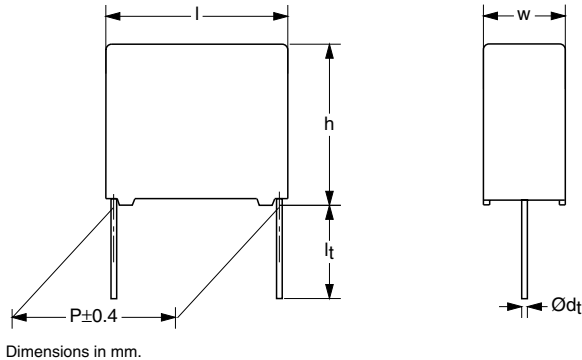


AC and Pulse Metallized Polypropylene Film Capacitors

MKP/MKP Radial Potted Type



APPLICATIONS

Where steep pulses occur e.g. SMPS (switch mode power supplies). Motor control circuits. It is not advised to use these products as resonance capacitors in fly-back applications

MARKING

C-value; tolerance; rated voltage; manufacturer's type designation; code for dielectric material; manufacturer's emblem; code for factory of origin; year and week of manufacture

DIELECTRIC

Polypropylene film

ELECTRODES

Metallized film

ENCAPSULATION

Flame retardant plastic case and epoxy resin (UL-class 94 V-0)

CONSTRUCTION

Internal serial construction

LEADS

Tinned wire

CAPACITANCE RANGE (E24 SERIES)

0.002 to 0.68 μ F

CAPACITANCE TOLERANCE

\pm 5%

FEATURES

15 to 27.5 mm pitch. Supplied loose in box and taped on reel

Lead (Pb)-free product

RoHS-compliant product

RATED (DC) VOLTAGE

630 V; 1000 V; 1600 V; 2000 V

RATED (AC) VOLTAGE

300 V; 400 V; 500 V; 600 V

RATED PEAK-TO-PEAK VOLTAGE

850 V; 1130 V; 1400 V; 1700 V

CLIMATIC CATEGORY

55/085/56

RATED (DC) TEMPERATURE

85 °C

RATED (AC) TEMPERATURE

70 °C

MAXIMUM APPLICATION TEMPERATURE

85 °C

REFERENCE SPECIFICATIONS

IEC 60384-17

PERFORMANCE GRADE

Grade 1 (long life)

STABILITY GRADE

Pitch 15 mm: grade 2

Pitch 22.5 and 27.5 mm: grade 1

DETAIL SPECIFICATION

For more detailed data and test requirements see "Type detail specification HQN-384-17/102"



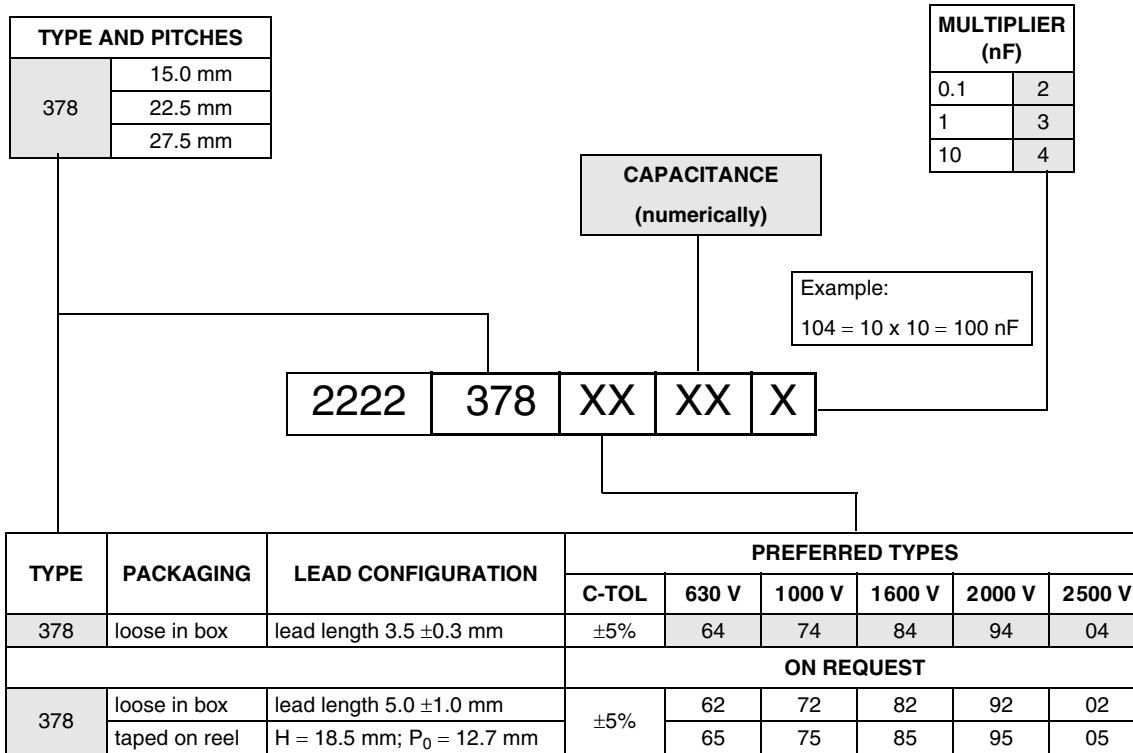
RoHS
COMPLIANT

MKP/MKP 378

Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors
MKP/MKP Radial Potted Type



COMPOSITION OF CATAOG NUMBER



SPECIFIC REFERENCE DATA (630 VDC)

| DESCRIPTION | VALUE | |
|--|-------------------------|-------------------------|
| | at 10 kHz | at 100 kHz |
| Tangent of loss angle: | | |
| C ≤ 0.18 μF | ≤ 8 × 10 ⁻⁴ | ≤ 15 × 10 ⁻⁴ |
| 0.2 μF ≤ C ≤ 0.3 μF | ≤ 10 × 10 ⁻⁴ | ≤ 25 × 10 ⁻⁴ |
| 0.33 μF ≤ C ≤ 0.39 μF | ≤ 10 × 10 ⁻⁴ | ≤ 30 × 10 ⁻⁴ |
| 0.43 μF ≤ C ≤ 0.51 μF | ≤ 10 × 10 ⁻⁴ | ≤ 40 × 10 ⁻⁴ |
| C > 0.51 μF | ≤ 10 × 10 ⁻⁴ | ≤ 45 × 10 ⁻⁴ |
| Rated voltage pulse slope (dU/dt) _R : | | |
| P = 15 mm | 500 V/μs | |
| P = 22.5 mm | 370 V/μs | |
| P = 27.5 mm | 230 V/μs (b < 15 mm) | |
| P = 27.5 mm | 120 V/μs (b ≥ 15 mm) | |
| R between leads, for C ≤ 1 μF; 500 V; 1 minute | >100000 MΩ | |
| R between leads and case; 500 V; 1 minute | >100000 MΩ | |
| Ionization (AC)voltage (typical value) at 50 pC peak discharge | >400 V | |
| Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s | 1008 V; 1 minute | |
| Withstanding (DC) voltage between leads and case | 2840 V; 1 minute | |



AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents
MKP/MKP Radial Potted Type

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ V}$

| C (μF) | DIMENSIONS w × h × l (mm) | MASS (g) | CATAOG NUMBER 2222 378 AND PACKAGING | | |
|---|---------------------------------|-------------|--|-----------|------|
| | | | LOOSE IN BOX | | REEL |
| | | | $l_t = 3.5 \pm 0.3\text{ mm}$ | all leads | SPQ |
| | | | C-tol = $\pm 5\%$ | SPQ | |
| | | | last 5 digits of cataog number | SPQ | SPQ |
| Pitch = 15.0 ±0.4 mm; $d_t = 0.60 \pm 0.06\text{ mm}$ | | | | | |
| 0.015 0.016 0.018 0.02 0.022 | 5.0 × 11.0 × 17.5 | 1.2 | 64153 64163 64183 64203 64223 | 1000 | 1100 |
| 0.024 0.027 0.03 0.033 | 6.0 × 12.0 × 17.5 | 1.4 | 64243 64273 64303 64333 | 1000 | 900 |
| Pitch = 15.0 ±0.4 mm; $d_t = 0.80 \pm 0.08\text{ mm}$ | | | | | |
| 0.036 0.039 0.043 | 7.0 × 13.5 × 17.5 | 1.9 | 64363 64393 64433 | 1000 | 800 |
| 0.047 0.051 | 8.5 × 15.0 × 17.5 | 2.6 | 64473 64513 | 1000 | 650 |
| Pitch = 22.5 ±0.4 mm; $d_t = 0.80 \pm 0.08\text{ mm}$ | | | | | |
| 0.068 0.075 0.082 0.091 | 7.0 × 16.5 × 26.0 | 3.2 | 64683 64753 64823 64913 | 200 | 550 |
| 0.1 0.11 0.12 0.13 | 8.5 × 18.0 × 26.0 | 4.4 | 64104 64114 64124 64134 | 200 | 450 |
| 0.15 0.16 0.18 | 10.0 × 19.5 × 26.0 | 5.5 | 64154 64164 64184 | 200 | 350 |
| Pitch = 27.5 ±0.4 mm; $d_t = 0.80 \pm 0.08\text{ mm}$ | | | | | |
| 0.2 0.22 0.24 0.27 | 11.0 × 21.0 × 31.0 | 7.8 | 64204 64224 64244 64274 | 100 | |
| 0.3 0.33 0.36 0.39 | 13.0 × 23.0 × 31.0 | 10.4 | 64304 64334 64364 64394 | 100 | |
| 0.43 0.47 0.51 | 15.0 × 25.0 × 31.0 | 12.8 | 64434 64474 64514 | 100 | |
| 0.56 0.62 0.68 | 18.0 × 28.0 × 31.0 | 17.2 | 64564 64624 64684 | 100 | |

MKP/MKP 378

Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors
MKP/MKP Radial Potted Type



SPECIFIC REFERENCE DATA (1000 VDC)

| DESCRIPTION | VALUE | |
|--|--|-------------------------|
| Tangent of loss angle: C ≤ 0.051 μF 0.056 μF ≤ C ≤ 0.22 μF | at 10 kHz | at 100 kHz |
| | ≤ 6 × 10 ⁻⁴ | ≤ 15 × 10 ⁻⁴ |
| | ≤ 8 × 10 ⁻⁴ | ≤ 20 × 10 ⁻⁴ |
| Rated voltage pulse slope (dU/dt) _R : P = 15 mm P = 22.5 mm P = 27.5 mm P = 27.5 mm | 1300 V/μs 1200 V/μs 600 V/μs (b < 15 mm) 300 V/μs (b ≥ 15 mm) | |
| R between leads, for C ≤ 1 μF; 500 V; 1 minute | >100000 MΩ | |
| R between leads and case; 500 V; 1 minute | >100000 MΩ | |
| Ionization (AC)voltage (typical value) at 50 pC peak discharge | >500 V | |
| Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s | 1600 V; 1 minute | |
| Withstanding (DC) voltage between leads and case | 2840 V; 1 minute | |

U_{Rdc} = 1000 V; U_{Rac} = 400 V; U_{p-p} = 1130 V

| C (μF) | DIMENSIONS w × h × l (mm) | MASS (g) | CATAOG NUMBER 2222 378 AND PACKAGING | | |
|--|---------------------------------|-------------|--|-----------|------|
| | | | LOOSE IN BOX | | REEL |
| | | | l _t = 3.5 ±0.3 mm | all leads | SPQ |
| | | | C-tol = ±5% | SPQ | |
| last 5 digits of cataog number | | | | | |
| Pitch = 15.0 ±0.4 mm; d_t = 0.60 ±0.06 mm | | | | | |
| 0.003 | 5.0 × 11.0 × 17.5 | 1.2 | 74302 | 1000 | 1100 |
| 0.0033 | | | 74332 | | |
| 0.0036 | | | 74362 | | |
| 0.0039 | | | 74392 | | |
| 0.0043 | | | 74432 | | |
| 0.0047 | | | 74472 | | |
| 0.0051 | | | 74512 | | |
| 0.0056 | | | 74562 | | |
| 0.0062 | | | 74622 | | |
| 0.0068 | | | 74682 | | |
| 0.0075 | 74752 | | | | |
| 0.0082 | 6.0 × 12.0 × 17.5 | 1.4 | 74822 | 1100 | 900 |
| 0.0091 | | | 74912 | | |
| 0.01 | | | 74103 | | |
| 0.011 | | | 74113 | | |
| Pitch = 22.5 ±0.4 mm; d_t = 0.80 ±0.08 mm | | | | | |
| 0.02 | 7.0 × 16.5 × 26.0 | 3.2 | 74203 | 200 | 550 |
| 0.022 | | | 74223 | | |
| 0.024 | | | 74243 | | |
| 0.027 | 8.5 × 18.0 × 26.0 | 4.4 | 74273 | 200 | 450 |
| 0.03 | | | 74303 | | |
| 0.033 | | | 74333 | | |
| 0.036 | | | 74363 | | |
| 0.039 | 10.0 × 19.5 × 26.0 | 5.5 | 74393 | 200 | 350 |
| 0.043 | | | 74433 | | |
| 0.047 | | | 74473 | | |
| 0.051 | | | 74513 | | |



| C (μ F) | DIMENSIONS w × h × l (mm) | MASS (g) | CATAOG NUMBER 2222 378 AND PACKAGING | | |
|---|---------------------------------|-------------|--|-----------|------|
| | | | LOOSE IN BOX | | REEL |
| | | | $l_t = 3.5 \pm 0.3$ mm | all leads | SPQ |
| | | | C-tol = $\pm 5\%$ | SPQ | |
| Pitch = 27.5 ± 0.4 mm; $d_t = 0.80 \pm 0.08$ mm | | | last 5 digits of cataog number | | SPQ |
| 0.056 | 11.0 × 21.0 × 31.0 | 7.8 | 74563 | 100 | |
| 0.062 | | | 74623 | | |
| 0.068 | | | 74683 | | |
| 0.075 | | | 74753 | | |
| 0.082 | | | 74823 | | |
| 0.091 | 13.0 × 23.0 × 31.0 | 10.4 | 74913 | 100 | |
| 0.1 | | | 74104 | | |
| 0.11 | | | 74114 | | |
| 0.12 | 15.0 × 25.0 × 31.0 | 12.8 | 74124 | 100 | |
| 0.13 | | | 74134 | | |
| 0.15 | | | 74154 | | |
| 0.16 | 18.0 × 28.0 × 31.0 | 17.5 | 74164 | 100 | |
| 0.18 | | | 74184 | | |
| 0.2 | | | 74204 | | |
| 0.22 | | | 74224 | | |

SPECIFIC REFERENCE DATA (1600 VDC)

| DESCRIPTION | VALUE | |
|---|---|--|
| | at 10 kHz | at 100 kHz |
| Tangent of loss angle: C ≤ 0.022 μ F 0.024 μ F ≤ C ≤ 0.1 μ F | ≤ 5×10^{-4} ≤ 6×10^{-4} | ≤ 10×10^{-4} ≤ 15×10^{-4} |
| Rated voltage pulse slope (dU/dt) _R at 1600 V _(DC) : P = 22.5 mm P = 27.5 mm P = 27.5 mm | 1600 V/ μ s 900 V/ μ s (b < 15 mm) 450 V/ μ s (b ≥ 15 mm) | |
| R between leads, for C ≤ 1 μ F; 500 V; 1 minute | >100000 M Ω | |
| R between leads and case; 500 V; 1 minute | >100000 M Ω | |
| Ionization (AC)voltage (typical value) at 20 pC peak discharge | >600 V | |
| Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s | 2560 V; 1 minute | |
| Withstanding (DC) voltage between leads and case | 2840 V; 1 minute | |

MKP/MKP 378

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MKP/MKP Radial Potted Type



$U_{Rdc} = 1600\text{ V}$; $U_{Rac} = 500\text{ V}$; $U_{p-p} = 1400\text{ V}$

| C (μF) | DIMENSIONS $w \times h \times l$ (mm) | MASS (g) | CATAOG NUMBER 2222 378 AND PACKAGING | | |
|--|---|-------------|--|-----------|------|
| | | | LOOSE IN BOX | | REEL |
| | | | $l_t = 3.5 \pm 0.3\text{ mm}$ | all leads | SPQ |
| | | | C-tol = $\pm 5\%$ | SPQ | |
| | | | last 5 digits of cataog number | SPQ | SPQ |
| Pitch = $22.5 \pm 0.4\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$ | | | | | |
| 0.0056 | 6.0 × 15.5 × 26.0 | 2.6 | 84562 | 300 | 600 |
| 0.0062 | | | 84622 | | |
| 0.0068 | | | 84682 | | |
| 0.0075 | 7.0 × 16.5 × 26.0 | 3.2 | 84752 | 200 | 550 |
| 0.0082 | | | 84822 | | |
| 0.0091 | | | 84912 | | |
| 0.01 | | | 84103 | | |
| 0.011 | 8.5 × 18.0 × 26.0 | 4.4 | 84113 | 200 | 450 |
| 0.012 | | | 84123 | | |
| 0.013 | | | 84133 | | |
| 0.015 | | | 84153 | | |
| 0.016 | | | 84163 | | |
| 0.018 | 10.0 × 19.5 × 26.0 | 5.5 | 84183 | 200 | 350 |
| 0.02 | | | 84203 | | |
| 0.022 | | | 84223 | | |
| Pitch = $27.5 \pm 0.4\text{ mm}$; $d_t = 0.80 \pm 0.08\text{ mm}$ | | | | | |
| 0.024 | 11.0 × 21.0 × 31.0 | 7.8 | 84243 | 100 | |
| 0.027 | | | 84273 | | |
| 0.03 | | | 84303 | | |
| 0.033 | | | 84333 | | |
| 0.036 | | | 84363 | | |
| 0.039 | 13.0 × 23.0 × 31.0 | 10.4 | 84393 | 100 | |
| 0.043 | | | 84433 | | |
| 0.047 | | | 84473 | | |
| 0.051 | | | 84513 | | |
| 0.056 | 15.0 × 25.0 × 31.0 | 12.8 | 84563 | 100 | |
| 0.062 | | | 84623 | | |
| 0.068 | | | 84683 | | |
| 0.075 | 18.0 × 28.0 × 31.0 | 17.2 | 84753 | 100 | |
| 0.082 | | | 84823 | | |
| 0.091 | | | 84913 | | |
| 0.1 | | | 84104 | | |



SPECIFIC REFERENCE DATA (2000 VDC)

| DESCRIPTION | VALUE | |
|---|--|-------------------------|
| Tangent of loss angle: C ≤ 0.051 μF | at 10 kHz | at 100 kHz |
| | ≤ 5 × 10 ⁻⁴ | ≤ 10 × 10 ⁻⁴ |
| Rated voltage pulse slope (dU/dt) _R at 2000 V (DC): P = 22.5 mm P = 27.5 mm P = 27.5 mm | 2000 V/μs 1200 V/μs (b < 15 mm) 600 V/μs (b ≥ 15 mm) | |
| R between leads, for C ≤ 1 μF; 500 V; 1 minute | >100000 MΩ | |
| R between leads and case; 500 V; 1 minute | >100000 MΩ | |
| Ionization (AC)voltage (typical value) at 20 pC peak discharge | >600 V | |
| Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s | 3200 V; 1 minute | |
| Withstanding (DC) voltage between leads and case | 2840 V; 1 minute | |

U_{Rdc} = 2000 V; U_{Rac} = 600 V; U_{p-p} = 1700 V

| C (μF) | DIMENSIONS w × h × l (mm) | MASS (g) | CATAOG NUMBER 2222 378 AND PACKAGING | | |
|--|---------------------------------|-------------|--|-----------|------|
| | | | LOOSE IN BOX | | REEL |
| | | | l _t = 3.5 ± 0.3 mm | all leads | SPQ |
| | | | C-tol = ±5% | SPQ | |
| | | | last 5 digits of cataog number | SPQ | SPQ |
| Pitch = 22.5 ± 0.4 mm; d_t = 0.80 ± 0.08 mm | | | | | |
| 0.0033 0.0036 | 6.0 × 15.5 × 26.0 | 2.6 | 94332 94362 | 300 | 600 |
| 0.0039 0.0043 0.0047 0.0051 | 7.0 × 16.5 × 26.0 | 3.2 | 94392 94432 94472 94512 | 200 | 550 |
| 0.0056 0.0062 0.0068 0.0075 0.0082 | 8.5 × 18.0 × 26.0 | 4.4 | 94562 94622 94682 94752 94822 | 200 | 450 |
| 0.0091 0.01 0.011 0.012 | 10.0 × 19.5 × 26.0 | 5.5 | 94912 94103 94113 94123 | 200 | 350 |
| Pitch = 27.5 ± 0.4 mm; d_t = 0.80 ± 0.08 mm | | | | | |
| 0.013 0.015 0.016 0.018 0.02 | 11.0 × 21.0 × 31.0 | 7.8 | 94133 94153 94163 94183 94203 | 100 | |
| 0.022 0.024 0.027 | 13.0 × 23.0 × 31.0 | 10.4 | 94223 94243 94273 | 100 | |
| 0.030 0.033 0.036 | 15.0 × 25.0 × 31.0 | 12.8 | 94303 94333 94363 | 100 | |
| 0.039 0.043 0.047 0.051 | 18.0 × 28.0 × 31.0 | 17.5 | 94393 94433 94473 94513 | 100 | |

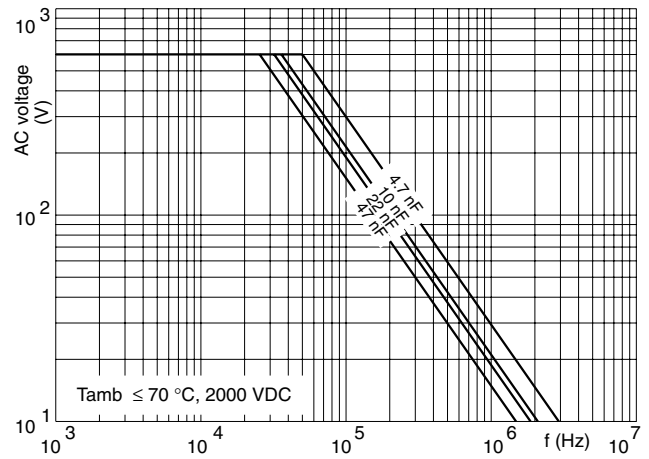
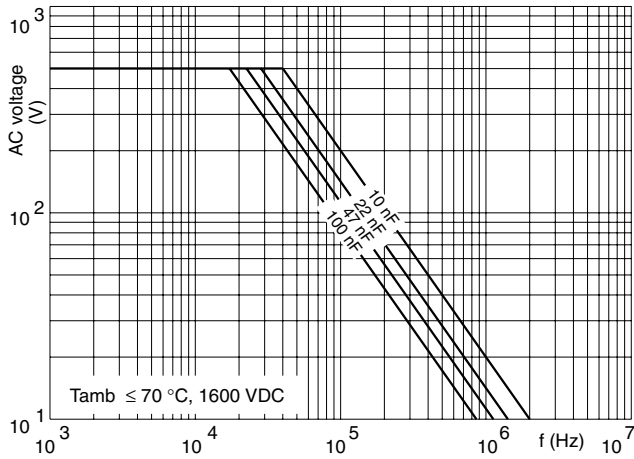
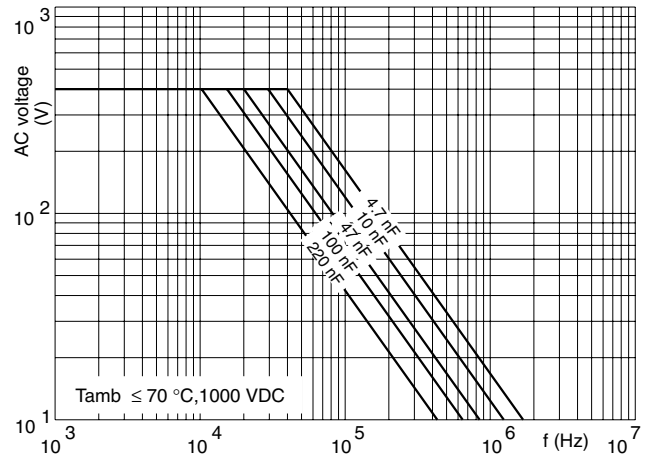
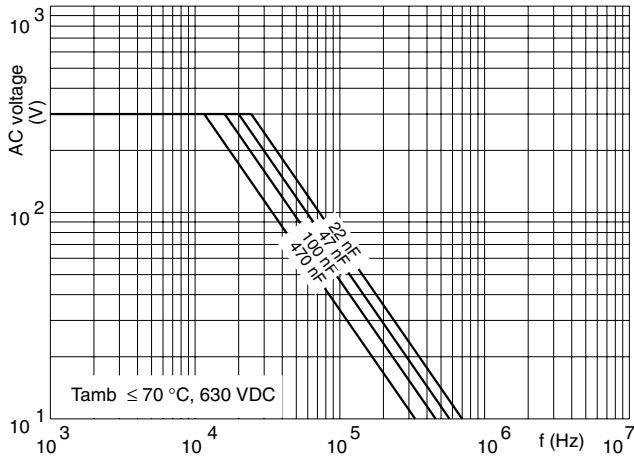
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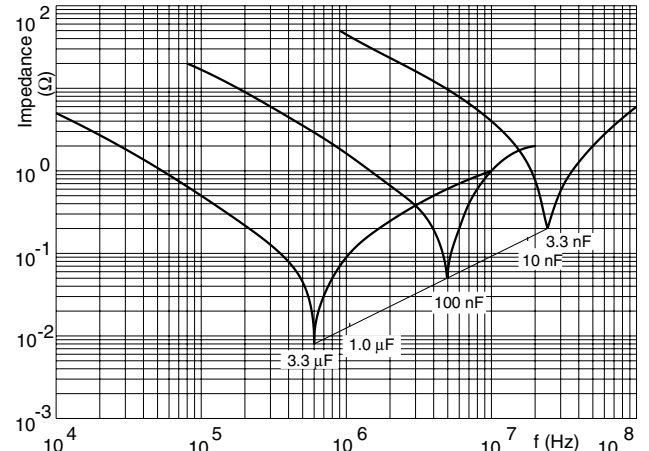
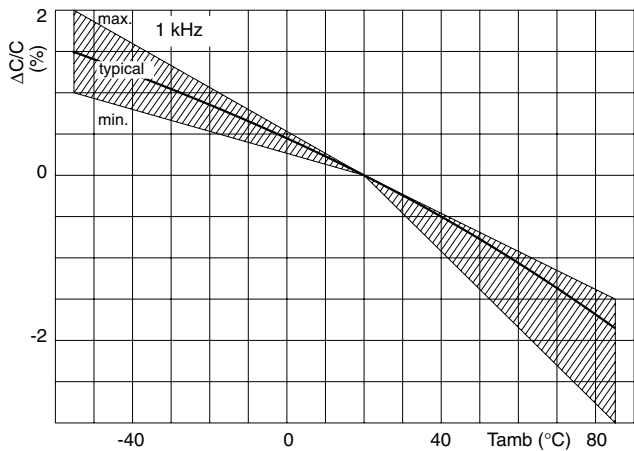
MAXIMUM RMS VOLTAGE (SENAWE) AS A

FUNCTION OF FREQUENCY



CAPACITANCE

IMPEDANCE





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