage at 105 °C |
| Capacitance tolerance | ±10% standard tolerance |
| Dissipation Factor | <0.1% at 1 kHz, 25 °C |
| Dielectric Withstand | 1.6 x rated voltage for 60 seconds |
| Insulation Resistance | >100,000 MΩ x μF at 100 Vdc measured after 2 minutes |
| Equivalent Series Resistance (ESR) | See rating tables for values |
| Equivalent Series Inductance (ESL) | See rating tables for values |
| dV/dt | See rating tables for values |
| Rated Current, I_{pk} and I_{rms} Maximum allowable current in amperes at 70 °C | See rating tables for values |
| Capacitance Temperature Coefficient | -200 ppm/°C ±100 ppm |
| Service Life | 30,000 hours @ rated Vac, 70 °C 60,000 hours @ rated Vdc, 70 °C |

Accelerated Tests

| | |
|---------------------------|--|
| Accelerated Life | 1.25 x rated DC voltage at 85 °C for 2,000 hours |
| Performance | <3% capacitance change ESR <125% of initial reading IR >50% of initial limit |
| Accelerated Pulse Testing | per IEC-384 |
| Performance | <3% in capacitance change <.003 increase in DF from initial value |

Typical Characteristics

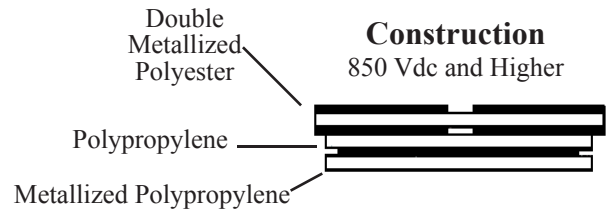


Type 940C High dV/dt, Round Polypropylene Film Capacitors

Double Metallized – Axial Leads



Type 940C round, axial leaded film capacitors have polypropylene film and dual metallized electrodes for both self healing properties and high peak current carrying capability (dV/dt). This series features low ESR characteristics, excellent high frequency and high voltage capabilities.



Specifications

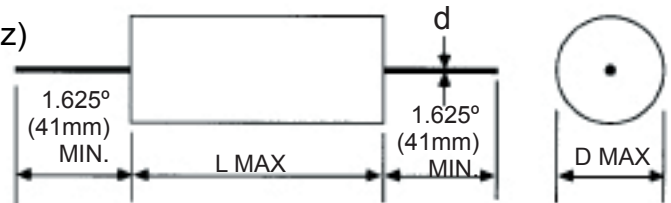
Voltage Range: 600 – 3000 Vdc (275 - 750 Vac, 60 Hz)

Capacitance Range: 0.01 – 4.7 μ F

Capacitance Tolerance: \pm 10%

Operating Temperature Range: -55 °C to 105 °C*

*Full-rated voltage at 85 °C—Derate linearly to 50%-rated voltage at 105 °C



NOTE: Refer to Application Guide for test conditions. Contact us for other capacitance values, sizes and performance specifications.



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

Ratings

| Cap. (μ F) | Catalog Part Number | D Inches (mm) | L Inches (mm) | d Inches (mm) | Typical ESR (m Ω) | Typical ESL (nH) | dV/dt V/ μ s | I peak (A) | I _{RMS} 70 °C 100 kHz (A) |
|--------------------------|---------------------|---------------|---------------|---------------|---------------------------|------------------|------------------|------------|------------------------------------|
| 600 Vdc (275 Vac) | | | | | | | | | |
| .10 | 940C6P1K-F | .354 (9.0) | 1.339 (34.0) | .032 (.8) | 28 | 19 | 196 | 20 | 2.5 |
| .15 | 940C6P15K-F | .413 (10.5) | 1.339 (34.0) | .032 (.8) | 13 | 20 | 196 | 29 | 4.0 |
| .22 | 940C6P22K-F | .453 (11.5) | 1.339 (34.0) | .032 (.8) | 12 | 20 | 196 | 43 | 4.4 |
| .33 | 940C6P33K-F | .531 (13.5) | 1.339 (34.0) | .032 (.8) | 9 | 21 | 196 | 65 | 5.6 |
| .47 | 940C6P47K-F | .610 (15.5) | 1.339 (34.0) | .040 (1.0) | 7 | 22 | 196 | 92 | 6.9 |
| .68 | 940C6P68K-F | .709 (18.0) | 1.339 (34.0) | .040 (1.0) | 6 | 23 | 196 | 134 | 8.1 |
| 1.00 | 940C6W1K-F | .827 (21.0) | 1.339 (34.0) | .040 (1.0) | 6 | 24 | 196 | 196 | 8.9 |
| 1.50 | 940C6W1P5K-F | .984 (25.0) | 1.339 (34.0) | .047 (1.2) | 5 | 26 | 196 | 295 | 10.9 |
| 2.00 | 940C6W2K-F | .925 (23.5) | 1.811 (46.0) | .047 (1.2) | 5 | 31 | 128 | 255 | 11.8 |
| 3.30 | 940C6W3P3K-F | 1.063 (27.0) | 2.126 (54.0) | .047 (1.2) | 4 | 36 | 105 | 346 | 15.3 |
| 4.70 | 940C6W4P7K-F | 1.240 (31.5) | 2.126 (54.0) | .047 (1.2) | 4 | 38 | 105 | 492 | 16.8 |
| 850 Vdc (450 Vac) | | | | | | | | | |
| .15 | 940C8P15K-F | .512 (13.0) | 1.339 (34.0) | .032 (.8) | 8 | 21 | 713 | 107 | 5.8 |
| .22 | 940C8P22K-F | .610 (15.5) | 1.339 (34.0) | .040 (1.0) | 8 | 22 | 713 | 157 | 6.4 |
| .33 | 940C8P33K-F | .709 (18.0) | 1.339 (34.0) | .040 (1.0) | 7 | 23 | 713 | 235 | 7.5 |
| .47 | 940C8P47K-F | .827 (21.0) | 1.339 (34.0) | .040 (1.0) | 5 | 24 | 713 | 335 | 9.8 |
| .68 | 940C8P68K-F | .965 (24.5) | 1.339 (34.0) | .047 (1.2) | 4 | 26 | 713 | 485 | 12.0 |
| 1.00 | 940C8W1K-F | .886 (22.5) | 1.811 (46.0) | .047 (1.2) | 5 | 30 | 400 | 400 | 11.5 |
| 1.50 | 940C8W1P5K-F | 1.063 (27.0) | 1.811 (46.0) | .047 (1.2) | 4 | 32 | 400 | 600 | 14.3 |
| 2.00 | 940C8W2K-F | 1.201 (30.5) | 1.811 (46.0) | .047 (1.2) | 3 | 34 | 400 | 800 | 17.9 |
| 2.20 | 940C8W2P2K-F | 1.260 (32.0) | 1.811 (46.0) | .047 (1.2) | 3 | 34 | 400 | 880 | 18.4 |
| 2.50 | 940C8W2P5K-F | 1.339 (34.0) | 1.811 (46.0) | .047 (1.2) | 3 | 35 | 400 | 1000 | 19.1 |

Type 940C High dV/dt, Round Polypropylene Film Capacitors

Ratings

| Cap. (μ F) | Catalog Part Number | D Inches (mm) | L Inches (mm) | d Inches (mm) | Typical ESR (m Ω) | Typical ESL (nH) | dV/dt V/ μ s | I peak (A) | I _{RMS} 70 °C 100 kHz (A) |
|---------------------------|------------------------|------------------|------------------|------------------|---------------------------------|------------------------|---------------------|---------------|---|
| 1000 Vdc (500 Vac) | | | | | | | | | |
| .15 | 940C10P15K-F | .591 (15.0) | 1.339 (34.0) | .040 (1.0) | 7 | 22 | 856 | 128 | 6.7 |
| .22 | 940C10P22K-F | .689 (17.5) | 1.339 (34.0) | .040 (1.0) | 7 | 23 | 856 | 188 | 7.4 |
| .33 | 940C10P33K-F | .807 (20.5) | 1.339 (34.0) | .040 (1.0) | 6 | 24 | 856 | 283 | 8.8 |
| .47 | 940C10P47K-F | .945 (24.0) | 1.339 (34.0) | .047 (1.2) | 5 | 26 | 856 | 402 | 10.6 |
| .68 | 940C10P68K-F | 1.102 (28.0) | 1.339 (34.0) | .047 (1.2) | 5 | 27 | 856 | 582 | 11.7 |
| 1.00 | 940C10W1K-F | 1.024 (26.0) | 1.811 (46.0) | .047 (1.2) | 5 | 32 | 480 | 480 | 12.5 |
| 1.50 | 940C10W1P5K-F | 1.220 (31.0) | 1.811 (46.0) | .047 (1.2) | 4 | 34 | 480 | 720 | 15.6 |
| 2.00 | 940C10W2K-F | 1.398 (35.5) | 1.811 (46.0) | .047 (1.2) | 3 | 36 | 480 | 960 | 19.6 |
| 1200 Vdc (500 Vac) | | | | | | | | | |
| .10 | 940C12P1K-F | .610 (15.5) | 1.339 (34.0) | .040 (1.0) | 9 | 22 | 1142 | 114 | 6.1 |
| .15 | 940C12P15K-F | .728 (18.5) | 1.339 (34.0) | .040 (1.0) | 7 | 23 | 1142 | 171 | 7.6 |
| .22 | 940C12P22K-F | .846 (21.5) | 1.339 (34.0) | .040 (1.0) | 7 | 24 | 1142 | 251 | 8.4 |
| .33 | 940C12P33K-F | .787 (20.0) | 1.811 (46.0) | .040 (1.0) | 7 | 29 | 640 | 211 | 9.0 |
| .47 | 940C12P47K-F | .906 (23.0) | 1.811 (46.0) | .047 (1.2) | 7 | 30 | 640 | 301 | 9.8 |
| .68 | 940C12P68K-F | 1.063 (27.0) | 1.811 (46.0) | .047 (1.2) | 6 | 32 | 640 | 435 | 11.7 |
| 1.00 | 940C12W1K-F | 1.299 (33.0) | 1.811 (46.0) | .047 (1.2) | 5 | 35 | 640 | 640 | 14.5 |
| 1.50 | 940C12W1P5K-F | 1.378 (35.0) | 2.126 (54.0) | .047 (1.2) | 4 | 39 | 502 | 754 | 17.9 |
| 1600 Vdc (630 Vac) | | | | | | | | | |
| .10 | 940C16P1K-F | .709 (18.0) | 1.339 (34.0) | .040 (1.0) | 7 | 23 | 1427 | 143 | 7.5 |
| .15 | 940C16P15K-F | .846 (21.5) | 1.339 (34.0) | .040 (1.0) | 5 | 24 | 1427 | 214 | 9.9 |
| .22 | 940C16P22K-F | 1.004 (25.5) | 1.339 (34.0) | .047 (1.2) | 7 | 26 | 1427 | 314 | 9.3 |
| .33 | 940C16P33K-F | .925 (23.5) | 1.811 (46.0) | .047 (1.2) | 7 | 31 | 800 | 264 | 10.0 |
| .47 | 940C16P47K-F | 1.083 (27.5) | 1.811 (46.0) | .047 (1.2) | 6 | 32 | 800 | 376 | 11.8 |
| .68 | 940C16P68K-F | 1.280 (32.5) | 1.811 (46.0) | .047 (1.2) | 6 | 35 | 800 | 544 | 13.1 |
| 1.00 | 940C16W1K-F | 1.535 (39.0) | 1.811 (46.0) | .047 (1.2) | 5 | 37 | 800 | 800 | 16.2 |
| 1.50 | 940C16W1P5K-F | 1.654 (42.0) | 2.126 (54.0) | .047 (1.2) | 4 | 42 | 628 | 942 | 20.1 |
| 2000 Vdc (630 Vac) | | | | | | | | | |
| .022 | 940C20S22K-F | .453 (11.5) | 1.339 (34.0) | .032 (.8) | 35 | 6 | 1712 | 38 | 2.6 |
| .033 | 940C20S33K-F | .531 (13.5) | 1.339 (34.0) | .032 (.8) | 20 | 21 | 1712 | 57 | 3.8 |
| .047 | 940C20S47K-F | .591 (15.0) | 1.339 (34.0) | .040 (1.0) | 12 | 22 | 1712 | 80 | 5.2 |
| .068 | 940C20S68K-F | .689 (17.5) | 1.339 (34.0) | .040 (1.0) | 8 | 23 | 1712 | 116 | 6.9 |
| .100 | 940C20P1K-F | .827 (21.0) | 1.339 (34.0) | .040 (1.0) | 7 | 24 | 1712 | 171 | 8.3 |
| .150 | 940C20P15K-F | .768 (19.5) | 1.811 (46.0) | .040 (1.0) | 7 | 29 | 960 | 144 | 8.9 |
| .220 | 940C20P22K-F | .866 (22.0) | 1.811 (46.0) | .040 (1.0) | 8 | 30 | 960 | 211 | 9.0 |
| .330 | 940C20P33K-F | 1.063 (27.0) | 1.811 (46.0) | .047 (1.2) | 8 | 32 | 960 | 317 | 10.1 |
| .470 | 940C20P47K-F | 1.260 (32.0) | 1.811 (46.0) | .047 (1.2) | 6 | 34 | 960 | 451 | 13.0 |
| .560 | 940C20P56K-F | 1.220 (31.0) | 2.126 (54.0) | .047 (1.2) | 7 | 37 | 754 | 422 | 12.6 |
| .680 | 940C20P68K-F | 1.339 (34.0) | 2.126 (54.0) | .047 (1.2) | 6 | 39 | 754 | 513 | 14.3 |
| 1.00 | 940C20W1K-F | 1.614 (41.0) | 2.126 (54.0) | .047 (1.2) | 5 | 42 | 754 | 754 | 17.7 |
| 3000 Vdc (750 Vac) | | | | | | | | | |
| .010 | 940C30S1K-F | 0.453 (11.5) | 1.339 (34.0) | .032 (.8) | 60 | 20 | 2568 | 26 | 2.0 |
| .015 | 940C30S15K-F | 0.531 (13.5) | 1.339 (34.0) | .032 (.8) | 40 | 21 | 2568 | 39 | 2.7 |
| .022 | 940C30S22K-F | 0.61 (15.5) | 1.339 (34.0) | .040 (1.0) | 25 | 22 | 2568 | 57 | 3.6 |
| .033 | 940C30S33K-F | 0.709 (18.0) | 1.339 (34.0) | .040 (1.0) | 14 | 23 | 2568 | 85 | 5.3 |
| .047 | 940C30S47K-F | 0.65 (16.5) | 1.811 (46.0) | .040 (1.0) | 14 | 28 | 1440 | 68 | 5.7 |
| .068 | 940C30S68K-F | 0.748 (19.0) | 1.811 (46.0) | .040 (1.0) | 12 | 29 | 1440 | 98 | 6.7 |
| .100 | 940C30P1K-F | 0.886 (22.5) | 1.811 (46.0) | .047 (1.2) | 10 | 30 | 1440 | 144 | 8.1 |
| .150 | 940C30P15K-F | 1.063 (27.0) | 1.811 (46.0) | .047 (1.2) | 8 | 32 | 1440 | 216 | 10.1 |