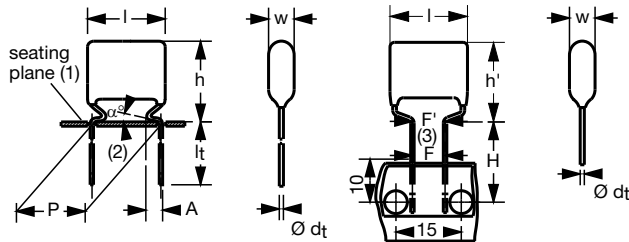


## AC and Pulse Metallized Polypropylene Film Capacitors KP/MKP Radial Lacquered Type



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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT

### ENCAPSULATION

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

### CLIMATIC TESTING CLASS ACCORDING 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

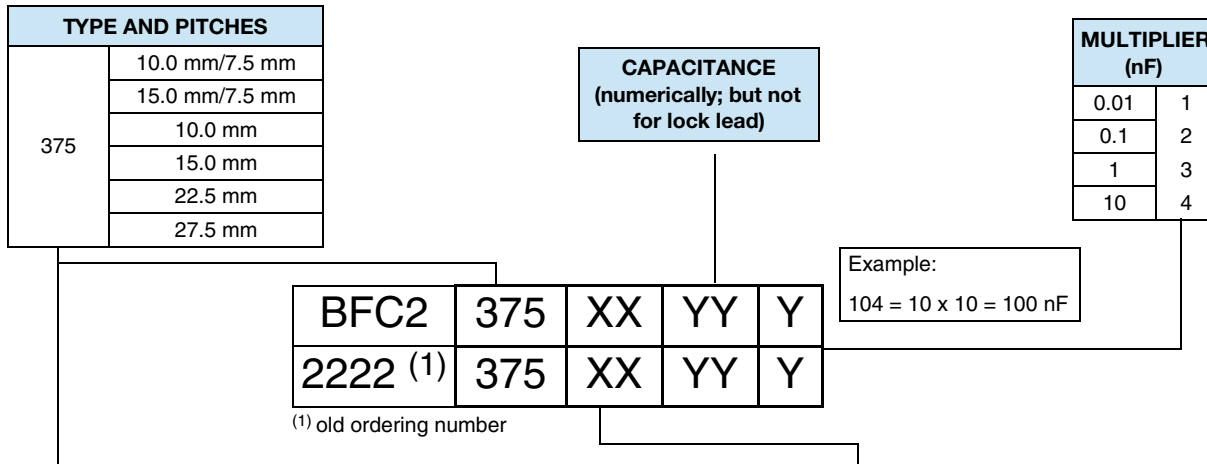
### DETAIL SPECIFICATION

For more detailed data and test requirements contact:

[dc-film@vishay.com](mailto: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 mm ± 1.0 mm                                      | ± 5 %           | 14    | 24     | 34     | 44     |
|            |  | Lock lead 4.0 mm + 1.0/- 0.5 mm                                  | ± 5 %           | 90    | 90     | 90     | 90     |
|            | Taped on reel <sup>(2)</sup><br>(bent back)                      | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter 500 mm   | ± 5 %           | 16    | 26     | 36     | 46     |
| 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 <sup>(2)</sup>                                     | H = 16.0 mm; P <sub>0</sub> = 12.7 mm;<br>Reel diameter = 500 mm | ± 5 %           | 12    | 22     | 32     | 42     |
|            |  |  | ± 3.5 %         | 13    | 23     | 33     | 43     |
|            | Taped on reel <sup>(2)</sup><br>(bent back)                      | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter = 500 mm | ± 3.5 %         | 17    | 27     | 37     | 47     |
|            | H = 16.0 mm; P <sub>0</sub> = 15.0 mm;<br>Reel diameter = 356 mm | ± 5 %  | 18              | 28    | 38     | 48     |        |

**Note**

<sup>(2)</sup> For detailed tape specifications refer to "Packaging Information" [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139) or end of catalog

**SPECIFIC REFERENCE DATA (630 V<sub>DC</sub>)**

| DESCRIPTION   | VALUE         |         |
|---|---------------|---------|
|   | 10 kHz        | 100 kHz |
| Tangent of loss angle at (x 10 <sup>-4</sup> )  |               |         |
| 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) <sub>R</sub> :  |               |         |
| 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  |         |
| Ionization (AC) voltage (typical value) at 50 pC peak discharge<br>at 50 pC peak discharge<br>at 20 pC peak discharge | > 400 V       |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s<br>for C ≤ 47 nF<br>for C > 47 nF               | 1008 V, 1 min |         |
| Withstanding (DC) voltage between leads and case  | 2840 V, 1 min |         |
| Maximum application temperature   | 105 °C        |         |



**U<sub>RDC</sub> = 630 V; U<sub>RAC</sub> = 300 V; U<sub>PP</sub> = 850 V (KINKED); C-TOL. = ± 5 %**

| C                            | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup>  | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |  | C<br>VALUE<br><br>..YYY |
|------------------------------|--|-----------------------------|---|-----------------------------------|----------------------------|--|-------------------------|
|                              |  |                             | LOOSE IN BOX                                | REEL                              |                            |  |                         |
|                              |  |                             | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH                    | PITCH = 7.5 mm (BENT BACK) |  |                         |
|                              |  |                             |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm                               |                         |
| XX<br>(SPQ)                  | XX<br>(SPQ)  | XX<br>(SPQ)                 | XX<br>(SPQ)                                 |                                   |                            |  |                         |
| <b>C (pF)</b>                | <b>PITCH = 10.0 mm ± 0.4 mm; d<sub>t</sub> = 0.60 mm ± 0.06 mm</b> |                             | <b>PITCH = 10.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |  |                         |
| 680<br>750                   | 5.0 x 13.0 x 14.5  | 0.65                        | <b>14...</b><br>(2000)                      | <b>12...</b><br>(1200)            |                            | <b>681</b><br><b>751</b>               |                         |
| 820<br>910<br>1000           | 5.5 x 13.5 x 14.5  | 0.70                        | <b>14...</b><br>(2000)                      | <b>12...</b><br>(1100)            |                            | <b>821</b><br><b>911</b><br><b>102</b> |                         |
| 1100<br>1200<br>1300         |  | 0.75                        |   |                                   |                            | <b>112</b><br><b>122</b><br><b>132</b> |                         |
| 1500<br>1600                 |  | 0.80<br>0.85                |   |                                   |                            | <b>152</b><br><b>162</b>               |                         |
| 1800<br>2000<br>2200<br>2400 |  | 0.80<br>0.85<br>0.90<br>1.0 |   |                                   |                            | <b>14...</b><br>(1750)                 | <b>12...</b><br>(1000)  |
| 2700                         | 6.5 x 14.5 x 14.5  | 1.1                         | <b>14...</b><br>(1500)                      | <b>12...</b><br>(900)             |                            | <b>272</b>                             |                         |

**Notes**

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



**U<sub>RDC</sub> = 630 V; U<sub>RAC</sub> = 300 V; U<sub>pp</sub> = 850 (KINKED); C-TOL. = ± 5 %**

| C  | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                                   |                             | C<br>VALUE<br><br>..YYY   |
|--|--|----------------------------|---|-----------------------------------|-----------------------------------|-----------------------------|---|
|  |  |                            | LOOSE IN BOX                                | REEL                              |                                   |                             |   |
|  |  |                            | LEADS<br>5 mm ± 1.0 mm<br><br>XX<br>(SPQ)   | ORIGINAL PITCH                    | PITCH = 7.5 mm (BENT BACK)        |                             |   |
|  |  |                            |   | Ø 500 mm<br><br>XX<br>(SPQ)       | Ø 500 mm<br><br>XX<br>(SPQ)       | Ø 356 mm<br><br>XX<br>(SPQ) |   |
| <b>C (pF)</b>  | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   | <b>PITCH = 7.5 mm (BENT BACK)</b> |                                   |                             |   |
| 3000<br>3300   | 5.0 x 14.0 (16.0) x 18.5   | 1.0                        | 14...<br>(2000)                             | 12...<br>(1200)                   | 16...<br>(1000)                   | 18...<br>(550)              | 302<br>332  |
| 3600<br>3900<br>4300<br>4700<br>5100<br>5600   | 5.5 x 14.5 (16.0) x 18.5   | 1.1                        | 14...<br>(2000)                             | 12...<br>(1100)                   | 16...<br>(900)                    | 18...<br>(500)              | 362<br>392<br>432<br>472<br>512<br>562                                    |
| 6200<br>6800<br>7500<br>8200<br>9100<br>10 000<br>11 000<br>12 000<br>13 000<br>15 000<br>16 000 | 6.0 x 15.0 (16.0) x 18.5   | 1.2                        | 14...<br>(2000)                             | 12...<br>(1000)                   | 16...<br>(800)                    | 18...<br>(450)              | 622<br>682<br>752<br>822<br>912<br>103<br>113<br>123<br>133<br>153<br>163 |
| 18 000<br>20 000   | 6.5 x 15.5 (17.0) x 18.5   | 1.3                        | 14...<br>(1500)                             | 12...<br>(900)                    | 16...<br>(750)                    | 18...<br>(400)              | 183<br>203  |
| 22 000   | 7.0 x 16.0 (17.5) x 18.5   | 1.5                        | 14...<br>(1500)                             | 12...<br>(800)                    | 16...<br>(700)                    | 18...<br>(400)              | 223   |
| 24 000   | 7.5 x 16.5 (18.0) x 18.5   | 1.6                        | 14...<br>(1250)                             | 12...<br>(800)                    | 16...<br>(650)                    | 18...<br>(350)              | 243   |
| 27 000<br>30 000   | 8.0 x 17.0 (18.5) x 18.5   | 1.9                        | 14...<br>(1250)                             | 12...<br>(750)                    | 16...<br>(600)                    | 18...<br>(350)              | 273<br>303  |
| 33 000   | 8.5 x 17.5 (19.0) x 18.5   | 2                          | 14...<br>(1000)                             | 12...<br>(700)                    | 16...<br>(550)                    | 18...<br>(300)              | 333   |
| 36 000<br>39 000   | 9.0 x 18.5 (20.0) x 18.5   | 2.3                        | 14...<br>(900)                              | 12...<br>(600)                    | 16...<br>(500)                    | 18...<br>(300)              | On<br>request   |
| <b>C (µF)</b>  | <b>PITCH = 22.5 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 22.5 mm</b>                      |                                   | <b>PITCH = 7.5 mm (BENT BACK)</b> |                             |   |
| 0.036<br>0.039<br>0.043<br>0.047<br>0.051<br>0.056<br>0.062                                      | 7.0 x 20.0 x 26.0  | 2.7                        | 14...<br>(650)                              | -                                 | -                                 | -                           | 363<br>393<br>433<br>473<br>513<br>563<br>623                             |
| 0.068  | 7.5 x 20.5 x 26.0  | 3                          | 14...<br>(600)                              | -                                 | -                                 | -                           | 683   |
| 0.075<br>0.082   | 8.0 x 21.0 x 26.0  | 3.3                        | 14...<br>(550)                              | -                                 | -                                 | -                           | 753<br>823  |
| 0.091  | 8.5 x 21.5 x 26.0  | 3.8                        | 14...<br>(500)                              | -                                 | -                                 | -                           | 913   |
| 0.1  | 9.0 x 22.0 x 26.0  | 4                          | 14...<br>(450)                              | -                                 | -                                 | -                           | 104   |

**Notes**

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



**U<sub>RDC</sub> = 630 V; U<sub>RAC</sub> = 300 V; U<sub>PP</sub> = 850 (KINKED); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |          |         |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------|---------|
|               |  |                            | LOOSE IN BOX                                | REEL                              |                            |          | C VALUE |
|               |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH                    | PITCH = 7.5 mm (BENT BACK) |          | ..YYY   |
|               |  |                            |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm |         |
| XX<br>(SPQ)   | XX<br>(SPQ)  | XX<br>(SPQ)                | XX<br>(SPQ)                                 |                                   |                            |          |         |
| <b>C (µF)</b> | <b>PITCH = 22.5 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 22.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |          |         |
| 0.11          | 9.5 x 22.5 x 26.0  | 4.3                        | 14...<br>(400)                              | -                                 | -                          | 114      |         |
| 0.12          | 10.0 x 23.0 x 26.0   | 4.7                        | 14...<br>(400)                              | -                                 | -                          | 124      |         |
| <b>C (µF)</b> | <b>PITCH = 27.5 mm ± 0.5 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 27.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |          |         |
| 0.13          | 9.5 x 22.5 x 30.0  | 4.7                        | 14...<br>(500)                              | -                                 | -                          | 134      |         |
| 0.15          | 10.0 x 23.0 x 30.0   | 5.2                        | 14...<br>(500)                              | -                                 | -                          | 154      |         |
| 0.16          | 10.5 x 23.5 x 30.0   | 5.5                        | 14...<br>(450)                              | -                                 | -                          | 164      |         |
| 0.18          | 11.0 x 24.0 x 30.0   | 6                          | 14...<br>(400)                              | -                                 | -                          | 184      |         |
| 0.2           | 11.5 x 24.5 x 30.0   | 6.6                        | 14...<br>(400)                              | -                                 | -                          | 204      |         |
| 0.22          | 12.5 x 25.5 x 30.0   | 7.1                        | 14...<br>(350)                              | -                                 | -                          | 224      |         |
| 0.24          | 13.0 x 26.0 x 30.0   | 7.7                        | 14...<br>(300)                              | -                                 | -                          | 244      |         |
| 0.27          | 13.5 x 26.5 x 30.0   | 8.5                        | 14...<br>(300)                              | -                                 | -                          | 274      |         |

**Notes**

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

**U<sub>RDC</sub> = 630 V; U<sub>RAC</sub> = 300 V; U<sub>PP</sub> = 850 V (LOCK LEAD); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm) | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING                        |        |
|---------------|--------------------------------------|----------------------------|--|--------|
|               |                                      |                            | LOOSE IN BOX   |        |
|               |                                      |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm                          |        |
|               |                                      |                            | (SPQ)  |        |
| <b>C (pF)</b> |                                      |                            | <b>PITCH = 10.0 mm ± 1.0 mm; d<sub>t</sub> = 0.60 mm ± 0.06 mm</b> |        |
| 680           | 5.0 x 16.0 x 14.5                    | 0.65                       | 90308  | (2000) |
| 750           |                                      |                            | 90309  |        |
| 820           | 5.5 x 16.5 x 14.5                    | 0.7                        | 90311  | (2000) |
| 910           |                                      | 0.7                        | 90312  |        |
| 1000          |                                      | 0.7                        | 90313  |        |
| 1100          |                                      | 0.75                       | 90314  |        |
| 1300          |                                      | 0.75                       | 90316  |        |
| 1500          |                                      | 0.80                       | 90317  |        |
| 1600          |                                      | 0.85                       | 90318  |        |
| 1800          |                                      | 6.0 x 17.0 x 14.5          | 0.80   |        |
| 2000          | 0.85                                 |                            | 90321  |        |
| 2200          | 0.90                                 |                            | 90322  |        |
| 2400          | 1.0                                  |                            | 90323  |        |
| 2700          | 1.1                                  |                            | 90324  | (1500) |

**Notes**

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



**U<sub>RDC</sub> = 630 V; U<sub>RAC</sub> = 300 V; U<sub>PP</sub> = 850 V (LOCK LEAD); C-TOL. = ± 5 %**

| C  | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING   |        |
|--|--|----------------------------|---|--------|
|  |  |                            | LOOSE IN BOX  |        |
|  |  |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|  |  |                            | (SPQ)   |        |
| <b>C (pF)</b>  | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 3000<br>3300   | 5.0 x 17.0 x 18.5  | 1                          | 90325<br>90326  | (2000) |
| 3600<br>3900<br>4300<br>4700<br>5100<br>5600   | 5.5 x 17.5 x 18.5  | 1.1                        | 90327<br>90328<br>90329<br>90331<br>90332<br>90333  | (2000) |
| 6200<br>6800<br>7500<br>8200<br>9100<br>10 000<br>11 000<br>12 000<br>13 000<br>15 000<br>16 000 | 6.0 x 18.0 x 18.5  | 1.3                        | 90334<br>90335<br>90336<br>90337<br>90338<br>90339<br>90236<br>90341<br>90342<br>90343<br>90344 | (2000) |
| 18 000<br>20 000   | 6.5 x 18.5 x 18.5  | 1.4                        | 90218<br>90345  | (1750) |
| 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<br>30 000   | 8.0 x 20.0 x 18.5  | 1.9                        | 90223<br>90346  | (1250) |
| 33 000   | 8.5 x 20.5 x 18.5  | 2                          | 90347   | (1200) |
| 36 000<br>39 000   | 9.0 x 21.5 x 18.5  | 2.3                        | On request  | (1000) |
| <b>C (µF)</b>  | <b>PITCH = 22.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 0.036<br>0.039<br>0.043<br>0.047<br>0.051<br>0.056<br>0.062                                      | 7.0 x 23.0 x 26.0  | 2.7                        | 90348<br>90349<br>90351<br>90352<br>90353<br>90354<br>90355                                     | (600)  |
| 0.068  | 7.5 x 23.5 x 26.0  | 3                          | 90356   | (550)  |
| 0.075<br>0.082   | 8.0 x 24.0 x 26.0  | 3.3                        | 90357<br>90358  | (500)  |
| 0.091  | 8.5 x 24.5 x 26.0  | 3.8                        | 90359   | (450)  |



| C      | DIMENSIONS<br>w x h (h') x l<br>(mm)                         | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |       |
|--------|--|----------------------------|---|-------|
|        |  |                            | LOOSE IN BOX                                |       |
|        |  |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |       |
|        |  |                            | (SPQ)                                       |       |
| C (μF) | PITCH = 22.5 mm ± 1.0 mm; d <sub>t</sub> = 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 <sub>t</sub> = 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**

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

**SPECIFIC REFERENCE DATA (1000 V<sub>DC</sub>)**

| DESCRIPTION   | VALUE                                       |         |
|---|---|---------|
|   | 10 kHz                                      | 100 kHz |
| Tangent of loss angle at (x 10 <sup>-4</sup> )                        |   |         |
| 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 <sub>t</sub> ):                       |   |         |
| 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                                |         |
| Ionization (AC) voltage (typical value)                               |   |         |
| at 50 pC peak discharge   | > 500 V                                     |         |
| at 20 pC peak discharge   |   |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s |   |         |
| for C ≤ 47 nF   | 1600 V, 1 min                               |         |
| for C > 47 nF   | [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                                      |         |



**U<sub>RDC</sub> = 1000 V; U<sub>RAC</sub> = 400 V; U<sub>PP</sub> = 1100 V (KINKED); C-TOL. = ± 5 %**

| C  | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup>   | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |                       | C<br>VALUE<br><br>..YYY  |
|--|--|--|---|-----------------------------------|----------------------------|-----------------------|--|
|  |  |  | LOOSE IN BOX                                | REEL                              |                            |                       |  |
|  |  |  | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH<br>Ø 500 mm        | PITCH = 7.5 mm (BENT BACK) |                       |  |
|  |  |  | XX<br>(SPQ)                                 | XX<br>(SPQ)                       | XX<br>(SPQ)                | XX<br>(SPQ)           |  |
| <b>C (pF)</b>  | <b>PITCH = 10.0 mm ± 0.4 mm; d<sub>t</sub> = 0.60 mm ± 0.06 mm</b> |  | <b>PITCH = 10.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                       |  |
| 100<br>110<br>120<br>130   | 5.0 x 13.0 x 14.5  | 0.5  | <b>24...</b><br>(2000)                      | <b>22...</b><br>(1200)            | -                          | -                     | 101<br>111<br>121<br>131   |
| 150<br>160<br>180<br>200<br>220<br>240<br>270<br>300<br>330<br>360<br>390<br>430<br>470<br>510<br>560<br>620<br>680<br>750<br>820<br>910 | 5.5 x 13.5 x 14.5  | 0.55<br>0.55<br>0.55<br>0.55<br>0.60<br>0.60<br>0.60<br>0.60<br>0.60<br>0.60<br>0.65<br>0.70<br>0.75<br>0.75<br>0.80<br>0.80<br>0.80<br>0.70<br>0.70<br>0.70 | <b>24...</b><br>(2000)                      | <b>22...</b><br>(1100)            | -                          | -                     | 151<br>161<br>181<br>201<br>221<br>241<br>271<br>301<br>331<br>361<br>391<br>431<br>471<br>511<br>561<br>621<br>681<br>751<br>821<br>911 |
| 1000<br>1100<br>1200<br>1300<br>1500   | 6.0 x 14.0 x 14.5  | 0.75<br>0.85<br>0.90<br>0.85<br>0.90   | <b>24...</b><br>(1750)                      | <b>22...</b><br>(1000)            | -                          | -                     | 102<br>112<br>122<br>132<br>152  |
| <b>C (pF)</b>  | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |  | <b>PITCH = 15.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                       |  |
| 1600<br>1800<br>2000<br>2200<br>2400   | 5.5 x 14.5 (16.0) x 18.5   | 1.1  | <b>24...</b><br>(2000)                      | <b>22...</b><br>(1100)            | <b>26...</b><br>(900)      | <b>28...</b><br>(500) | 162<br>182<br>202<br>222<br>242  |
| 2700<br>3000<br>3300<br>3600<br>3900<br>4300<br>4700<br>5100<br>5600   | 6.0 x 15.0 (16.5) x 18.5   | 1.2  | <b>24...</b><br>(2000)                      | <b>22...</b><br>(1000)            | <b>26...</b><br>(800)      | <b>28...</b><br>(450) | 272<br>302<br>332<br>362<br>392<br>432<br>472<br>512<br>562  |

**Notes**

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





**U<sub>RDC</sub> = 1000 V; U<sub>RAC</sub> = 400 V; U<sub>pp</sub> = 1100 V (KINKED); C-TOL. = ± 5 %**

| C                    | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |  |                | C VALUE<br><br>..YYY |
|----------------------|--|----------------------------|---|-----------------------------------|--|----------------|----------------------|
|                      |  |                            | LOOSE IN BOX                                | REEL                              |  |                |                      |
|                      |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH<br>Ø 500 mm        | PITCH = 7.5 mm (BENT BACK)<br>Ø 500 mm    Ø 356 mm |                |                      |
|                      |  |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                       | XX<br>(SPQ)  | XX<br>(SPQ)    |                      |
| <b>C (pF)</b>        | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 15.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |  |                |                      |
| 6200<br>6800         | 6.0 x 15.0 (16.5) x 18.5   | 1.2                        | 24...<br>(2000)                             | 22...<br>(1000)                   | 26...<br>(800)                                     | 28...<br>(450) | 622<br>682           |
| 7500<br>8200<br>9100 | 7.0 x 16.0 (17.5) x 18.5   | 1.4                        | 24...<br>(1500)                             | 22...<br>(800)                    | 26...<br>(700)                                     | 28...<br>(400) | 752<br>822<br>912    |
| 10 000               | 7.5 x 16.5 (18.0) x 18.5   | 1.6                        | 24...<br>(1250)                             | 22...<br>(800)                    | 26...<br>(650)                                     | 28...<br>(350) | 103                  |
| 11 000<br>12 000     | 8.0 x 17.0 (18.5) x 18.5   | 1.8                        | 24...<br>(1250)                             | 22...<br>(750)                    | 26...<br>(600)                                     | 28...<br>(350) | 113<br>123           |
| 13 000               | 8.5 x 17.5 (19.0) x 18.5   | 1.9                        | 24...<br>(1000)                             | 22...<br>(700)                    | 26...<br>(550)                                     | 28...<br>(300) | 133                  |
| 15 000               | 9.0 x 18.5 (19.5) x 18.5   | 2.1                        | 24...<br>(1000)                             | 22...<br>(650)                    | 26...<br>(550)                                     | 28...<br>(300) | 153                  |
| <b>C (µF)</b>        | <b>PITCH = 22.5 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 22.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |  |                |                      |
| 0.016<br>0.018       | 6.0 x 19.0 x 26.0  | 2.2                        | 24...<br>(800)                              |                                   |  |                | 163<br>183           |
| 0.02<br>0.022        | 6.5 x 19.5 x 26.0  | 2.5                        | 24...<br>(750)                              |                                   |  |                | 203<br>223           |
| 0.024                | 7.0 x 20.0 x 26.0  | 2.7                        | 24...<br>(650)                              |                                   |  |                | 243                  |
| 0.027<br>0.03        | 7.5 x 20.5 x 26.0  | 3.1                        | 24...<br>(600)                              | -                                 | -  | -              | 273<br>303           |
| 0.033                | 8.0 x 21.0 x 26.0  | 3.4                        | 24...<br>(550)                              |                                   |  |                | 333                  |
| 0.036<br>0.039       | 8.5 x 21.5 x 26.0  | 3.7                        | 24...<br>(500)                              |                                   |  |                | 363<br>393           |
| 0.043                | 9.0 x 22.0 x 26.0  | 4.1                        | 24...<br>(450)                              |                                   |  |                | 433                  |
| <b>C (µF)</b>        | <b>PITCH = 27.5 mm ± 0.5 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 27.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |  |                |                      |
| 0.047                | 7.0 x 20.0 x 30.0  | 3.1                        | 24...<br>(1000)                             |                                   |  |                | 473                  |
| 0.051<br>0.056       | 7.5 x 20.5 x 30.0  | 3.4                        | 24...<br>(750)                              |                                   |  |                | 513<br>563           |
| 0.062                | 8.0 x 21.0 x 30.0  | 3.8                        | 24...<br>(650)                              |                                   |  |                | 623                  |
| 0.068                | 8.5 x 21.5 x 30.0  | 4.0                        | 24...<br>(550)                              |                                   |  |                | 683                  |
| 0.075                | 9.0 x 22.0 x 30.0  | 4.4                        | 24...<br>(550)                              |                                   |  |                | 753                  |
| 0.082                | 9.5 x 22.5 x 30.0  | 4.7                        | 24...<br>(500)                              |                                   |  |                | 823                  |
| 0.091                | 10.0 x 23.0 x 30.0   | 5.1                        | 24...<br>(500)                              | -                                 | -  | -              | 913                  |
| 0.10                 | 10.5 x 23.5 x 30.0   | 5.5                        | 24...<br>(450)                              |                                   |  |                | 104                  |
| 0.11                 | 11.0 x 24.0 x 30.0   | 5.9                        | 24...<br>(400)                              |                                   |  |                | 114                  |
| 0.12                 | 11.5 x 24.5 x 30.0   | 6.3                        | 24...<br>(400)                              |                                   |  |                | 124                  |
| 0.13                 | 12.0 x 25.0 x 30.0   | 6.8                        | 24...<br>(350)                              |                                   |  |                | 134                  |
| 0.15                 | 12.5 x 25.5 x 30.0   | 7.6                        | 24...<br>(350)                              |                                   |  |                | 154                  |

**Notes**

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



**U<sub>RDC</sub> = 1000 V; U<sub>RAC</sub> = 400 V; U<sub>PP</sub> = 1100 V (LOCK LEAD); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|---------------|--|----------------------------|---|--------|
|               |  |                            | LOOSE IN BOX                                |        |
|               |  |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|               |  |                            | (SPQ)                                       |        |
| <b>C (pF)</b> | <b>PITCH = 10.0 mm ± 1.0 mm; d<sub>t</sub> = 0.60 mm ± 0.06 mm</b> |                            |   |        |
| 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                                       |        |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 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  |                            |   |        |



| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|---------------|--|----------------------------|---|--------|
|               |  |                            | LOOSE IN BOX                                |        |
|               |  |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|               |  |                            | (SPQ)                                       |        |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 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                                       |        |
| 13 000        | 8.5 x 20.5 x 18.5  | 1.9                        | 90428                                       | (1200) |
| 15 000        | 9.0 x 21.0 x 18.5  | 2.1                        | 90429                                       | (1100) |
| <b>C (μF)</b> | <b>PITCH = 22.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 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)  |
| <b>C (μF)</b> | <b>PITCH = 27.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 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**

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



**SPECIFIC REFERENCE DATA (1600 V<sub>DC</sub>)**

| DESCRIPTION   | VALUE                                 |         |
|---|---------------------------------------|---------|
|   | 10 kHz                                | 100 kHz |
| Tangent of loss angle at (x 10 <sup>-4</sup> ):<br>Pitch = 10 mm, 15 mm and 7.5 mm (bent back)                                    | ≤ 6                                   | ≤ 10    |
| Pitch = 22.5 mm   | ≤ 6                                   | ≤ 15    |
| Pitch = 27.5 mm   | ≤ 6                                   | ≤ 20    |
| Rated voltage pulse slope (dU/dt):<br>Pitch = 10 mm<br>Pitch = 15 mm and 7.5 mm (bent back)<br>Pitch = 22.5 mm<br>Pitch = 27.5 mm | 21 000 V/μs<br>7000 V/μs<br>4700 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                          |         |
| Ionization (AC) voltage (typical value)<br>at 50 pC peak discharge<br>at 10 pC peak discharge                                     | > 550 V                               |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s<br>for C ≤ 47 nF<br>for C > 47 nF                           | 2560 V, 1 min                         |         |
| Withstanding (DC) voltage between leads and case  | 2840 V, 1 min                         |         |
| Maximum application temperature   | 105 °C                                |         |

**U<sub>RDC</sub> = 1600 V; U<sub>RAC</sub> = 500 V; U<sub>PP</sub> = 1400 V (KINKED); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |             | C<br>VALUE<br><br>..YYY |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|-------------|-------------------------|
|               |  |                            | LOOSE IN BOX                                | REEL                              |                            |             |                         |
|               |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH                    | PITCH = 7.5 mm (BENT BACK) |             |                         |
|               |  |                            | XX<br>(SPQ)                                 | XX<br>(SPQ)                       | XX<br>(SPQ)                | XX<br>(SPQ) |                         |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 15.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |             |                         |
| 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                     |



| C                          | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |                   | C<br>VALUE<br><br>..YYY |
|----------------------------|--|----------------------------|---|-----------------------------------|----------------------------|-------------------|-------------------------|
|                            |  |                            | LOOSE IN BOX                                | REEL                              |                            |                   |                         |
|                            |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL PITCH                    | PITCH = 7.5 mm (BENT BACK) |                   |                         |
|                            |  |                            |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm          |                         |
| XX<br>(SPQ)                | XX<br>(SPQ)  | XX<br>(SPQ)                | XX<br>(SPQ)                                 |                                   |                            |                   |                         |
| <b>C (µF)</b>              | <b>PITCH = 22.5 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 22.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                   |                         |
| 0.0047<br>0.0051<br>0.0056 | 6.0 x 19.0 x 26.0  | 2.0                        | <b>34...</b><br>(800)                       |                                   |                            | 472<br>512<br>562 |                         |
| 0.0062<br>0.0068           | 6.5 x 19.5 x 26.0  | 2.1                        | <b>34...</b><br>(750)                       |                                   |                            | 622<br>682        |                         |
| 0.0075<br>0.0082           | 7.0 x 20.0 x 26.0  | 2.3                        | <b>34...</b><br>(650)                       |                                   |                            | 752<br>822        |                         |
| 0.0091                     | 7.5 x 20.5 x 26.0  | 2.5                        | <b>34...</b><br>(600)                       |                                   |                            | 912               |                         |
| 0.01                       | 8.0 x 21.0 x 26.0  | 2.6                        | <b>34...</b><br>(550)                       | -                                 | -                          | 103               |                         |
| 0.011<br>0.012             | 8.5 x 21.5 x 26.0  | 2.9                        | <b>34...</b><br>(500)                       |                                   |                            | 113<br>123        |                         |
| 0.013                      | 9.0 x 22.0 x 26.0  | 3.1                        | <b>34...</b><br>(450)                       |                                   |                            | 133               |                         |
| 0.015                      | 9.5 x 22.5 x 26.0  | 3.5                        | <b>34...</b><br>(400)                       |                                   |                            | 153               |                         |
| 0.016                      | 10.0 x 23.0 x 26.0   | 3.6                        | <b>34...</b><br>(400)                       |                                   |                            | 163               |                         |
| 0.018                      | 10.5 x 23.5 x 26.0   | 4.0                        | <b>34...</b><br>(350)                       |                                   |                            | 183               |                         |
| <b>C (µF)</b>              | <b>PITCH = 27.5 mm ± 0.5 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 27.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                   |                         |
| 0.02                       | 9.0 x 22.0 x 30.0  | 4.2                        | <b>34...</b><br>(550)                       |                                   |                            | 203               |                         |
| 0.022                      | 9.5 x 22.5 x 30.0  | 4.4                        | <b>34...</b><br>(500)                       |                                   |                            | 223               |                         |
| 0.024                      | 10.0 x 23.0 x 30.0   | 4.7                        | <b>34...</b><br>(500)                       |                                   |                            | 243               |                         |
| 0.027                      | 10.5 x 23.5 x 30.0   | 5.2                        | <b>34...</b><br>(450)                       |                                   |                            | 273               |                         |
| 0.03                       | 11.0 x 24.0 x 30.0   | 5.6                        | <b>34...</b><br>(400)                       |                                   |                            | 303               |                         |
| 0.033                      | 11.5 x 24.5 x 30.0   | 6.0                        | <b>34...</b><br>(400)                       |                                   |                            | 333               |                         |
| 0.036                      | 12.0 x 25.0 x 30.0   | 6.5                        | <b>34...</b><br>(350)                       |                                   |                            | 363               |                         |
| 0.039                      | 12.5 x 25.5 x 30.0   | 6.9                        | <b>34...</b><br>(350)                       |                                   |                            | 393               |                         |

**Notes**

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



**U<sub>RDC</sub> = 1600 V; U<sub>RAC</sub> = 500 V; U<sub>PP</sub> = 1400 V (LOCK LEAD); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm) | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING                        |        |
|---------------|--------------------------------------|----------------------------|--|--------|
|               |                                      |                            | LOOSE IN BOX   |        |
|               |                                      |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm                          |        |
|               |                                      |                            | (SPQ)  |        |
| <b>C (pF)</b> |                                      |                            | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |        |
| 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  |        |
| <b>C (µF)</b> |                                      |                            | <b>PITCH = 22.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |        |
| 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)  |
| <b>C (µF)</b> |                                      |                            | <b>PITCH = 27.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |        |
| 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**

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



**SPECIFIC REFERENCE DATA (2000 V<sub>DC</sub>)**

| DESCRIPTION   | VALUE         |         |
|---|---------------|---------|
|   | 10 kHz        | 100 kHz |
| Tangent of loss angle at (x 10 <sup>-4</sup> ):<br>Pitch = 10 mm, 15 mm, and 7.5 mm (bent back)         | ≤ 6           | ≤ 10    |
| Pitch = 22.5 mm   | ≤ 6           | ≤ 10    |
| Pitch = 27.5 mm   | ≤ 6           | ≤ 15    |
| Rated voltage pulse slope (dU/dt):<br>Pitch = 10 mm   | 30 000 V/μs   |         |
| Pitch = 15 mm and 7.5 mm (bent back)  | 10 000 V/μs   |         |
| Pitch = 22.5 mm   | 6700 V/μs     |         |
| Pitch = 27.5 mm   |               |         |
| R between leads at 500 V, 1 min   | > 100 000 MΩ  |         |
| R between interconnected leads and case, 500 V, 1 min   | > 100 000 MΩ  |         |
| Ionization (AC) voltage (typical value)<br>at 50 pC peak discharge<br>at 20 pC peak discharge           | > 600 V       |         |
| Withstanding (DC) voltage (cut off current 10 mA), rise time 1000 V/s<br>for C ≤ 47 nF<br>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<sub>RDC</sub> = 2000 V; U<sub>RAC</sub> = 600 V; U<sub>PP</sub> = 1700 (KINKED); C-TOL. = ± 5 %**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |                |       |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------------|-------|
|               |  |                            | LOOSE IN BOX                                | REEL                              |                            | C VALUE        |       |
|               |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL<br>PITCH                 | PITCH = 7.5 mm (BENT BACK) |                | ..YYY |
|               |  |                            |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm       |       |
| XX<br>(SPQ)   | XX<br>(SPQ)  | XX<br>(SPQ)                | XX<br>(SPQ)                                 |                                   |                            |                |       |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 15.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                |       |
| 100           | 5.5 x 14.5 (15.0) x 18.5   | 0.75                       |   |                                   |                            | 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                       | 44...<br>(2000)                             | 42...<br>(1100)                   | 46...<br>(900)             | 48...<br>(500) | 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   |



| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XXYYY AND PACKAGING |                                   |                            |                | C VALUE<br>..YYY |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------------|------------------|
|               |  |                            | LOOSE IN BOX                                | REEL                              |                            |                |                  |
|               |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL<br>PITCH                 | PITCH = 7.5 mm (BENT BACK) |                |                  |
|               |  |                            |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm       |                  |
| XX<br>(SPQ)   | XX<br>(SPQ)  | XX<br>(SPQ)                | XX<br>(SPQ)                                 |                                   |                            |                |                  |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 15.0 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                |                  |
| 620           | 6.0 x 15.0 (15.5) x 18.5   | 0.85                       | 44...<br>(2000)                             | 42...<br>(1000)                   | 46...<br>(800)             | 48...<br>(450) | 621              |
| 680           |  | 0.85                       |   |                                   |                            |                | 681              |
| 750           |  | 0.90                       |   |                                   |                            |                | 751              |
| 820           | 6.5 x 15.5 (16.0) x 18.5   | 0.95                       | 44...<br>(1500)                             | 42...<br>(900)                    | 46...<br>(750)             | 48...<br>(400) | 821              |
| 910           | 5.5 x 14.5 (16.0) x 18.5   | 1.1                        | 44...<br>(2000)                             | 42...<br>(420)                    | 46...<br>(900)             | 48...<br>(500) | 911              |
| 1000          | 6.0 x 15.0 (16.5) x 18.5   | 1.2                        | 44...<br>(2000)                             | 42...<br>(1000)                   | 46...<br>(800)             | 48...<br>(450) | 102              |
| 1100          |  |                            |   |                                   |                            |                | 112              |
| 1200          |  |                            |   |                                   |                            |                | 122              |
| 1300          | 6.5 x 15.5 (17.0) x 18.5   | 1.3                        | 44...<br>(1500)                             | 42...<br>(900)                    | 46...<br>(750)             | 48...<br>(400) | 132              |
| 1500          | 7.0 x 16.0 (17.5) x 18.5   | 1.4                        | 44...<br>(1500)                             | 42...<br>(800)                    | 46...<br>(700)             | 48...<br>(400) | 152              |
| 1600          | 7.5 x 16.5 (18.0) x 18.5   | 1.5                        | 44...<br>(1250)                             | 42...<br>(800)                    | 46...<br>(650)             | 48...<br>(350) | 162              |
| 1800          |  |                            |   |                                   |                            |                | 182              |
| 2000          | 8.0 x 17.0 (18.5) x 18.5   | 1.6                        | 44...<br>(1250)                             | 42...<br>(750)                    | 46...<br>(600)             | 48...<br>(350) | 202              |
| 2200          | 8.5 x 17.5 (19.0) x 18.5   | 1.7                        | 44...<br>(1000)                             | 42...<br>(700)                    | 46...<br>(550)             | 48...<br>(300) | 222              |
| 2400          | 9.0 x 18.0 (19.5) x 18.5   | 1.8                        | 44...<br>(1000)                             | 42...<br>(650)                    | 46...<br>(550)             | 48...<br>(300) | 242              |
| 2700          | 9.5 x 18.5 (20.0) x 18.5   | 2.0                        | 44...<br>(900)                              | 42...<br>(600)                    | 46...<br>(500)             | 48...<br>(300) | 272              |
| <b>C (µF)</b> | <b>PITCH = 22.5 mm ± 0.4 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 22.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |                |                  |
| 0.003         | 6.0 x 19.0 x 26.0  | 2.1                        | 44...<br>(800)                              |                                   |                            |                | 302              |
| 0.0033        |  |                            |   |                                   |                            |                | 332              |
| 0.0036        |  |                            |   |                                   |                            |                | 362              |
| 0.0039        | 6.5 x 19.5 x 26.0  | 2.3                        | 44...<br>(750)                              |                                   |                            |                | 392              |
| 0.0043        |  |                            |   |                                   |                            |                | 432              |
| 0.0047        | 7.0 x 20.0 x 26.0  | 2.6                        | 44...<br>(650)                              |                                   |                            |                | 472              |
| 0.0051        |  |                            |   |                                   |                            |                | 512              |
| 0.0056        | 7.5 x 20.5 x 26.0  | 2.8                        | 44...<br>(600)                              |                                   |                            |                | 562              |
| 0.0062        |  |                            |   |                                   |                            |                | 622              |
| 0.0068        | 8.0 x 21.0 x 26.0  | 3.0                        | 44...<br>(550)                              |                                   |                            |                | 682              |
| 0.0075        |  |                            |   |                                   |                            |                | 752              |
| 0.0082        | 8.5 x 21.5 x 26.0  | 3.3                        | 44...<br>(500)                              |                                   |                            |                | 822              |
| 0.0091        | 9.0 x 22.0 x 26.0  | 3.6                        | 44...<br>(450)                              |                                   |                            |                | 912              |
| 0.01          | 9.5 x 22.5 x 26.0  | 3.8                        | 44...<br>(400)                              |                                   |                            |                | 103              |





| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |                                   |                            |          |         |
|---------------|--|----------------------------|---|-----------------------------------|----------------------------|----------|---------|
|               |  |                            | LOOSE IN BOX                                | REEL                              |                            |          | C VALUE |
|               |  |                            | LEADS<br>5 mm ± 1.0 mm                      | ORIGINAL<br>PITCH                 | PITCH = 7.5 mm (BENT BACK) |          | ..YYY   |
|               |  |                            |   | Ø 500 mm                          | Ø 500 mm                   | Ø 356 mm |         |
| XX<br>(SPQ)   | XX<br>(SPQ)  | XX<br>(SPQ)                | XX<br>(SPQ)                                 |                                   |                            |          |         |
| <b>C (µF)</b> | <b>PITCH = 27.5 mm ± 0.5 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            | <b>PITCH = 27.5 mm</b>                      | <b>PITCH = 7.5 mm (BENT BACK)</b> |                            |          |         |
| 0.011         | 9.0 x 22.0 x 30.0  | 3.8                        | 44...<br>(550)                              |                                   |                            | 113      |         |
| 0.012         | 9.5 x 22.5 x 30.0  | 4.1                        | 44...<br>(500)                              |                                   |                            | 123      |         |
| 0.013         | 10.0 x 23.0 x 30.0   | 4.4                        | 44...<br>(500)                              |                                   |                            | 133      |         |
| 0.015         | 10.5 x 23.5 x 30.0   | 4.9                        | 44...<br>(450)                              |                                   |                            | 153      |         |
| 0.016         | 11.0 x 24.0 x 30.0   | 5.1                        | 44...<br>(400)                              |                                   |                            | 163      |         |
| 0.018         | 11.5 x 24.5 x 30.0   | 5.6                        | 44...<br>(400)                              |                                   |                            | 183      |         |
| 0.02          | 12.5 x 25.5 x 30.0   | 6.1                        | 44...<br>(350)                              |                                   |                            | 203      |         |
| 0.022         | 13.0 x 26.0 x 30.0   | 6.5                        | 44...<br>(300)                              |                                   |                            | 223      |         |

**Notes**

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

**U<sub>RDC</sub> = 2000 V; U<sub>RAC</sub> = 600 V; U<sub>PP</sub> = 1700 V (LOCK LEAD)**

| C             | DIMENSIONS<br>w x h (h') x l<br>(mm) | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING                        |  |
|---------------|--------------------------------------|----------------------------|--|--|
|               |                                      |                            | LOOSE IN BOX   |  |
|               |                                      |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm                          |  |
|               |                                      |                            | (SPQ)  |  |
| <b>C (pF)</b> |                                      |                            | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |  |
| 100           | 5.5 x 17.5 x 18.5                    | 0.75                       | 90483  |  |
| 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                      |  |  |



| C             | DIMENSIONS<br>w x h (h') x l<br>(mm)                               | MASS<br>(g) <sup>(1)</sup> | CATALOG NUMBER BFC2 375 XYYYY AND PACKAGING |        |
|---------------|--|----------------------------|---|--------|
|               |  |                            | LOOSE IN BOX                                |        |
|               |  |                            | l <sub>t</sub> = 4.0 mm + 1.0 mm/- 0.5 mm   |        |
|               |  |                            | (SPQ)                                       |        |
| <b>C (pF)</b> | <b>PITCH = 15.0 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 620           | 6.0 x 18.0 x 18.5  | 0.85                       | 90502                                       | (2000) |
| 680           |  | 0.85                       | 90229                                       |        |
| 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          | 6.0 x 18.0 x 18.5  | 1.3                        | 90225                                       | (2000) |
| 1100          |  |                            | 90506                                       |        |
| 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          | 7.5 x 19.5 x 18.5  | 1.7                        | 90508                                       | (1400) |
| 1800          |  |                            | 90237                                       |        |
| 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) |
| <b>C (µF)</b> | <b>PITCH = 22.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 0.003         | 6.0 x 22.0 x 26.0  | 2.2                        | 90512                                       | (750)  |
| 0.0033        |  |                            | 90162                                       |        |
| 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        | 8.0 x 24.0 x 26.0  | 3.0                        | 90171                                       | (500)  |
| 0.0075        |  |                            | 90172                                       |        |
| 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)  |
| <b>C (µF)</b> | <b>PITCH = 27.5 mm ± 1.0 mm; d<sub>t</sub> = 0.80 mm ± 0.08 mm</b> |                            |   |        |
| 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**

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



## 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](http://www.vishay.com/doc?28139) or end of catalog.

### Specific Method of Mounting to Withstand Vibration and Shock

- For pitches  $\leq 15$  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

$T_{stg} = -25$  °C to  $+35$  °C with RH maximum 75 % without condensation

### Ratings and Characteristics Reference Conditions

Unless otherwise specified, all electrical values apply to an ambient temperature of  $23$  °C  $\pm 1$  °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  $96$  h  $\pm 4$  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)



Maximum DC voltage as a function of temperature



Maximum allowed component temperature rise as a function of ambient temperature



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



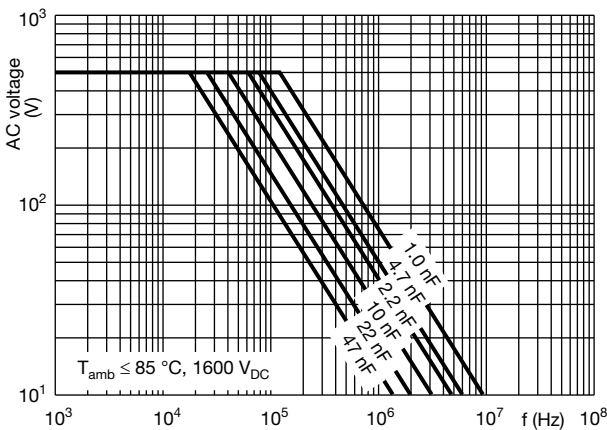
Max. RMS voltage (sinewave) as a function of frequency



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



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



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



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



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



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



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

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



Insulation resistance as a function of ambient temperature



HEAT CONDUCTIVITY (G) AS A FUNCTION OF (ORIGINAL) PITCH AND CAPACITOR BODY THICKNESS IN mW/°C

| W <sub>max.</sub><br>(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.

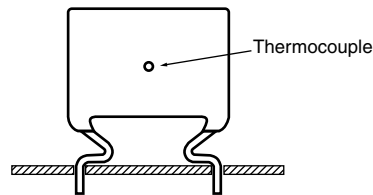
The power dissipation can be calculated according type detail specification "HQN-384-01/101: Technical Information Film Capacitors"

The component temperature rise (ΔT) can be measured (see section "Measuring the component temperature" for more details) or calculated by ΔT = 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 ( $U_{PP}$ ) shall not be greater than the maximum ( $U_{p-p}$ ) to avoid the ionization 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  $1600 \text{ V}_{DC}$
2. The peak-to-peak voltage  $1200 \text{ V}$  is lower than  $2\sqrt{02} \times 550 \text{ V}_{AC} = 1414 \text{ V}_{P-P}$
3. The voltage pulse slope ( $dU/dt$ ) =  $320 \text{ V}$  is much lower than  $7000 \text{ V}/\mu\text{s}$
4. The dissipated power is  $170 \text{ mW}$  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 according Fig. "Max. allowed temperature rise as a function of ambient temperature" for an ambient temperature of  $50 \text{ }^\circ\text{C}$







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



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



| SUB-CLAU SE NUMBER AND TEST       | CONDITIONS  | PERFORMANCE REQUIREMENTS   |
|-----------------------------------|---|--|
| <b>SUB-GROUP C2</b>               |   |  |
| 4.11 Damp heat steady state       | 56 days, 40 °C, 90 % to 95 % RH   |  |
| 4.11.1 Initial measurements       | Capacitance<br>Tangent of loss angle at 1 kHz   |  |
| 4.11.3 Final measurements         | Voltage proof = $U_{RDC}$ for 1 min within 15 min after removal from testchamber<br><br>Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance | No breakdown of flash-over<br><br>No visible damage<br>Legible marking<br><br>$ \Delta C/C  \leq 1\% + 5\text{ pF}$ of the value measured in 4.11.1.<br><br>Increase of $\tan \delta \leq 0.0005$<br>Compared to values measured in 4.11.1<br><br>$\geq 50\%$ of values specified in section "Insulation Resistance" of this specification   |
| <b>SUB GROUP C3</b>               |   |  |
| 4.12.1 Endurance                  | Duration: 2000 h<br>Temperature: 85 °C<br>Voltage: 1.25 x max. $U_{RDC} V_{RMS}$ , 50 Hz<br>Duration: 2000 h<br>Temperature: 105 °C   |  |
| 4.12.1.1 Initial measurements     | Voltage: 0.875 x max. $U_{RDC} V_{RMS}$ , 50 Hz<br>Capacitance<br>Tangent of loss angle at 100 kHz  |  |
| 4.12.1.3 Final measurements       | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance   | No visible damage<br>Legible marking<br>Temperature: 85 °C<br><br>For $C > 0.056\ \mu\text{F}$ : $ \Delta C/C  \leq 2\% + 5\text{ pF}$ or<br>for $C > 0.056\ \mu\text{F}$ : $ \Delta C/C  \leq 3\% + 5\text{ pF}$<br>of the value measured in 4.12.1.1<br>Temperature: 105 °C<br>$ \Delta C/C  \leq 5\% + 5\text{ pF}$<br><br>Increase of $\tan \delta: \leq 0.001$<br>Compared to values measured in 4.12.1<br><br>$\geq 50\%$ of values specified in chapters "General data" of this specification |
| <b>SUB-GROUP C4</b>               |   |  |
| 4.2.6 Temperature characteristics | Capacitance<br><br>Insulation resistance  | As specified in section "Capacitance" of this specification<br><br>As specified in chapters "General data" of this specification   |



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