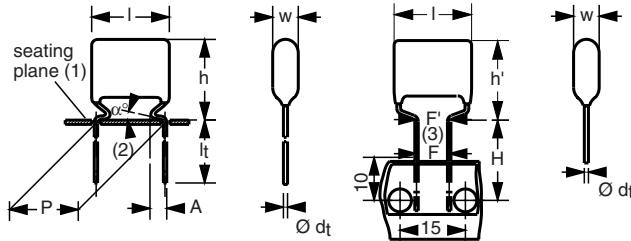
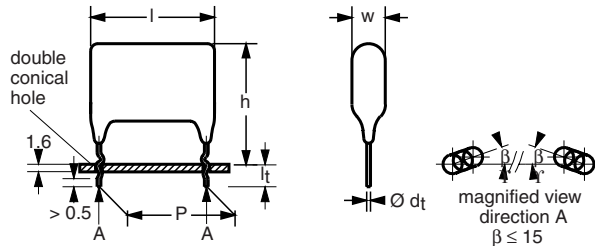


AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type



Dimensions in mm

- (1) Hole \varnothing 1.3 for $d_t = 0.8$ mm
- (2) $0 \leq \alpha < 50^\circ$
- (3) $|F - F'| < 0.3$ mm
 $F = 7.5 + 0.6/-0.1$ mm
- (4) $A = 2.0 + 1.0/-0.5$ mm for 10 mm pitch
 $A = 2.5 + 1.5/-0.5$ mm for 15 mm pitch
 $A = 2.5 + 1.4/-0.5$ mm for pitch > 22.5 mm



Dimensions in mm

APPLICATIONS

Where high currents and steep pulses occur. For deflection circuits in television sets.

REFERENCE SPECIFICATIONS

IEC 60384-17

MARKING

C-value; tolerance; rated voltage; manufacturer's type; manufacturer's location

DIELECTRIC

Polypropylene film

ELECTRODES

Metallized and aluminum

CONSTRUCTION

Internal serial construction

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, 1100 V, 1400 V, 1700 V

FEATURES

- 10 mm to 27.5 mm pitch.
- Supplied loose in box (including lock lead versions) and taped
- Bent back version for automatic insertion available
- RoHS compliant



RoHS
COMPLIANT

ENCAPSULATION

Flame retardant epoxy material
(UL-class 94 V-0)

CLIMATIC TESTING CLASS ACC. TO IEC 60068-1

55/105/56

CAPACITANCE RANGE (E24 SERIES)

0.1 nF to 270 nF

CAPACITANCE TOLERANCE

$\pm 5\%$; $\pm 3.5\%$

LEADS

Tinned wire

RATED TEMPERATURE

85 °C

MAXIMUM APPLICATION TEMPERATURE

105 °C

PERFORMANCE GRADE

for $C > 5.6$ nF: grade 1 (long life)
for $C \leq 5.6$ nF: grade 2

STABILITY GRADE

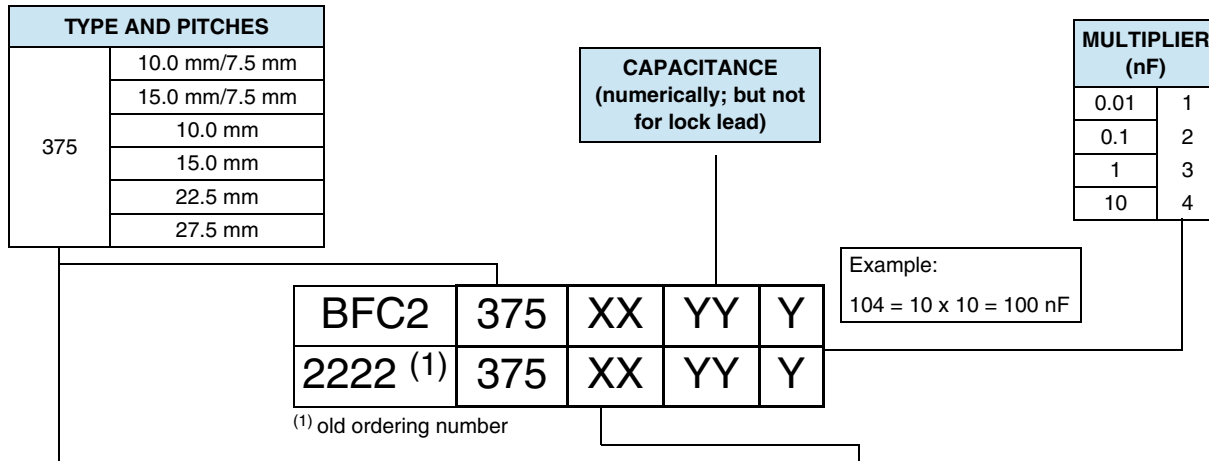
Grade 2

DETAIL SPECIFICATION

For more detailed data and test requirements contact:

dc-film@vishay.com

COMPOSITION OF CATALOG NUMBER



| TYPE | PACKAGING | LEAD CONFIGURATION | PREFERRED TYPES | | | | |
|--|---|--|-----------------|-------|--------|--------|--------|
| | | | C-TOL. | 630 V | 1000 V | 1600 V | 2000 V |
| 375 | Loose in box | Lead length 5.0 ± 1.0 mm | ± 5 % | 14 | 24 | 34 | 44 |
| | | Lock lead 4.0 + 1.0/- 0.5 mm | ± 5 % | 90 | 90 | 90 | 90 |
| | Taped on reel ⁽²⁾ (bent back) | H = 16.0 mm; P ₀ = 15.0 mm; Reel diameter 500 mm | ± 5 % | 16 | 26 | 36 | 46 |
| Dimensions of this code numbers stays between brackets | | | | | | | |
| ON REQUEST | | | | | | | |
| 375 | Loose in box | Lead length 5.0 ± 1.0 mm | ± 3.5 % | 15 | 25 | 35 | 45 |
| | | Lead length 3.5 ± 0.5 mm | ± 5 % | 10 | 20 | 30 | 40 |
| | | | ± 3.5 % | 11 | 21 | 31 | 41 |
| | Taped on reel ⁽²⁾ | H = 16.0 mm; P ₀ = 12.7 mm; Reel diameter = 500 mm | ± 5 % | 12 | 22 | 32 | 42 |
| | | | ± 3.5 % | 13 | 23 | 33 | 43 |
| | Taped on reel ⁽²⁾ (bent back) | H = 16.0 mm; P ₀ = 15.0 mm; Reel diameter = 500 mm | ± 3.5 % | 17 | 27 | 37 | 47 |
| Dimensions of this code numbers stays between brackets | | | | | | | |
| | | H = 16.0 mm; P ₀ = 15.0 mm; Reel diameter = 356 mm | ± 5 % | 18 | 28 | 38 | 48 |

Note

⁽¹⁾ For detailed tape specifications refer to "Packaging Information" www.vishay.com/doc?28139 or end of catalog

SPECIFIC REFERENCE DATA (630 Vdc)

| DESCRIPTION | VALUE | |
|--|---------------|---------|
| | 10 kHz | 100 kHz |
| Tangent of loss angle at (x 10 ⁻⁴) | | |
| Pitch = 10 mm, 15 mm and 7.5 mm (bent back) | ≤ 6 | ≤ 10 |
| Pitch = 22.5 mm | ≤ 8 | ≤ 15 |
| Pitch = 27.5 mm | ≤ 8 | ≤ 20 |
| Rated voltage pulse slope (dU/dt) _R : | | |
| Pitch = 10 mm | 15 000 V/μs | |
| Pitch = 15 mm and 7.5 mm (bent back) | 8000 V/μs | |
| Pitch = 22.5 mm | 2800 V/μs | |
| Pitch = 27.5 mm | 1900 V/μs | |
| R between leads at 500 V, 1 min | > 100 000 MΩ | |
| R between interconnected leads and case, 500 V, 1 min | > 100 000 MΩ | |
| Ionisation (AC) voltage (typical value) at 50 pC peak discharge | > 400 V | |
| at 50 pC peak discharge | | |
| at 20 pC peak discharge | | |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 100 V/s | 1008 V, 1 min | |
| For C ≤ 47 nF | | |
| For C > 47 nF | | |
| Withstanding (DC) voltage between leads and case | 2840 V, 1 min | |
| Maximum application temperature | 105 °C | |



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

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ V}$ (kinked); C-tol. = $\pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | | |
|-------------|--|----------------------------|---|----------------|----------------------------|----------|------------|--------|
| | | | LOOSE IN BOX | REEL | | | C VALUE | |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | ..YYY | |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | | |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | | |
| C (pF) | Pitch = 10.0 mm ± 0.4 mm; d _t = 0.60 mm ± 0.06 mm | Pitch = 10.0 mm | Pitch = 7.5 mm (bent back) | | | | | |
| 680 | 5.0 x 13.0 x 14.5 | 0.65 | 14... | 12... | 681 | | | |
| 750 | | | (2000) | (1200) | | 751 | | |
| 820 | 5.5 x 13.5 x 14.5 | 0.70 | 14... | 12... | 821 | | | |
| 910 | | | | | | 0.75 | (2000) | (1100) |
| 1000 | | 102 | | | | | | |
| 1100 | | 112 | | | | | | |
| 1200 | | 122 | | | | | | |
| 1300 | | 132 | | | | | | |
| 1500 | 152 | | | | | | | |
| 1600 | 0.80 | 162 | | | | | | |
| | 0.85 | | | | | | | |
| 1800 | 6.0 x 14.0 x 14.5 | 0.80 | 14... | 12... | 182 | | | |
| 2000 | | 0.85 | | | (1750) | (1000) | 202 | |
| 2200 | | 0.90 | | | | | 222 | |
| 2400 | | 1.0 | | | | | 242 | |
| 2700 | 6.5 x 14.5 x 14.5 | 1.1 | 14... | 12... | 272 | | | |
| | | | (1500) | (900) | | | | |

Note

- SPQ = Standard Packing Quantity

KP/MKP 375



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

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ (kinked)}$; $C\text{-tol.} = \pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | C VALUE |
|---------------|--|----------------------------|---|------------------------|-----------------------------------|---------------|----------------|
| | | | LOOSE IN BOX | REEL | | | |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | ..YYY |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | |
| | | | XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | | | Pitch = 7.5 mm (bent back) | | |
| 3000 | 5.0 x 14.0 (16.0) x 18.5 | 1.0 | 14... | 12... | 16 ... | 18 ... | 302 |
| 3300 | | | (2000) | (1200) | (1000) | (550) | 332 |
| 3600 | 5.5 x 14.5 (16.0) x 18.5 | 1.1 | 14... | 12... | 16 ... | 18 ... | 362 |
| 3900 | | | | | | | 392 |
| 4300 | | | | | | | 432 |
| 4700 | | | | | | | 472 |
| 5100 | | | | | | | 512 |
| 5600 | | | | | | | 562 |
| 6200 | 6.0 x 15.0 (16.0) x 18.5 | 1.2 | 14... | 12... | 16 ... | 18 ... | 622 |
| 6800 | | | | | | | 682 |
| 7500 | | | | | | | 752 |
| 8200 | | | | | | | 822 |
| 9100 | | | | | | | 912 |
| 10 000 | | | | | | | 103 |
| 11 000 | | | | | | | 113 |
| 12 000 | | | | | | | 123 |
| 13 000 | | | | | | | 133 |
| 15 000 | | | | | | | 153 |
| 16 000 | 163 | | | | | | |
| 18 000 | 6.5 x 15.5 (17.0) x 18.5 | 1.3 | 14... | 12... | 16... | 18... | 183 |
| 20 000 | | | (1500) | (900) | (750) | (400) | 203 |
| 22 000 | 7.0 x 16.0 (17.5) x 18.5 | 1.5 | 14... | 12... | 16... | 18... | 223 |
| | | | (1500) | (800) | (700) | (400) | |
| 24 000 | 7.5 x 16.5 (18.0) x 18.5 | 1.6 | 14... | 12... | 16... | 18... | 243 |
| | | | (1250) | (800) | (650) | (350) | |
| 27 000 | 8.0 x 17.0 (18.5) x 18.5 | 1.9 | 14... | 12... | 16... | 18... | 273 |
| 30 000 | | | (1250) | (750) | (600) | (350) | 303 |
| 33 000 | 8.5 x 17.5 (19.0) x 18.5 | 2 | 14... | 12... | 16... | 18... | 333 |
| | | | (1000) | (700) | (550) | (300) | |
| 36 000 | 9.0 x 18.5 (20.0) x 18.5 | 2.3 | 14... | 12... | 16... | 18... | ON |
| 39 000 | | | (900) | (600) | (500) | (300) | REQUEST |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; dt = 0.80 mm ± 0.08 mm | | | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) | | |
| 0.036 | 7.0 x 20.0 x 26.0 | 2.7 | 14... | - | - | - | 363 |
| 0.039 | | | | | | | 393 |
| 0.043 | | | | | | | 433 |
| 0.047 | | | | | | | 473 |
| 0.056 | | | | | | | 563 |
| 0.062 | | | | | | | 623 |
| 0.068 | 7.5 x 20.5 x 26.0 | 3 | 14... | - | - | - | 683 |
| | | | (600) | | | | |
| 0.075 | 8.0 x 21.0 x 26.0 | 3.3 | 14... | - | - | - | 753 |
| 0.082 | | | (550) | | | | 823 |
| 0.091 | 8.5 x 21.5 x 26.0 | 3.8 | 14... | - | - | - | 913 |
| | | | (500) | | | | |
| 0.1 | 9.0 x 22.0 x 26.0 | 4 | 14... | - | - | - | 104 |
| | | | (450) | | | | |

Note
• SPQ = Standard Packing Quantity



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

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ (kinked)}$; $C\text{-tol.} = \pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | | | | |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|-------------|----------------------|
| | | | LOOSE IN BOX | | REEL | | C VALUE ..YYY |
| | | | Leads 5 ± 1.0 mm | Original pitch Ø 500 mm | Pitch = 7.5 mm (bent back) | | |
| | | | | | XX (SPQ) | XX (SPQ) | |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) | | | |
| 0.11 | 9.5 x 22.5 x 26.0 | 4.3 | 14... (400) | | | 114 | |
| 0.12 | 10.0 x 23.0 x 26.0 | 4.7 | 14... (400) | | | 124 | |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 27.5mm | Pitch = 7.5 mm (bent back) | | | |
| 0.13 | 9.5 x 22.5 x 30.0 | 4.7 | 14... (500) | | | 134 | |
| 0.15 | 10.0 x 23.0 x 30.0 | 5.2 | 14... (500) | | | 154 | |
| 0.16 | 10.5 x 23.5 x 30.0 | 5.5 | 14... (450) | | | 164 | |
| 0.18 | 11.0 x 24.0 x 30.0 | 6 | 14... (400) | | | 184 | |
| 0.2 | 11.5 x 24.5 x 30.0 | 6.6 | 14... (400) | | | 204 | |
| 0.22 | 12.5 x 25.5 x 30.0 | 7.1 | 14... (350) | | | 224 | |
| 0.24 | 13.0 x 26.0 x 30.0 | 7.7 | 14... (300) | | | 244 | |
| 0.27 | 13.5 x 26.5 x 30.0 | 8.5 | 14... (300) | | | 274 | |

Notes

- (1) Net weight for short lead product only
- (2) Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ V (lock lead)}$; $C\text{-tol.} = \pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | |
|---------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | $l_t = 4.0 + 1.0/- 0.5\text{ mm}$ | |
| | | | (SPQ) | |
| C (pF) | Pitch = 10.0 mm ± 1.0 mm; d_t = 0.60 mm ± 0.06 mm | | | |
| 680 | 5.5 x 16.5 x 14.5 | 0.65 | 90308 | (2000) |
| 750 | | | 90309 | |
| 820 | | | 90311 | |
| 910 | | | 90312 | |
| 1000 | | | 90313 | |
| 1100 | | | 90314 | |
| 1300 | | | 90316 | |
| 1500 | | | 90317 | |
| 1600 | 90318 | | | |
| 1800 | 6.0 x 17.0 x 14.5 | 0.80 | 90319 | (1750) |
| 2000 | | | 90321 | |
| 2200 | | | 90322 | |
| 2400 | | | 90323 | |
| 2700 | 6.5 x 17.5 x 14.5 | 1.1 | 90324 | (1500) |

Notes

- (1) Net weight for short lead product only
- SPQ = Standard Packing Quantity

KP/MKP 375



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

$U_{Rdc} = 630\text{ V}$; $U_{Rac} = 300\text{ V}$; $U_{p-p} = 850\text{ V}$ (lock lead); C-tol. = $\pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | |
|------------------------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | $l_t = 4.0 + 1.0/- 0.5\text{ mm}$ | |
| | | | | (SPQ) |
| C (pF) | Pitch = 15.0 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 3000 | 5.0 x 17.0 x 18.5 | 1 | 90325 | (2000) |
| 3300 | | | 90326 | |
| 3600 | 5.5 x 17.5 x 18.5 | 1.1 | 90327 | (2000) |
| 3900 | | | 90328 | |
| 4300 | | | 90329 | |
| 4700 | | | 90331 | |
| 5100 | | | 90332 | |
| 5600 | | | 90333 | |
| 6200 | | | 6.0 x 18.0 x 18.5 | |
| 6800 | 90335 | | | |
| 7500 | 90336 | | | |
| 8200 | 90337 | | | |
| 9100 | 90338 | | | |
| 10 000 | 90339 | | | |
| 11 000 | 90236 | | | |
| 12 000 | 90341 | | | |
| 13 000 | 90342 | | | |
| 15 000 | 90343 | | | |
| 16 000 | 90344 | | | |
| 18 000 | 6.5 x 18.5 x 18.5 | 1.4 | 90218 | (1750) |
| 20 000 | | | 90345 | |
| 22 000 | 7.0 x 19.0 x 18.5 | 1.5 | 90219 | (1500) |
| 24 000 | 7.5 x 19.5 x 18.5 | 1.6 | 90221 | (1400) |
| 27 000 | 8.0 x 20.0 x 18.5 | 1.9 | 90223 | (1250) |
| 30 000 | | | 90346 | |
| 33 000 | 8.5 x 20.5 x 18.5 | 2 | 90347 | (1200) |
| 36 000 | 9.0 x 21.5 x 18.5 | 2.3 | ON REQUEST | |
| 39 000 | | | (1000) | |
| C (μF) | Pitch = 22.5 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 0.036 | 7.0 x 23.0 x 26.0 | 2.7 | 90348 | (600) |
| 0.039 | | | 90349 | |
| 0.043 | | | 90351 | |
| 0.047 | | | 90352 | |
| 0.051 | | | 90353 | |
| 0.056 | | | 90354 | |
| 0.062 | | | 90355 | |
| 0.068 | 7.5 x 23.5 x 26.0 | 3 | 90356 | (550) |
| 0.075 | 8.0 x 24.0 x 26.0 | 3.3 | 90357 | (500) |
| 0.082 | | | 90358 | |
| 0.091 | 8.5 x 24.5 x 26.0 | 3.8 | 90359 | (450) |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | |
|---------------|--|----------------------------|---|-------|
| | | | LOOSE IN BOX | |
| | | | l _t = 4.0 + 1.0/- 0.5 mm | |
| | | | | (SPQ) |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.1 | 9.0 x 25.0 x 26.0 | 4.0 | 90361 | (450) |
| 0.11 | 9.5 x 25.5 x 26.0 | 4.3 | 90362 | (400) |
| 0.12 | 10.0 x 26.0 x 26.0 | 4.7 | 90363 | (350) |
| C (μF) | Pitch = 27.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.13 | 9.5 x 25.5 x 30.0 | 4.7 | 90364 | (450) |
| 0.15 | 10.0 x 26.0 x 30.0 | 5.2 | 90365 | (400) |
| 0.16 | 10.5 x 26.5 x 30.0 | 5.5 | 90366 | (350) |
| 0.18 | 11.0 x 27.0 x 30.0 | 6.0 | 90367 | (350) |
| 0.2 | 11.5 x 27.5 x 30.0 | 6.6 | 90368 | (350) |
| 0.22 | 12.5 x 28.5 x 30.0 | 7.1 | 90369 | (300) |
| 0.24 | 13.0 x 29.0 x 30.0 | 7.7 | 90371 | (250) |
| 0.27 | 13.5 x 29.5 x 30.0 | 8.5 | 90372 | (250) |

Notes

⁽¹⁾ Net weight for short lead product only

- SPQ = Standard Packing Quantity

SPECIFIC REFERENCE DATA (1000 Vdc)

| DESCRIPTION | VALUE | |
|--|--|---------|
| | 10 kHz | 100 kHz |
| Tangent of loss angle at (x 10 ⁻⁴) Pitch = 10 mm, 15 mm and 7.5 mm (bent back) | ≤ 6 | ≤ 10 |
| Pitch = 22.5 mm | ≤ 8 | ≤ 15 |
| Pitch = 27.5 mm | ≤ 8 | ≤ 20 |
| Rated voltage pulse slope (dU/d _t): Pitch = 10 mm | 27 000 V/μs | |
| Pitch = 15 mm and 7.5 mm (bent back) | 15 000 V/μs | |
| Pitch = 22.5 mm | 5000 V/μs | |
| Pitch = 27.5 mm | 3300 V/μs | |
| R between leads at 500 V, 1 min | > 100 000 MΩ | |
| R between interconnected leads and case, 500 V, 1 min | > 100 000 MΩ | |
| Ionisation (AC) voltage (typical value) at 50 pC peak discharge at 20 pC peak discharge | > 500 V | |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 100 V/s For C ≤ 47 nF For C > 47 nF | 1600 V, 1 min [1.6 - (0.0364 x (C - 47))] x 1000 V, 1 min | |
| Withstanding (DC) voltage between leads and case | 2840 V, 1 min | |
| Maximum application temperature | 105 °C | |

KP/MKP 375



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

$U_{Rdc} = 1000\text{ V}$; $U_{Rac} = 400\text{ V}$; $U_{p-p} = 1100\text{ V}$ (kinked); $C\text{-tol.} = \pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | C VALUE |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|-----------------------|------------|
| | | | LOOSE IN BOX | REEL | | | |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | ..YYY |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | |
| | | | XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | |
| C (pF) | Pitch = 10.0 mm ± 0.4 mm; d_t = 0.60 mm ± 0.06 mm | | Pitch = 10.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 100 | 5.0 x 13.0 x 14.5 | 0.5 | 24... (2000) | 22... (1200) | - | 101 | |
| 110 | | | | | | 111 | |
| 120 | | | | | | 121 | |
| 130 | | | | | | 131 | |
| 150 | | | | | | 151 | |
| 160 | 5.5 x 13.5 x 14.5 | 0.55 | 24... (2000) | 22... (1100) | - | 161 | |
| 180 | | 0.55 | | | | 181 | |
| 200 | | 0.55 | | | | 201 | |
| 220 | | 0.60 | | | | 221 | |
| 240 | | 0.60 | | | | 241 | |
| 270 | | 0.60 | | | | 271 | |
| 300 | | 0.60 | | | | 301 | |
| 330 | | 0.60 | | | | 331 | |
| 360 | | 0.60 | | | | 361 | |
| 390 | | 0.65 | | | | 391 | |
| 430 | | 0.70 | | | | 431 | |
| 470 | | 0.75 | | | | 471 | |
| 510 | | 0.75 | | | | 511 | |
| 560 | | 0.80 | | | | 561 | |
| 620 | | 0.80 | | | | 621 | |
| 680 | 0.80 | 681 | | | | | |
| 750 | 0.70 | 751 | | | | | |
| 820 | 0.70 | 821 | | | | | |
| 910 | 0.70 | 911 | | | | | |
| 1000 | 6.0 x 14.0 x 14.5 | 0.75 | 24... (1750) | 22... (1000) | - | 102 | |
| 1100 | | 0.85 | | | | 112 | |
| 1200 | | 0.90 | | | | 122 | |
| 1300 | | 0.85 | | | | 132 | |
| 1500 | | 0.90 | | | | 152 | |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 15.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 1600 | 5.5 x 14.5 (16.0) x 18.5 | 1.1 | 24... 2000) | 22... (1100) | 26... (900) | 28... (500) | 162 |
| 1800 | | | | | | | 182 |
| 2000 | | | | | | | 202 |
| 2200 | | | | | | | 222 |
| 2400 | | | | | | | 242 |
| 2700 | 6.0 x 15.0 (16.5) x 18.5 | 1.2 | 24... (2000) | 22... (1000) | 26... (800) | 28... (450) | 272 |
| 3000 | | | | | | | 302 |
| 3300 | | | | | | | 332 |
| 3600 | | | | | | | 362 |
| 3900 | | | | | | | 392 |
| 4300 | | | | | | | 432 |
| 4700 | | | | | | | 472 |
| 5100 | | | | | | | 512 |
| 5600 | | | | | | | 562 |

Notes

- ⁽¹⁾ Net weight for short lead product only
- ⁽²⁾ Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity



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

U_{Rdc} = 1000 V; U_{Rac} = 400 V; U_{p-p} = 1100 V (kinked); C-tol. = ± 5 %

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | | | | C VALUE ..YYY |
|----------------------|--|----------------------------|---|-----------------------------------|----------------------------|----------------|----------------------|
| | | | LOOSE IN BOX | REEL | | | |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 15.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 6200 6800 | 6.0 x 15.0 (16.5) x 18.5 | 1.2 | 24... (2000) | 22... (1000) | 26... (800) | 28... (450) | 622 682 |
| 7500 8200 9100 | 7.0 x 16.0 (17.5) x 18.5 | 1.4 | 24... (1500) | 22... (800) | 26... (700) | 28... (400) | 752 822 912 |
| 10 000 | 7.5 x 16.5 (18.0) x 18.5 | 1.6 | 24... (1250) | 22... (800) | 26... (650) | 28... (350) | 103 |
| 11 000 12 000 | 8.0 x 17.0 (18.5) x 18.5 | 1.8 | 24... (1250) | 22... (750) | 26... (600) | 28... (350) | 113 123 |
| 13 000 | 8.5 x 17.5 (19.0) x 18.5 | 1.9 | 24... (1000) | 22... (700) | 26... (550) | 28... (300) | 133 |
| 15 000 | 9.0 x 18.5 (19.5) x 18.5 | 2.1 | 24... (1000) | 22... (650) | 26... (550) | 28... (300) | 153 |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) | | | |
| 0.016 0.018 | 6.0 x 19.0 x 26.0 | 2.2 | 24... (800) | | | | 163 183 |
| 0.02 0.022 | 6.5 x 19.5 x 26.0 | 2.5 | 24... (750) | | | | 203 223 |
| 0.024 | 7.0 x 20.0 x 26.0 | 2.7 | 24... | | | | 243 |
| 0.027 0.03 | 7.5 x 20.5 x 26.0 | 3.1 | 24... (600) | | | | 273 303 |
| 0.033 | 8.0 x 21.0 x 26.0 | 3.4 | 24... (550) | | | | 333 |
| 0.036 0.039 | 8.5 x 21.5 x 26.0 | 3.7 | 24... (500) | | | | 363 393 |
| 0.043 | 9.0 x 22.0 x 26.0 | 4.1 | 24... (450) | | | | 433 |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 27.5 mm | Pitch = 7.5 mm (bent back) | | | |
| 0.047 | 7.0 x 20.0 x 30.0 | 3.1 | 24... (100) | | | | 473 |
| 0.051 0.056 | 7.5 x 20.5 x 30.0 | 3.4 | 24... (750) | | | | 513 563 |
| 0.062 | 8.0 x 21.0 x 30.0 | 3.8 | 24... (650) | | | | 623 |
| 0.068 | 8.5 x 21.5 x 30.0 | 4.0 | 24... (550) | | | | 683 |
| 0.075 | 9.0 x 22.0 x 30.0 | 4.4 | 24... (550) | | | | 753 |
| 0.082 | 9.5 x 22.5 x 30.0 | 4.7 | 24... (500) | | | | 823 |
| 0.091 | 10.0 x 23.0 x 30.0 | 5.1 | 24... (500) | | | | 913 |
| 0.10 | 10.5 x 23.5 x 30.0 | 5.5 | 24... (450) | | | | 104 |
| 0.11 | 11.0 x 24.0 x 30.0 | 5.9 | 24... (400) | | | | 114 |
| 0.12 | 11.5 x 24.5 x 30.0 | 6.3 | 24... (400) | | | | 124 |
| 0.13 | 12.0 x 25.0 x 30.0 | 6.8 | 24... (350) | | | | 134 |
| 0.15 | 12.5 x 25.5 x 30.0 | 7.6 | 24... (350) | | | | 154 |

Notes

- (1) Net weight for short lead product only
- (2) Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity

KP/MKP 375



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

$U_{Rdc} = 1000\text{ V}$; $U_{Rac} = 400\text{ V}$; $U_{p-p} = 1100\text{ V}$ (lock lead); C-tol = $\pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | |
|---------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | $l_t = 4.0 + 1.0/- 0.5\text{ mm}$ | |
| | | | (SPQ) | |
| C (pF) | Pitch = 10.0 mm \pm 1.0 mm; $d_t = 0.60\text{ mm} \pm 0.06\text{ mm}$ | | | |
| 100 | 5.0 x 16.0 x 14.5 | 0.5 | 90373 | (2000) |
| 110 | | | 90374 | |
| 120 | | | 90375 | |
| 130 | | | 90376 | |
| 150 | 5.5 x 16.5 x 14.5 | 0.55 | 90377 | (2000) |
| 160 | | 0.55 | 90378 | |
| 180 | | 0.55 | 90379 | |
| 200 | | 0.55 | 90281 | |
| 220 | | 0.60 | 90382 | |
| 240 | | 0.60 | 90383 | |
| 270 | | 0.60 | 90384 | |
| 300 | | 0.60 | 90385 | |
| 330 | | 0.60 | 90386 | |
| 360 | | 0.60 | 90387 | |
| 390 | | 0.65 | 90388 | |
| 430 | | 0.70 | 90389 | |
| 470 | | 0.75 | 90391 | |
| 510 | | 0.75 | 90392 | |
| 560 | | 0.80 | 90393 | |
| 620 | | 0.80 | 90394 | |
| 680 | 0.80 | 90395 | | |
| 750 | 0.70 | 90396 | | |
| 820 | 0.70 | 90397 | | |
| 910 | 0.70 | 90398 | | |
| 1000 | 6.0 x 17.0 x 14.5 | 0.75 | 90399 | (1750) |
| 1100 | | 0.85 | 90401 | |
| 1200 | | 0.90 | 90402 | |
| 1300 | | 0.85 | 90403 | |
| 1500 | | 0.90 | 90404 | |
| C (pF) | Pitch = 15.0 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 1600 | 5.5 x 17.5 x 18.5 | 1.1 | 90405 | (2000) |
| 1800 | | | 90406 | |
| 2000 | | | 90407 | |
| 2200 | | | 90408 | |
| 2400 | | | 90409 | |
| 2700 | 6.0 x 18.0 x 18.5 | 1.2 | 90411 | (2000) |
| 3000 | | | 90412 | |
| 3300 | | | 90413 | |
| 3600 | | | 90414 | |
| 3900 | | | 90415 | |
| 4300 | | | 90416 | |
| 4700 | | | 90417 | |
| 5100 | | | 90418 | |
| 5600 | | | 90419 | |
| 6200 | | | 90421 | |
| 6800 | 90422 | | | |

Notes

⁽¹⁾ Net weight for short lead product only

- SPQ = Standard Packing Quantity



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | |
|---------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | l _t = 4.0 + 1.0/- 0.5 mm | |
| | | | (SPQ) | |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 7500 | 7.0 x 19.0 x 18.5 | 1.5 | 90232 | (1500) |
| 8200 | | | 90423 | |
| 9100 | | | 90424 | |
| 10 000 | 7.5 x 19.5 x 18.5 | 1.6 | 90425 | (1400) |
| 11 000 | 8.0 x 20.0 x 18.5 | 1.8 | 90426 | (1250) |
| 12 000 | | | 90427 | |
| 13000 | 8.5 x 20.5 x 18.5 | 1.9 | 90428 | (1200) |
| 15000 | 9.0 x 21.0 x 18.5 | 2.1 | 90429 | (1100) |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.016 | 6.0 x 22.0 x 26.0 | 2.2 | 90431 | (750) |
| 0.018 | | | 90432 | |
| 0.02 | 6.5 x 22.5 x 26.0 | 2.5 | 90433 | (700) |
| 0.022 | | | 90434 | |
| 0.024 | 7.0 x 23.0 x 26.0 | 2.7 | 90435 | (600) |
| 0.027 | 7.5 x 23.5 x 26.0 | 3.1 | 90436 | (550) |
| 0.03 | | | 90437 | |
| 0.033 | 8.0 x 24.0 x 26.0 | 3.4 | 90438 | (500) |
| 0.036 | 8.5 x 24.5 x 26.0 | 3.8 | 90439 | (450) |
| 0.039 | | | 90224 | |
| 0.043 | 9.0 x 25.0 x 26.0 | 4.1 | 90441 | (450) |
| C (μF) | Pitch = 27.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.047 | 7.0 x 23.0 x 30.0 | 3.1 | 90442 | (800) |
| 0.051 | 7.5 x 23.5 x 30.0 | 3.4 | 90443 | (600) |
| 0.056 | | | 90444 | |
| 0.062 | 8.0 x 24.0 x 30.0 | 3.8 | 90445 | (550) |
| 0.068 | 8.5 x 24.5 x 30.0 | 4.0 | 90446 | (550) |
| 0.075 | 9.0 x 25.0 x 30.0 | 4.4 | 90447 | (450) |
| 0.082 | 9.5 x 25.5 x 30.0 | 4.7 | 90448 | (450) |
| 0.091 | 10.0 x 26.0 x 30.0 | 5.1 | 90449 | (400) |
| 0.1 | 10.5 x 26.5 x 30.0 | 5.5 | 90451 | (350) |
| 0.11 | 11.0 x 27.0 x 30.0 | 5.9 | 90452 | (350) |
| 0.12 | 11.5 x 27.5 x 30.0 | 6.3 | 90453 | (350) |
| 0.13 | 12.0 x 28.0 x 30.0 | 6.8 | 90454 | (350) |
| 0.15 | 12.0 x 28.5 x 30.0 | 7.6 | 90455 | (300) |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity

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

SPECIFIC REFERENCE DATA (1600 Vdc)

| DESCRIPTION | VALUE | |
|---|---|-------------------------------------|
| | 10 kHz | 100 kHz |
| Tangent of loss angle at ($\times 10^{-4}$): Pitch = 10 mm, 15 mm and 7.5 mm (bent back) Pitch = 22.5 mm Pitch = 27.5 mm | ≤ 6 ≤ 6 ≤ 6 | ≤ 10 ≤ 15 ≤ 20 |
| Rated voltage pulse slope (dU/dt): Pitch = 10 mm Pitch = 15 mm and 7.5 mm (bent back) Pitch = 22.5 mm Pitch = 27.5 mm | 21 000 V/ μ s 7000 V/ μ s 4700 V/ μ s | |
| R between leads at 500 V, 1 min | $> 100\,000\ \text{M}\Omega$ | |
| R between interconnected leads and case, 500 V, 1 min | $> 100\,000\ \text{M}\Omega$ | |
| Ionisation (AC) voltage (typical value) at 50 pC peak discharge at 10 pC peak discharge | $> 550\ \text{V}$ | |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 100 V/s For $C \leq 47\ \text{nF}$ For $C > 47\ \text{nF}$ | 2560 V, 1 min | |
| Withstanding (DC) voltage between leads and case | 2840 V, 1 min | |
| Maximum application temperature | 105 °C | |

$U_{Rdc} = 1600\ \text{V}$; $U_{Rac} = 500\ \text{V}$; $U_{p-p} = 1400\ \text{V}$ (kinked); C-tol. = $\pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | C VALUE ..YYY |
|---------------|--|----------------------------|---|-----------------------------------|--|---|-------------------------|
| | | | LOOSE IN BOX | REEL | | | |
| | | | | Leads 5 \pm 1.0 mm | Original pitch \varnothing 500 mm | Pitch = 7.5 mm (bent back) \varnothing 500 mm \varnothing 356 mm | |
| | | | XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | |
| C (pF) | Pitch = 15.0 mm \pm 0.4 mm; $d_t = 0.80\ \text{mm} \pm 0.08\ \text{mm}$ | | Pitch = 15.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 680 | 5.5 x 14.5 (15.0) x 18.5 | 0.75 | 34... (2000) | 32... (1100) | 36... (900) | 38... (500) | 681 |
| 750 | | | | | | | 751 |
| 820 | | | | | | | 821 |
| 910 | 6.0 x 15.0 (15.5) x 18.5 | 0.8 | 34... (2000) | 32... (1000) | 36... (800) | 38... (450) | 911 |
| 1000 | | | | | | | 102 |
| 1100 | | | | | | | 112 |
| 1200 | | | | | | | 122 |
| 1300 | | | | | | | 132 |
| 1500 | 5.5 x 14.5 (16.0) x 18.5 | 1.1 | 34... (2000) | 32... (1100) | 36... (900) | 38... (500) | 152 |
| 1600 | | | | | | | 162 |
| 1800 | 6.0 x 15.0 (16.5) x 18.5 | 1.2 | 34... (2000) | 32... (1000) | 36... (800) | 38... (450) | 182 |
| 2000 | 6.5 x 15.5 (17.0) x 18.5 | 1.3 | 34... (1500) | 32... (900) | 36... (750) | 38... (400) | 202 |
| 2200 | | | | | | | 222 |
| 2400 | 7.0 x 16.0 (17.5) x 18.5 | 1.4 | 34... (1500) | 32... (800) | 36... (700) | 38... (400) | 242 |
| 2700 | 7.5 x 16.5 (18.0) x 18.5 | 1.6 | 34... (1250) | 32... (800) | 36... (650) | 38... (350) | 272 |
| 3000 | | | | | | | 302 |
| 3300 | 8.0 x 17.0 (18.5) x 18.5 | 1.7 | 34... (1250) | 32... (750) | 36... (600) | 38... (350) | 332 |
| 3600 | 8.5 x 17.5 (19.0) x 18.5 | 1.8 | 34... (1000) | 32... (700) | 36... (550) | 38... (300) | 362 |
| 3900 | 9.0 x 18.5 (19.5) x 18.5 | 2.0 | 34... (1000) | 32... (650) | 36... (550) | 38... (300) | 392 |
| 4300 | | | | | | | 432 |

Notes

- ⁽¹⁾ Net weight for short lead product only
- ⁽²⁾ Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | | | | C VALUE ..YYY | |
|---------------|--|----------------------------|---|-----------------------------------|----------------|----------------------------|-------------------------|----------|
| | | | LOOSE IN BOX | REEL | | | | |
| | | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | |
| | | | | | Ø 500 mm | Ø 500 mm | | Ø 356 mm |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | | |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) | | | | |
| 0.0047 | 6.0 x 19.0 x 26.0 | 2.0 | 34... (800) | | | | 472 | |
| 0.0051 | | | | | | | 512 | |
| 0.0056 | | | | | | | 562 | |
| 0.0062 | 6.5 x 19.5 x 26.0 | 2.1 | 34... (750) | | | | 622 | |
| 0.0068 | | | | | | | 682 | |
| 0.0075 | 7.0 x 20.0 x 26.0 | 2.3 | 34... (650) | | | | 752 | |
| 0.0082 | | | | | | | 822 | |
| 0.0091 | 7.5 x 20.5 x 26.0 | 2.5 | 34... (600) | | | | 912 | |
| 0.01 | 8.0 x 21.0 x 26.0 | 2.6 | 34... (550) | | | | 103 | |
| 0.011 | 8.5 x 21.5 x 26.0 | 2.9 | 34... (500) | | | | 113 | |
| 0.012 | | | | | | | 123 | |
| 0.013 | 9.0 x 22.0 x 26.0 | 3.1 | 34... (450) | | | | 133 | |
| 0.015 | 9.5 x 22.5 x 26.0 | 3.5 | 34... (400) | | | | 153 | |
| 0.016 | 10.0 x 23.0 x 26.0 | 3.6 | 34... (400) | | | | 163 | |
| 0.018 | 10.5 x 23.5 x 26.0 | 4.0 | 34... (350) | | | | 183 | |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 27.5 mm | Pitch = 7.5 mm (bent back) | | | | |
| 0.02 | 9.0 x 22.0 x 30.0 | 4.2 | 34... (550) | | | | 203 | |
| 0.022 | 9.5 x 22.5 x 30.0 | 4.4 | 34... (500) | | | | 223 | |
| 0.024 | 10.0 x 23.0 x 30.0 | 4.7 | 34... (500) | | | | 243 | |
| 0.027 | 10.5 x 23.5 x 30.0 | 5.2 | 34... (450) | | | | 273 | |
| 0.03 | 11.0 x 24.0 x 30.0 | 5.6 | 34... (400) | | | | 303 | |
| 0.033 | 11.5 x 24.5 x 30.0 | 6.0 | 34... (400) | | | | 333 | |
| 0.036 | 12.0 x 25.0 x 30.0 | 6.5 | 34... (350) | | | | 363 | |
| 0.039 | 12.5 x 25.5 x 30.0 | 6.9 | 34... (350) | | | | 393 | |

Notes

- (1) Net weight for short lead product only
- (2) Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity

KP/MKP 375



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

$U_{Rdc} = 1600\text{ V}$; $U_{Rac} = 500\text{ V}$; $U_{p-p} = 1400\text{ V}$ (lock lead); C-tol. = $\pm 5\%$

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | |
|------------------------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | $l_t = 4.0 + 1.0/-0.5\text{ mm}$ | |
| | | | | (SPQ) |
| C (pF) | Pitch = 15.0 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 680 | 5.5 x 17.5 x 18.5 | 0.75 | 90456 | (2000) |
| 750 | | | 90457 | |
| 820 | | | 90458 | |
| 910 | 6.0 x 18.0 x 18.5 | 0.80 | 90459 | (2000) |
| 1000 | | 0.85 | 90461 | |
| 1100 | | 0.85 | 90462 | |
| 1200 | | 0.90 | 90463 | |
| 1300 | | 0.95 | 90464 | |
| 1500 | 5.5 x 17.5 x 18.5 | 1.1 | 90465 | (2000) |
| 1600 | | | 90466 | |
| 1800 | 6.0 x 18.0 x 18.5 | 1.2 | 90467 | (2000) |
| 2000 | 6.5 x 18.5 x 18.5 | 1.3 | 90468 | (1750) |
| 2200 | | | 90469 | |
| 2400 | 7.0 x 19.0 x 18.5 | 1.4 | 90471 | (1500) |
| 2700 | 7.5 x 19.5 x 18.5 | 1.6 | 90472 | (1400) |
| 3000 | | | 90473 | |
| 3300 | 8.0 x 20.0 x 18.5 | 1.9 | 90141 | (1250) |
| 3600 | 8.5 x 20.5 x 18.5 | 2.3 | 90142 | (1200) |
| 3900 | 9.0 x 21.5 x 18.5 | 2.5 | 90143 | (1100) |
| 4300 | | | 90144 | |
| C (μF) | Pitch = 22.5 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 0.0047 | 6.0 x 22.0 x 26.0 | 2.4 | 90145 | (750) |
| 0.0051 | | | 90146 | |
| 0.0056 | | | 90147 | |
| 0.0062 | 6.5 x 22.5 x 26.0 | 2.6 | 90148 | (700) |
| 0.0068 | | | 90149 | |
| 0.0075 | 7.0 x 23.0 x 26.0 | 2.8 | 90151 | (600) |
| 0.0082 | | | 90152 | |
| 0.0083 | | | 90202 | |
| 0.0091 | 7.5 x 23.5 x 26.0 | 2.9 | 90153 | (550) |
| 0.01 | 8.0 x 24.0 x 26.0 | 3.2 | 90154 | (500) |
| 0.011 | 8.5 x 24.5 x 26.0 | 3.4 | 90155 | (450) |
| 0.012 | | | 90156 | |
| 0.013 | 9.0 x 25.0 x 26.0 | 3.6 | 90157 | (450) |
| 0.015 | 9.5 x 25.5 x 26.0 | 4.0 | 90158 | (400) |
| 0.016 | 10.0 x 26.0 x 26.0 | 4.3 | 90159 | (350) |
| 0.018 | 10.5 x 26.5 x 26.0 | 4.7 | 90161 | (350) |
| C (μF) | Pitch = 27.5 mm \pm 1.0 mm; $d_t = 0.80\text{ mm} \pm 0.08\text{ mm}$ | | | |
| 0.02 | 9.0 x 25.0 x 30.0 | 4.2 | 90474 | (450) |
| 0.022 | 9.5 x 25.5 x 30.0 | 4.4 | 90475 | (450) |
| 0.024 | 10.0 x 26.0 x 30.0 | 4.7 | 90476 | (400) |
| 0.027 | 10.5 x 26.5 x 30.0 | 5.2 | 90477 | (350) |
| 0.03 | 11.0 x 27.0 x 30.0 | 5.6 | 90478 | (350) |
| 0.033 | 11.5 x 27.5 x 30.0 | 6.0 | 90479 | (350) |
| 0.036 | 12.0 x 28.0 x 30.0 | 6.5 | 90481 | (300) |
| 0.039 | 12.5 x 28.5 x 30.0 | 6.9 | 90482 | (300) |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity



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

SPECIFIC REFERENCE DATA (2000 Vdc)

| DESCRIPTION | VALUE | |
|---|---|-------------------------------------|
| | 10 kHz | 100 kHz |
| Tangent of loss angle at ($\times 10^{-4}$): Pitch = 10 mm, 15 mm and 7.5 mm (bent back) Pitch = 22.5 mm Pitch = 27.5 mm | ≤ 6 ≤ 6 ≤ 6 | ≤ 10 ≤ 10 ≤ 15 |
| Rated voltage pulse slope (dU/dt): Pitch = 10 mm Pitch = 15 mm and 7.5 mm (bent back) Pitch = 22.5 mm Pitch = 27.5 mm | 30 000 V/ μ s 10 000 V/ μ s 6700 V/ μ s | |
| R between leads at 500 V, 1 min | > 100 000 M Ω | |
| R between interconnected leads and case, 500 V, 1 min | > 100 000 M Ω | |
| Ionisation (AC) voltage (typical value) at 50 pC peak discharge at 20 pC peak discharge | > 600 V | |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 100 V/s For C \leq 47 nF For C > 47 nF | 3200 V, 1 min | |
| Withstanding (DC) voltage between leads and case | 2840 V, 1 min | |
| Maximum application temperature | 105 °C | |

$U_{Rdc} = 2000$ V; $U_{Rac} = 600$ V; $U_{p-p} = 1700$ (kinked); C-tol. = ± 5 %

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | C VALUE ..YYY |
|---------------|---|----------------------------|---|-----------------------------------|----------------------------|----------------------|----------------------|
| | | | LOOSE IN BOX | REEL | | | |
| | | | Leads 5 \pm 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | |
| | | | | \varnothing 500 mm | \varnothing 500 mm | \varnothing 356 mm | |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | |
| C (pF) | Pitch = 15.0 mm \pm 0.4 mm; $d_t = 0.80$ mm \pm 0.08 mm | | Pitch = 15.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 100 | 5.5 x 14.5 (15.0) x 18.5 | 0.75 | 44... (2000) | 42... (1100) | 46... (900) | 48... (500) | 101 |
| 110 | | 0.75 | | | | | 111 |
| 120 | | 0.75 | | | | | 121 |
| 130 | | 0.75 | | | | | 131 |
| 150 | | 0.75 | | | | | 151 |
| 160 | | 0.75 | | | | | 161 |
| 180 | | 0.75 | | | | | 181 |
| 200 | | 0.75 | | | | | 201 |
| 220 | | 0.75 | | | | | 221 |
| 240 | | 0.75 | | | | | 241 |
| 270 | | 0.75 | | | | | 271 |
| 300 | | 0.75 | | | | | 301 |
| 330 | | 0.75 | | | | | 331 |
| 360 | | 0.75 | | | | | 361 |
| 390 | | 0.75 | | | | | 391 |
| 430 | | 0.75 | | | | | 431 |
| 470 | | 0.80 | | | | | 471 |
| 510 | | 0.80 | | | | | 511 |
| 560 | | 0.80 | | | | | 561 |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity

KP/MKP 375



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------------|---------|
| | | | LOOSE IN BOX | REEL | | | C VALUE |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | ..YYY |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | |
| C (pF) | Pitch = 15.0 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 15.0 mm | Pitch = 7.5 mm (bent back) | | | |
| 620 | 6.0 x 15.0 (15.5) x 18.5 | 0.85 | 44... (2000) | 42... (1000) | 46... (800) | 48... (450) | 621 |
| 680 | | 0.85 | | | | | 681 |
| 750 | | 0.90 | | | | | 751 |
| 820 | 6.5 x 15.5 (16.0) x 18.5 | 0.95 | 44... (1500) | 42... (900) | 46... (750) | 48... (400) | 821 |
| 910 | 5.5 x 14.5 (16.0) x 18.5 | 1.1 | 44... (2000) | 42... (420) | 46... (900) | 48... (500) | 911 |
| 1000 | 6.0 x 15.0 (16.5) x 18.5 | 1.2 | 44... (2000) | 42... (1000) | 46... (800) | 48... (450) | 102 |
| 1100 | | | | | | | 112 |
| 1200 | | | | | | | 122 |
| 1300 | 6.5 x 15.5 (17.0) x 18.5 | 1.3 | 44... (1500) | 42... (900) | 46... (750) | 48... (400) | 132 |
| 1500 | 7.0 x 16.0 (17.5) x 18.5 | 1.4 | 44... (1500) | 42... (800) | 46... (700) | 48... (400) | 152 |
| 1600 | 7.5 x 16.5 (18.0) x 18.5 | 1.5 | 44... (1250) | 42... (800) | 46... (650) | 48... (350) | 162 |
| 1800 | | | | | | | 182 |
| 2000 | 8.0 x 17.0 (18.5) x 18.5 | 1.6 | 44... (1250) | 42... (750) | 46... (600) | 48... (350) | 202 |
| 2200 | 8.5 x 17.5 (19.0) x 18.5 | 1.7 | 44... (1000) | 42... (700) | 46... (550) | 48... (300) | 222 |
| 2400 | 9.0 x 18.0 (19.5) x 18.5 | 1.8 | 44... (1000) | 42... (650) | 46... (550) | 48... (300) | 242 |
| 2700 | 9.5 x 18.5 (20.0) x 18.5 | 2.0 | 44... (900) | 42... (600) | 46... (500) | 48... (300) | 272 |
| C (µF) | Pitch = 22.5 mm ± 0.4 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 22.5 mm | Pitch = 7.5 mm (bent back) | | | |
| 0.003 | 6.0 x 19.0 x 26.0 | 2.1 | 44... (800) | | | | 302 |
| 0.0033 | | | | | | | 332 |
| 0.0036 | | | | | | | 362 |
| 0.0039 | | | | | | | 392 |
| 0.0043 | 6.5 x 19.5 x 26.0 | 2.3 | 44... (750) | | | | 432 |
| 0.0047 | | | | | | | 472 |
| 0.0051 | 7.0 x 20.0 x 26.0 | 2.6 | 44... (650) | | | | 512 |
| 0.0056 | | | | | | | 562 |
| 0.0062 | 7.5 x 20.5 x 26.0 | 2.8 | 44... (600) | | | | 622 |
| 0.0068 | 8.0 x 21.0 x 26.0 | 3.0 | 44... (550) | | | | 682 |
| 0.0075 | | | | | | | 752 |
| 0.0082 | 8.5 x 21.5 x 26.0 | 3.3 | 44... (500) | | | | 822 |
| 0.0091 | 9.0 x 22.0 x 26.0 | 3.6 | 44... (450) | | | | 912 |
| 0.01 | 9.5 x 22.5 x 26.0 | 3.8 | 44... (400) | | | | 103 |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | | | | |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------|---------|
| | | | LOOSE IN BOX | REEL | | | C VALUE |
| | | | Leads 5 ± 1.0 mm | Original pitch | Pitch = 7.5 mm (bent back) | | ..YYY |
| | | | | Ø 500 mm | Ø 500 mm | Ø 356 mm | |
| XX (SPQ) | XX (SPQ) | XX (SPQ) | XX (SPQ) | | | | |
| C (µF) | Pitch = 27.5 mm ± 0.5 mm; d_t = 0.80 mm ± 0.08 mm | | Pitch = 27.5 mm | Pitch = 7.5 mm (bent back) | | | |
| 0.011 | 9.0 x 22.0 x 30.0 | 3.8 | 44... (550) | | | 113 | |
| 0.012 | 9.5 x 22.5 x 30.0 | 4.1 | 44... (500) | | | 123 | |
| 0.013 | 10.0 x 23.0 x 30.0 | 4.4 | 44... (500) | | | 133 | |
| 0.015 | 10.5 x 23.5 x 30.0 | 4.9 | 44... (450) | | | 153 | |
| 0.016 | 11.0 x 24.0 x 30.0 | 5.1 | 44... (400) | | | 163 | |
| 0.018 | 11.5 x 24.5 x 30.0 | 5.6 | 44... (400) | | | 183 | |
| 0.02 | 12.5 x 25.5 x 30.0 | 6.1 | 44... (350) | | | 203 | |
| 0.022 | 13.0 x 26.0 x 30.0 | 6.5 | 44... (300) | | | 223 | |

Notes

- ⁽¹⁾ Net weight for short lead product only
- ⁽²⁾ Loose in box, all lengths have same SPQ
- SPQ = Standard Packing Quantity

U_{Rdc} = 2000 V; U_{Rac} = 600 V; U_{p-p} = 1700 V (lock lead)

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING | |
|---------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | l _t = 4.0 mm + 1.0 mm/- 0.5 mm | |
| | | | (SPQ) | |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 100 | 5.5 x 17.5 x 18.5 | 0.75 | 90483 | (2000) |
| 110 | | 0.75 | 90484 | |
| 120 | | 0.75 | 90485 | |
| 130 | | 0.75 | 90486 | |
| 150 | | 0.75 | 90487 | |
| 160 | | 0.75 | 90488 | |
| 180 | | 0.75 | 90489 | |
| 200 | | 0.75 | 90491 | |
| 220 | | 0.75 | 90276 | |
| 240 | | 0.75 | 90492 | |
| 270 | | 0.75 | 90493 | |
| 300 | | 0.75 | 90494 | |
| 330 | | 0.75 | 90495 | |
| 360 | | 0.75 | 90496 | |
| 390 | | 0.75 | 90188 | |
| 430 | | 0.75 | 90497 | |
| 470 | | 0.80 | 90498 | |
| 510 | | 0.80 | 90499 | |
| 560 | 0.80 | 90501 | | |

Note

- SPQ = Standard Packing Quantity

KP/MKP 375



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

| C | DIMENSIONS w x h (h') x l (mm) | MASS (g) ⁽¹⁾ | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING | |
|---------------|--|----------------------------|---|--------|
| | | | LOOSE IN BOX | |
| | | | l _t = 4.0 mm + 1.0 mm/- 0.5 mm | |
| | | | (SPQ) | |
| C (pF) | Pitch = 15.0 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 620 | | 0.85 | 90502 | |
| 680 | 6.0 x 18.0 x 18.5 | 0.85 | 90229 | (2000) |
| 750 | | 0.90 | 90503 | |
| 820 | 6.5 x 18.5 x 18.5 | 0.95 | 90504 | (1750) |
| 910 | 5.5 x 17.5 x 18.5 | 1.1 | 90505 | (2000) |
| 1000 | | | 90225 | |
| 1100 | 6.0 x 18.0 x 18.5 | 1.3 | 90506 | (2000) |
| 1200 | | | 90226 | |
| 1300 | 6.5 x 18.5 x 18.5 | 1.3 | 90507 | (1750) |
| 1500 | 7.0 x 19.0 x 18.5 | 1.5 | 90266 | (1500) |
| 1600 | | | 90508 | |
| 1800 | 7.5 x 19.5 x 18.5 | 1.7 | 90237 | (1400) |
| 2000 | 8.0 x 20.0 x 18.5 | 1.7 | 90509 | (1250) |
| 2200 | 8.5 x 20.5 x 18.5 | 2.3 | 90227 | (1200) |
| 2400 | 9.0 x 21.0 x 18.5 | 1.8 | 90511 | (1100) |
| 2700 | 9.5 x 21.5 x 18.5 | 2.7 | 90228 | (1000) |
| C (μF) | Pitch = 22.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.003 | | | 90512 | |
| 0.0033 | 6.0 x 22.0 x 26.0 | 2.2 | 90162 | (750) |
| 0.0036 | | | 90163 | |
| 0.0039 | | | 90164 | |
| 0.0043 | 6.5 x 22.5 x 26.0 | 2.4 | 90165 | (700) |
| 0.0047 | | | 90166 | |
| 0.0051 | 7.0 x 23.0 x 26.0 | 2.6 | 90167 | (600) |
| 0.0056 | | | 90168 | |
| 0.0062 | 7.5 x 23.5 x 26.0 | 2.8 | 90169 | (550) |
| 0.0068 | | | 90171 | |
| 0.0075 | 8.0 x 24.0 x 26.0 | 3.0 | 90172 | (500) |
| 0.0082 | 8.5 x 24.5 x 26.0 | 3.2 | 90173 | (450) |
| 0.0091 | 9.0 x 25.0 x 26.0 | 3.5 | 90174 | (450) |
| 0.01 | 9.5 x 25.5 x 26.0 | 3.8 | 90175 | (400) |
| C (μF) | Pitch = 27.5 mm ± 1.0 mm; d_t = 0.80 mm ± 0.08 mm | | | |
| 0.011 | 9.0 x 25.0 x 30.0 | 4.4 | 90176 | (450) |
| 0.012 | 9.5 x 25.5 x 30.0 | 4.6 | 90177 | (450) |
| 0.013 | 10.0 x 26.0 x 30.0 | 5.0 | 90178 | (400) |
| 0.015 | 10.5 x 26.5 x 30.0 | 5.4 | 90179 | (350) |
| 0.016 | 11.0 x 27.0 x 30.0 | 5.8 | 90181 | (350) |
| 0.018 | 11.5 x 27.5 x 30.0 | 6.2 | 90182 | (350) |
| 0.02 | 12.5 x 28.5 x 30.0 | 6.1 | 90513 | (300) |
| 0.022 | 13.0 x 29.0 x 30.0 | 6.5 | 90514 | (250) |

Notes

- ⁽¹⁾ Net weight for short lead product only
- SPQ = Standard Packing Quantity

**MOUNTING****Normal Use**

The capacitors are designed for mounting on printed-circuit boards. The capacitors packed in bandoliers are designed for mounting in printed-circuit boards by means of automatic insertion machines.

For detailed tape specifications refer to "Packaging information" www.vishay.com/doc?28139 or end of catalog

Specific Method of Mounting to Withstand Vibration and Shock

- For pitches ≤ 15 mm capacitors shall be mechanically fixed by the leads
- For larger pitches the capacitors shall be mounted in the same way and the body clamped

Storage Temperature

- Storage temperature: $T_{stg} = -25\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$ with RH maximum 80 % without condensation

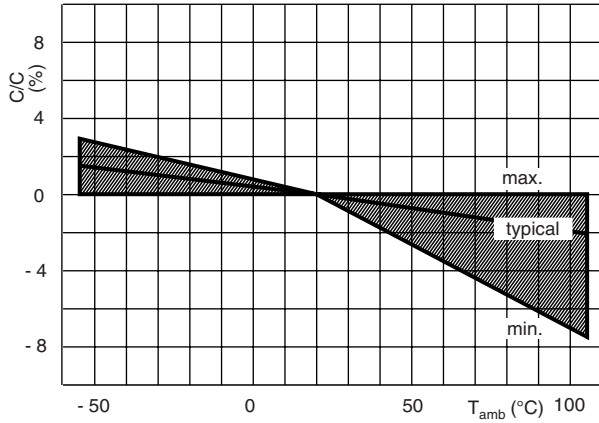
Ratings and Characteristics Reference Conditions

Unless otherwise specified, all electrical values apply to an ambient temperature of $23\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, an atmospheric pressure of 86 kPa to 106 kPa and a relative humidity of $50\% \pm 2\%$.

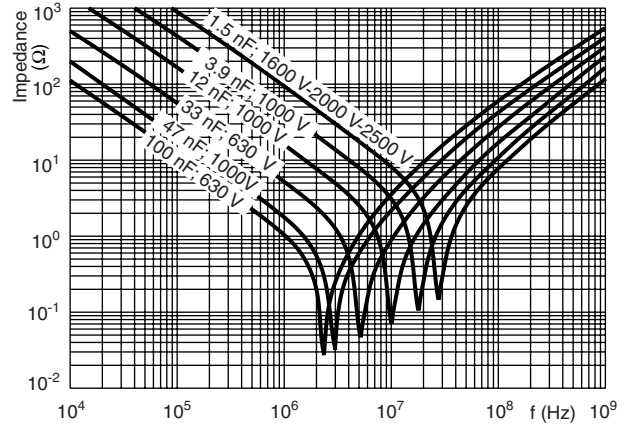
For reference testing, a conditioning period shall be applied over $96\text{ h} \pm 4\text{ h}$ by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20 %.

CHARACTERISTICS

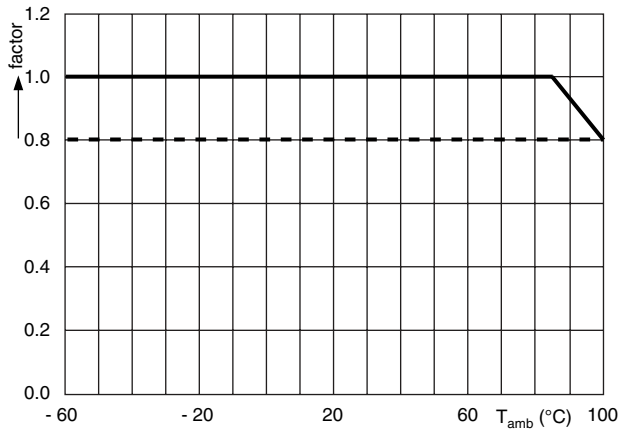
Capacitance as a function of ambient temperature
(typical curve)



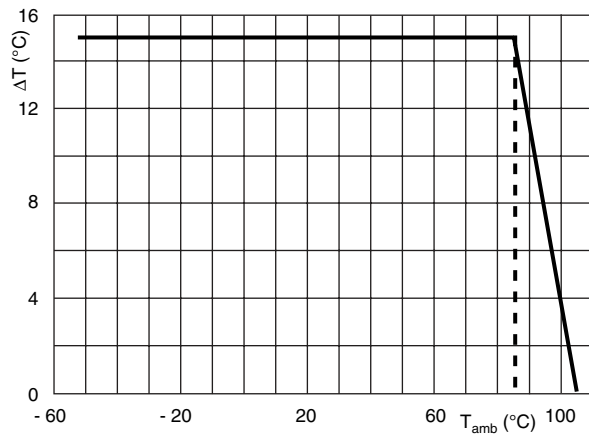
Impedance as a function of frequency
(typical curve)



Max. DC voltage as a function of temperature

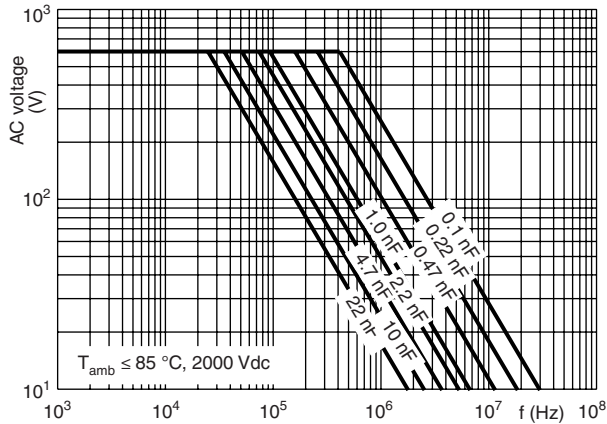


Max. allowed component temperature rise
as a function of ambient temperature

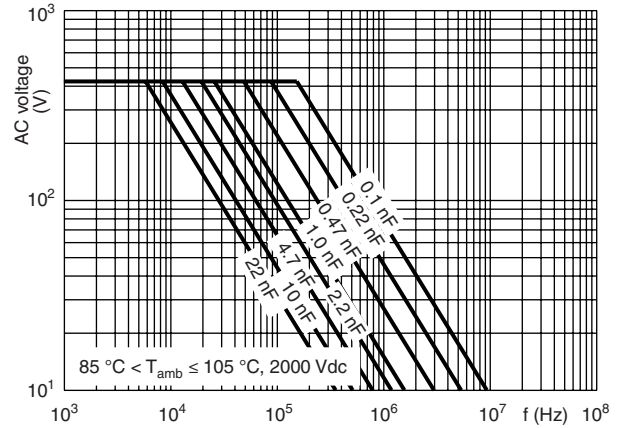


Vishay BCcomponents AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type

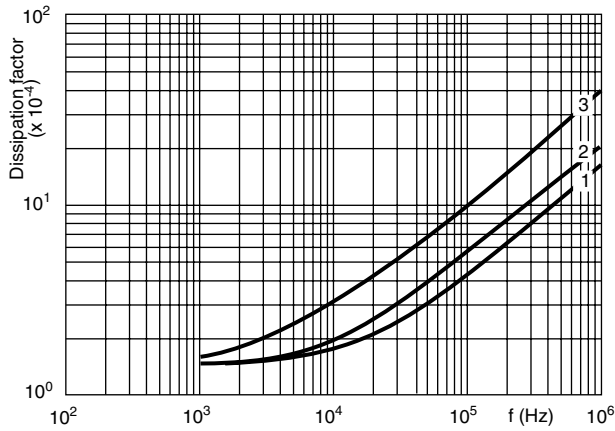
Max. RMS voltage (sinewave) as a function of frequency



Max. RMS voltage (sinewave) as a function of frequency

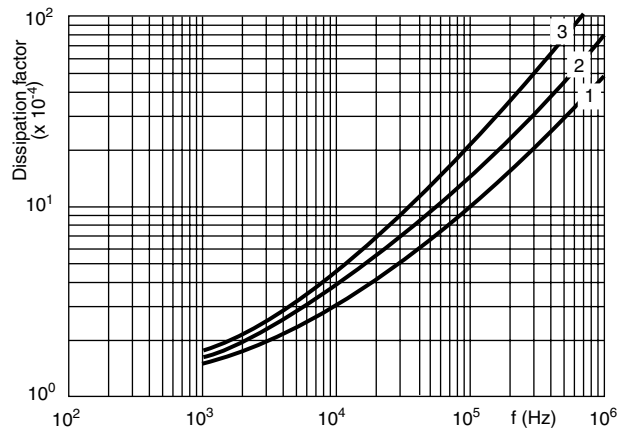


Tangent of loss angle (typical curve)



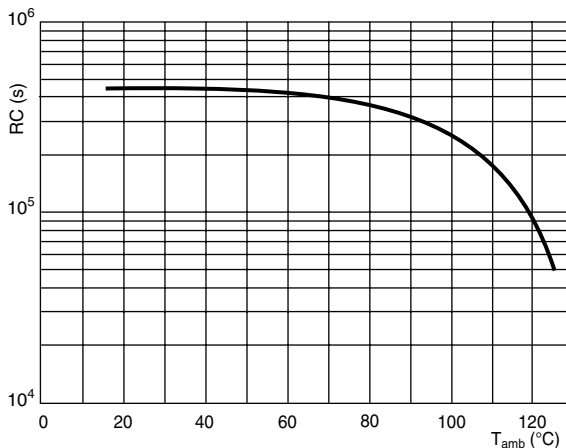
1. KP/MPK 10.0 mm and 15 mm pitch all versions
22.5 mm pitch, 1000 V, 1600 V, 2000 V and 2500 V versions
2. KP/MPK 22.5 mm pitch, 630 V versions
27.5 mm pitch, 1000 V, 1600 V and 2000 V versions
3. KP/MPK 27.5 mm pitch, 630 V versions

Maximum curves



1. KP/MPK 10.0 mm and 15 mm pitch all versions
22.5 mm pitch, 1000 V, 1600 V, 2000 V and 2500 V versions
2. KP/MPK 22.5 mm pitch, 630 V versions
27.5 mm pitch, 1000 V, 1600 V and 2000 V versions
3. KP/MPK 27.5 mm pitch, 630 V versions

Insulation resistance as a function of ambient temperature



**AC and Pulse Metallized Polypropylene Film Capacitors Vishay BCcomponents
KP/MKP Radial Lacquered Type****HEAT CONDUCTIVITY (G) AS A FUNCTION OF (ORIGINAL) PITCH AND CAPACITOR BODY THICKNESS IN mW/°C**

| W_{max.} (mm) | HEAT CONDUCTIVITY (mW/°C) | | | |
|----------------------------------|----------------------------------|--------------------|----------------------|----------------------|
| | PITCH 10 mm | PITCH 15 mm | PITCH 22.5 mm | PITCH 27.5 mm |
| 4.0 | 4.0 | 5.0 | - | - |
| 4.5 | 4.5 | 6.0 | - | - |
| 5.0 | 5.0 | 6.0 | 12.0 | 13.0 |
| 5.5 | 6.0 | 6.5 | 13.0 | 15.0 |
| 6.0 | 6.0 | 6.5 | 13.0 | 15.0 |
| 6.5 | 6.5 | 8.0 | 15.0 | 17.0 |
| 7.0 | - | 8.0 | 15.0 | 17.0 |
| 7.5 | - | 9.0 | 17.0 | 18.0 |
| 8.0 | - | 9.0 | 17.0 | 20.0 |
| 8.5 | - | 11.0 | 18.0 | 20.0 |
| 9.0 | - | 11.0 | 18.0 | 22.0 |
| 9.5 | - | 12.0 | 20.0 | 22.0 |
| 10.0 | - | 12.0 | 20.0 | 23.0 |
| 10.5 | - | - | 22.0 | 25.0 |
| 11.0 | - | - | 22.0 | 25.0 |
| 11.5 | - | - | 23.0 | 27.0 |
| 12.0 | - | - | - | 27.0 |
| 12.5 | - | - | - | 30.0 |
| 13.0 | - | - | - | 30.0 |
| 13.5 | - | - | - | 30.0 |
| 14.0 | - | - | - | 30.0 |
| 14.5 | - | - | - | 33.0 |
| 15.0 | - | - | - | 33.0 |
| 15.5 | - | - | - | 37.0 |
| 16.0 | - | - | - | 37.0 |

POWER DISSIPATION AND MAXIMUM COMPONENT TEMPERATURE RISE

The power dissipation must be limited in order not to exceed the maximum allowed component temperature rise as a function of the free ambient temperature.

The power dissipation can be calculated according Type detail specification "HQN-384-01/101: Technical Information Film Capacitors"

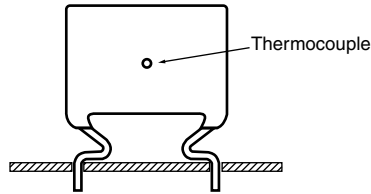
The component temperature rise (ΔT) can be measured (see section "Measuring the component temperature" for more details) or calculated by

$$\Delta T = P/G:$$

- ΔT = Component temperature rise (°C)
- P = Power dissipation of the component (mW)
- G = Heat conductivity of the component (mW/°C)

MEASURING THE COMPONENT TEMPERATURE

A thermocouple must be attached to the capacitor body as in:



The temperature is measured in unloaded (T_{amb}) and maximum loaded condition (T_C).

The temperature rise is given by $\Delta T = T_C - T_{amb}$.

To avoid radiation or convection, the capacitor should be tested in a wind-free box.

APPLICATION NOTE AND LIMITING CONDITIONS

To select the capacitor for a certain application, the following conditions must be checked:

1. The peak voltage (U_P) shall not be greater than the rated DC voltage (U_{Rdc})
2. The peak-to-peak voltage (U_{P-P}) shall not be greater than the maximum (U_{P-P}) to avoid the ionisation inception level
3. The voltage pulse slope (dU/dt) shall not exceed the rated voltage pulse slope in an RC-circuit at rated voltage and without ringing. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by U_{Rdc} and divided by the applied voltage.

For all other pulses following equation must be fulfilled:

$$2 \times \int_0^T \left(\frac{dU}{dt} \right)^2 \times dt < U_{Rdc} \times \left(\frac{dU}{dt} \right)_{rated}$$

T is the pulse duration.

4. The maximum component surface temperature rise must be lower than the limits

EXAMPLE

$C = 10 \text{ nF}$ 1600 V, KP/MPK

This is a signal as in the drawing below

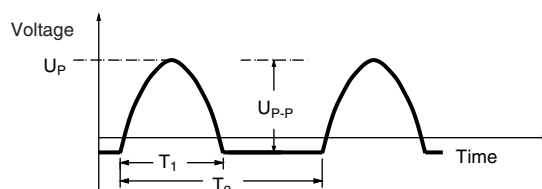
$U_{P-P} = 1200 \text{ V}$; $U_P = 1100 \text{ V}$; $T_1 = 12 \text{ } \mu\text{s}$; $T_2 = 64 \text{ } \mu\text{s}$

The ambient temperature is $50 \text{ }^\circ\text{C}$

Checking conditions:

1. The peak voltage $U_P = 1100 \text{ V}$ is lower than 1600 Vdc
2. The peak-to-peak voltage 1200 V is lower than $2\sqrt{2} \times 550 \text{ Vac} = 1414 \text{ } U_{P-P}$
3. The voltage pulse slope (dU/dt) = 320 V is much lower than 7000 V/ μs
4. The dissipated power is 170 mW as calculated with fourier terms

This gives a temperature rise of $170 \text{ mW} / (17 \text{ mW}/^\circ\text{C}) = 10 \text{ }^\circ\text{C}$ which is allowed acc. fig. "max. allowed temperature rise as a function of ambient temperature" for an ambient temperature of $50 \text{ }^\circ\text{C}$





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

INSPECTION REQUIREMENTS

General Notes:

Sub-clause numbers of tests and performance requirements refer to the “Sectional Specification, Publication IEC 60384-17 and Specific Reference Data”.

Group C Inspection Requirements

| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
|---|---|--|
| SUB-GROUP C1A PART OF SAMPLE OF SUB-GROUP C1 | | |
| 4.1 Dimensions (detail) | | As specified in chapters “General Data” of this specification |
| 4.3.1 Initial measurements | Capacitance Tangent of loss angle at 100 kHz | |
| 4.3 Robustness of terminations | Tensile: Load 10 N; 10 s Bending: Load 5 N; 4 x 90° | No visible damage |
| 4.4 Resistance to soldering heat | Method: 1A Solder bath: 280 °C ± 5 °C Duration: 10 s | |
| 4.14 Component solvent resistance | Isopropylalcohol at room temperature Method: 2 Immersion time: 5 min ± 0.5 min Recovery time: Min. 1 h, max. 2 h | |
| 4.4.2 Final measurements | Visual examination Capacitance Tangent of loss angle | No visible damage Legible marking ΔC/C ≤ 1 % + 5 pF of the value measured initially Increase of tan δ: ≤ 0.0005 Compared to values measured in 4.3.1 |
| SUB-GROUP C1B PART OF SAMPLE OF SUB-GROUP C1 | | |
| 4.6.1 Initial measurements | Capacitance Tangent of loss angle at 100 kHz | |
| 4.15 Solvent resistance of the marking | Isopropylalcohol at room temperature Method: 1 Rubbing material: cotton wool Immersion time: 5 min ± 0.5 min | No visible damage Legible marking |
| 4.6 Rapid change of temperature | θA = - 55 °C θB = + 105 °C 5 cycles Duration t = 30 min | |
| 4.7 Vibration | Visual examination Mounting: See section “Mounting” of this specification Procedure B4 Frequency range: 10 Hz to 55 Hz Amplitude: 0.75 mm or Acceleration 98 m/s ² (whichever is less severe) Total duration 6 h | No visible damage |

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| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
|--|---|---|
| 4.7.2 Final inspection 4.9 Shock 4.9.3 Final measurements | Visual examination Mounting: See section "Mounting" of this specification Pulse shape: Half sine Acceleration: 490 m/s ² Duration of pulse: 11 ms Visual examination Capacitance Tangent of loss angle Insulation resistance | No visible damage No visible damage For C > 0.027μF: ΔC/C ≤ 2 % or for C ≤ 0.027μF: ΔC/C ≤ 3 % + 5 pF of the value measured in 4.6.1. Increase of tan δ: ≤ 0.0005 Compared to values measured in 4.6.1 As specified in chapter "General data" of this specification |
| SUB-GROUP C1 COMBINED SAMPLE OF SPECIMENS OF SUB-GROUPS C1A AND C1B | | |
| 4.10 Climatic sequence 4.10.2 Dry heat 4.10.3 Damp heat cyclic Test Db, first cycle 4.10.4 Cold 4.10.6 Damp heat cyclic Test Db, remaining cycles 4.10.6.2 Final measurements | Temperature: + 105 °C Duration: 16 h Temperature: - 55 °C Duration: 2 h Voltage proof = U _{Rdc} for 1 min within 15 min after removal from testchamber Visual examination Capacitance Tangent of loss angle Insulation resistance | No breakdown of flash-over No visible damage Legible marking ΔC/C ≤ 3 % of the value measured in 4.4.2 or 4.9.3 Increase of tan δ: ≤ 0.001 Compared to values measured in 4.3.1 or 4.6.1 ≥ 50 % of values specified in chapters "General data" of this specification |
| SUB-GROUP C2 | | |
| 4.11 Damp heat steady state 4.11.1 Initial measurements 4.11.3 Final measurements | 56 days, 40 °C, 90 % to 95 % RH Capacitance Tangent of loss angle at 1 kHz Voltage proof = U _{Rdc} for 1 min within 15 min after removal from testchamber Visual examination Capacitance Tangent of loss angle Insulation resistance | No breakdown of flash-over No visible damage Legible marking ΔC/C ≤ 1 % + 5 pF of the value measured in 4.11.1. Increase of tan δ ≤ 0.0005 Compared to values measured in 4.11.1 ≥ 50 % of values specified in section "Insulation Resistance" of this specification |



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| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
|--|---|---|
| SUB GROUP C3 | | |
| 4.12.1 Endurance | Duration: 2000 h Temperature: 85 °C Voltage: 1.25 x max. U_{Rdc} V_{rms} , 50 Hz Duration: 2000 h Temperature: 105 °C | |
| 4.12.1.1 Initial measurements 4.12.1.3 Final measurements | Voltage: 0.875 x max. U_{Rdc} V_{rms} , 50 Hz Capacitance Tangent of loss angle at 100 kHz Visual examination Capacitance Tangent of loss angle Insulation resistance | No visible damage Legible marking Temperature: 85 °C For $C > 0.056 \mu F$: $ \Delta C/C \leq 2\% + 5 \text{ pF}$ or for $C > 0.056 \mu F$: $ \Delta C/C \leq 3\% + 5 \text{ pF}$ of the value measured in 4.12.1.1 Temperature: 105 °C $ \Delta C/C \leq 5\% + 5 \text{ pF}$ Increase of $\tan \delta$: ≤ 0.001 Compared to values measured in 4.12.1 $\geq 50\%$ of values specified in chapters "General data" of this specification |
| SUB-GROUP C4 | | |
| 4.2.6 Temperature characteristics | Capacitance Insulation resistance | As specified in section "Capacitance" of this specification As specified in chapters "General data" of this specification |



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