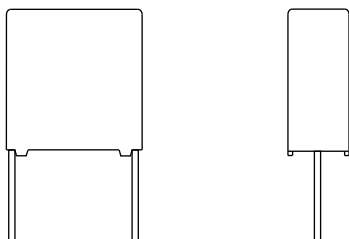


# Interference Suppression Film Capacitor - Class Y2

## Radial MKP 300 V<sub>AC</sub> - Line to Ground Application



### FEATURES

- 7.5 mm to 27.5 mm lead pitch
- AEC-Q200 qualified (rev. C)
- Robust design
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

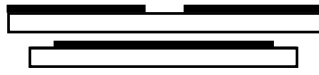
AUTOMOTIVE  
GRADE

**RoHS**  
COMPLIANT

### APPLICATIONS

- Standard line bypass (between line and ground) Y2 applications
  - Line bypass application for continuous operation
- See also application note: [www.vishay.com/doc?28153](http://www.vishay.com/doc?28153)

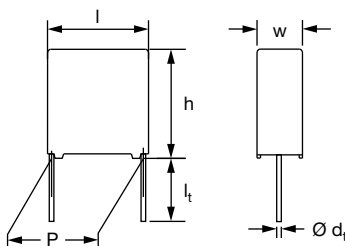
### QUICK REFERENCE DATA

|                                            |                                                                                                                                                                                                                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacitance range (E12 series)             | 0.001 $\mu$ F to 0.47 $\mu$ F<br>(preferred values acc. to E6)                                                                                                                                                                                                                |
| Capacitance tolerance                      | $\pm 20\%$ , $\pm 10\%$ , $\pm 5\%$                                                                                                                                                                                                                                           |
| Rated AC voltage                           | 300 V <sub>AC</sub> ; 50 Hz to 60 Hz                                                                                                                                                                                                                                          |
| Permissible DC voltage                     | 1000 V <sub>DC</sub>                                                                                                                                                                                                                                                          |
| Climatic testing class acc. to IEC 60068-1 | 55/105/56/C for product volumes $\leq 1750$ mm <sup>3</sup><br>55/105/56/B for volumes $> 1750$ mm <sup>3</sup>                                                                                                                                                               |
| Maximum application temperature            | 105 °C                                                                                                                                                                                                                                                                        |
| Reference standards                        | IEC 60384-14 ed-4 (2013) and EN 60384-14<br>IEC 60065 requires pass. flamm. class B for volumes $> 1750$ mm <sup>3</sup><br>UL 60384-14; ENEC; CSA E 384-14-95                                                                                                                |
| Dielectric                                 | Polypropylene film                                                                                                                                                                                                                                                            |
| Electrodes                                 | Metallized film                                                                                                                                                                                                                                                               |
| Construction                               | Series construction (for $> 10$ mm pitch)<br><br>Triple construction (for 7.5 mm and 10 mm pitch)<br> |
| Encapsulation                              | Plastic case, epoxy resin sealed, flame retardant class UL 94 V-0                                                                                                                                                                                                             |
| Leads                                      | Tinned wire                                                                                                                                                                                                                                                                   |
| Marking                                    | C-value; tolerance; rated voltage; sub-class; manufacturer's type designation; code for dielectric material; manufacturer location, year and week; manufacturer's logo or name; safety approvals                                                                              |

### Note

- For more detailed data and test requirements, contact [rfi@vishay.com](mailto:rfi@vishay.com)

### DIMENSIONS





## COMPOSITION OF CATALOG NUMBER

| TYPE AND PITCHES |         |
|------------------|---------|
| 338 6<br>Y2      | 7.5 mm  |
|                  | 10.0 mm |
|                  | 15.0 mm |
|                  | 22.5 mm |
|                  | 27.5 mm |

| MULTIPLIER (nF) |   |
|-----------------|---|
| 0.1             | 2 |
| 1               | 3 |
| 10              | 4 |
| 100             | 5 |

| CAPACITANCE (numerically) |     |    |    |   |
|---------------------------|-----|----|----|---|
| BFC2                      | 338 | 6X | XX | X |
| 2222 (*)                  | 338 | 6X | XX | X |

Example:  
104 = 10 x 10 = 100 nF  
(except special numbers)

(\*) old ordering code

| TYPE        | PACKAGING    | STANDARD DIMENSIONS                                         | C-TOL.    | PREFERRED TYPES        |
|-------------|--------------|-------------------------------------------------------------|-----------|------------------------|
| 338 6<br>Y2 | Loose in box | Lead length 3.5 mm + 1 mm/- 0.5 mm (pitch 7.5 mm and 10 mm) | 20 %      | BFC2 338 60            |
|             |              | Lead length 3.5 mm ± 0.3 mm (pitch > 10 mm)                 |           | BFC2 338 62            |
|             |              | Lead length 5 mm ± 1 mm                                     |           | BFC2 338 64            |
|             |              | Lead length 25 mm ± 2 mm                                    |           | BFC2 338 66            |
|             | Taped ammo   | Pitch 7.5 mm only; H = 18.5 mm; P <sub>0</sub> = 12.7 mm    | 10 %      | BFC2 338 68            |
|             | Taped reel   | Pitch 7.5 mm to 15 mm; H = 18.5 mm                          |           | BFC2 338 61            |
|             | Loose in box | Lead length 3.5 mm + 1 mm/- 0.5 mm (pitch 7.5 mm and 10 mm) |           | BFC2 338 63            |
|             |              | Lead length 3.5 mm ± 0.3 mm (pitch > 10 mm)                 |           | BFC2 338 65            |
|             |              | Lead length 5 mm ± 1 mm                                     |           | BFC2 338 67            |
|             |              | Lead length 25 mm ± 2 mm                                    |           | BFC2 338 68            |
|             | Taped ammo   | Pitch 7.5 mm only; H = 18.5 mm; P <sub>0</sub> = 12.7 mm    |           |                        |
|             | Taped reel   | Pitch 7.5 mm to 15 mm; H = 18.5 mm                          |           |                        |
| TYPE        | PACKAGING    | ALTERNATIVE PITCH SIZES AND TOLERANCES                      | C-TOL.    | PREFERRED TYPES        |
| 338 6<br>Y2 |              | Packaging like 20 % and alternative pitch sizes             | 5 %       | See tables for details |
|             |              | Alternative pitch size                                      | 10 %/20 % |                        |

## Note

(1) For detailed tape specification refer to "Packaging Information" [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)

| SPECIFIC REFERENCE DATA                                                                 |                         |                         |
|-----------------------------------------------------------------------------------------|-------------------------|-------------------------|
| DESCRIPTION                                                                             | VALUE                   |                         |
| Rated AC voltage (U <sub>RAC</sub> )                                                    | 300 V                   |                         |
| Permissible DC voltage (U <sub>RDC</sub> )                                              | 1000 V                  |                         |
| Tangent of loss angle                                                                   | at 1 kHz                | at 10 kHz               |
| C ≤ 470 nF                                                                              | ≤ 10 x 10 <sup>-4</sup> | ≤ 20 x 10 <sup>-4</sup> |
| Rated voltage pulse slope (dU/dt) <sub>R</sub> at 420 V <sub>DC</sub>                   | 100 V/μs                |                         |
| R between leads, for C ≤ 0.33 μF at 100 V; 1 min                                        | > 15 000 MΩ             |                         |
| RC between leads, for C > 0.33 μF at 100 V; 1 min                                       | > 5000 s                |                         |
| R between leads and case; 100 V; 1 min                                                  | > 30 000 MΩ             |                         |
| Withstanding (DC) voltage (cut off current 10 mA) <sup>(1)</sup> ; rise time ≤ 1000 V/s | 3400 V; 1 min           |                         |
| Withstanding (AC) voltage between leads and case                                        | 2100 V; 1 min           |                         |
| Maximum application temperature                                                         | 105 °C                  |                         |

## Note

(1) See "Voltage Proof Test for Metalized Film Capacitors": [www.vishay.com/doc?28169](http://www.vishay.com/doc?28169)



| ELECTRICAL DATA AND ORDERING INFORMATION - PITCH 7.5 mm |                                                                                                          |                                 |                            |                                                 |                                     |      |                                         |      |                                          |      |                                          |      |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|-------------------------------------------------|-------------------------------------|------|-----------------------------------------|------|------------------------------------------|------|------------------------------------------|------|
| U <sub>RAC</sub><br>(V)                                 | CAP.<br>(μF)                                                                                             | DIMENSIONS<br>w x h x l<br>(mm) | MASS<br>(g) <sup>(3)</sup> | CATALOG NUMBER BFC2 338 6X XXX AND PACKAGING    |                                     |      |                                         |      |                                          |      |                                          |      |
|                                                         |                                                                                                          |                                 |                            | LOOSE IN BOX                                    |                                     |      |                                         |      | AMMOPACK                                 |      | REEL<br>Ø = 500 mm <sup>(1)(2)</sup>     |      |
|                                                         |                                                                                                          |                                 |                            | SHORT LEADS                                     |                                     |      | LONG LEADS                              |      |                                          |      |                                          |      |
|                                                         |                                                                                                          |                                 |                            | l <sub>t</sub> = 3.5 mm<br>+ 1 mm /<br>- 0.5 mm | l <sub>t</sub> = 5.0 mm<br>± 1.0 mm | SPQ  | l <sub>t</sub> =<br>25.0 mm<br>± 2.0 mm | SPQ  | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ  | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ  |
| 300                                                     | PITCH = 7.5 mm ± 0.4 mm; d <sub>t</sub> = 0.50 mm ± 0.05 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                                 |                                     |      |                                         |      |                                          |      |                                          |      |
|                                                         | 0.0010                                                                                                   | 4.0 x 9.0 x 10.0                | 0.4                        | 60102                                           | 62102                               | 1500 | 64102                                   | 1000 | 66102                                    | 1250 | 68129                                    | 2500 |
|                                                         | 0.0012                                                                                                   |                                 |                            | 60122                                           | 62122                               |      | 64122                                   |      | 66122                                    |      | 68131                                    |      |
|                                                         | 0.0015                                                                                                   |                                 |                            | 60152                                           | 62152                               |      | 64152                                   |      | 66152                                    |      | 68132                                    |      |
|                                                         | 0.0018                                                                                                   |                                 |                            | 60182                                           | 62182                               |      | 64182                                   |      | 66182                                    |      | 68133                                    |      |
|                                                         | 0.0022                                                                                                   |                                 |                            | 60222                                           | 62222                               |      | 64222                                   |      | 66222                                    |      | 68134                                    |      |
|                                                         | 0.0027                                                                                                   |                                 |                            | 60272                                           | 62272                               |      | 64272                                   |      | 66272                                    |      | 68135                                    |      |
|                                                         | 0.0033                                                                                                   | 5.0 x 10.5 x 10.0               | 0.4                        | 60332                                           | 62332                               | 1000 | 64332                                   | 1250 | 66332                                    | 1000 | 68136                                    | 2000 |
|                                                         | 0.0039                                                                                                   |                                 |                            | 60392                                           | 62392                               |      | 64392                                   |      | 66392                                    |      | 68137                                    |      |
|                                                         | 0.0047                                                                                                   | 6.0 x 11.5 x 10.0               | 0.8                        | 60472                                           | 62472                               | 750  | 64472                                   | 1000 | 66472                                    | 750  | 68138                                    | 1900 |
|                                                         | 0.0056                                                                                                   |                                 |                            | 60562                                           | 62562                               |      | 64562                                   |      | 66562                                    |      | 68139                                    |      |
|                                                         | PITCH = 7.5 mm ± 0.4 mm; d <sub>t</sub> = 0.50 mm ± 0.05 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                                 |                                     |      |                                         |      |                                          |      |                                          |      |
|                                                         | 0.0010                                                                                                   | 4.0 x 9.0 x 10.0                | 0.4                        | 61102                                           | 63102                               | 1500 | 65102                                   | 1000 | 67102                                    | 1250 | 68179                                    | 2500 |
|                                                         | 0.0012                                                                                                   |                                 |                            | 61122                                           | 63122                               |      | 65122                                   |      | 67122                                    |      | 68181                                    |      |
|                                                         | 0.0015                                                                                                   |                                 |                            | 61152                                           | 63152                               |      | 65152                                   |      | 67152                                    |      | 68182                                    |      |
|                                                         | 0.0018                                                                                                   |                                 |                            | 61182                                           | 63182                               |      | 65182                                   |      | 67182                                    |      | 68183                                    |      |
|                                                         | 0.0022                                                                                                   |                                 |                            | 61222                                           | 63222                               |      | 65222                                   |      | 67222                                    |      | 68184                                    |      |
|                                                         | 0.0027                                                                                                   |                                 |                            | 61272                                           | 63272                               |      | 65272                                   |      | 67272                                    |      | 68185                                    |      |
|                                                         | 0.0033                                                                                                   | 5.0 x 10.5 x 10.0               | 0.4                        | 61332                                           | 63332                               | 1000 | 65332                                   | 1250 | 67332                                    | 1000 | 68186                                    | 2000 |
|                                                         | 0.0039                                                                                                   |                                 |                            | 61392                                           | 63392                               |      | 65392                                   |      | 67392                                    |      | 68187                                    |      |
|                                                         | 0.0047                                                                                                   | 6.0 x 11.5 x 10.0               | 0.8                        | 61472                                           | 63472                               | 750  | 65472                                   | 1000 | 67472                                    | 750  | 68188                                    | 1900 |
|                                                         | 0.0056                                                                                                   |                                 |                            | 61562                                           | 63562                               |      | 65562                                   |      | 67562                                    |      | 68189                                    |      |
|                                                         | PITCH = 7.5 mm ± 0.4 mm; d <sub>t</sub> = 0.50 mm ± 0.05 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V)  |                                 |                            |                                                 |                                     |      |                                         |      |                                          |      |                                          |      |
|                                                         | 0.0010                                                                                                   | 4.0 x 9.0 x 10.0                | 0.4                        | 68215                                           | 68225                               | 1500 | 68235                                   | 1000 | 68335                                    | 1250 | 68346                                    | 2500 |
|                                                         | 0.0012                                                                                                   |                                 |                            | 68216                                           | 68226                               |      | 68236                                   |      | 68336                                    |      | 68347                                    |      |
|                                                         | 0.0015                                                                                                   |                                 |                            | 68217                                           | 68227                               |      | 68237                                   |      | 68337                                    |      | 68348                                    |      |
|                                                         | 0.0018                                                                                                   |                                 |                            | 68218                                           | 68228                               |      | 68238                                   |      | 68338                                    |      | 68349                                    |      |
|                                                         | 0.0022                                                                                                   |                                 |                            | 68219                                           | 68229                               |      | 68239                                   |      | 68339                                    |      | 68351                                    |      |
|                                                         | 0.0027                                                                                                   | 5.0 x 10.5 x 10.0               | 0.4                        | 68221                                           | 68231                               | 1000 | 68241                                   | 1250 | 68341                                    | 1000 | 68352                                    | 2000 |
|                                                         | 0.0033                                                                                                   |                                 |                            | 68222                                           | 68232                               |      | 68242                                   |      | 68342                                    |      | 68353                                    |      |
|                                                         | 0.0039                                                                                                   | 6.0 x 11.5 x 10.0               | 0.8                        | 68223                                           | 68233                               | 750  | 68243                                   | 1000 | 68343                                    | 750  | 68354                                    | 1900 |
| 0.0047                                                  | 68224                                                                                                    |                                 |                            | 68234                                           | 68244                               |      | 68344                                   |      | 68355                                    |      |                                          |      |

**Notes**

- SPQ = Standard Packing Quantity

<sup>(1)</sup> H = in-tape height; P<sub>0</sub> = sprocket hole distance; for detailed specifications refer to packaging information: [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)

<sup>(2)</sup> Reel diameter = 365 mm is available on request

<sup>(3)</sup> Weight for short lead product only



| ELECTRICAL DATA AND ORDERING INFORMATION - PITCH 10 mm |                                                                                                           |                                 |                            |                                                 |                                     |       |                                         |       |                                          |      |                                          |       |      |       |      |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|-------------------------------------------------|-------------------------------------|-------|-----------------------------------------|-------|------------------------------------------|------|------------------------------------------|-------|------|-------|------|
| U <sub>RAC</sub><br>(V)                                | CAP.<br>(μF)                                                                                              | DIMENSIONS<br>w x h x l<br>(mm) | MASS<br>(g) <sup>(3)</sup> | CATALOG NUMBER BFC2 338 6X XXX AND PACKAGING    |                                     |       |                                         |       |                                          |      |                                          |       |      |       |      |
|                                                        |                                                                                                           |                                 |                            | LOOSE IN BOX                                    |                                     |       |                                         |       | AMMOPACK                                 |      | REEL<br>Ø = 500 mm <sup>(1)(2)</sup>     |       |      |       |      |
|                                                        |                                                                                                           |                                 |                            | SHORT LEADS                                     |                                     |       | LONG LEADS                              |       |                                          |      |                                          |       |      |       |      |
|                                                        |                                                                                                           |                                 |                            | l <sub>t</sub> = 3.5 mm<br>+ 1 mm /<br>- 0.5 mm | l <sub>t</sub> = 5.0 mm<br>± 1.0 mm | SPQ   | l <sub>t</sub> =<br>25.0 mm<br>± 2.0 mm | SPQ   | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ  | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ   |      |       |      |
| 300                                                    | PITCH = 10.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                                 |                                     |       |                                         |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0010                                                                                                    | 4.0 x 10.0 x 12.5               | 0.6                        | 68392                                           | 68401                               |       | 68409                                   | 1250  | -                                        | -    | 68418                                    | 1400  |      |       |      |
|                                                        | 0.0012                                                                                                    |                                 |                            | 68393                                           | 68402                               |       | 68411                                   |       |                                          |      | 68419                                    |       |      |       |      |
|                                                        | 0.0015                                                                                                    |                                 |                            | 68394                                           | 68403                               |       | 68412                                   |       |                                          |      | 68421                                    |       |      |       |      |
|                                                        | 0.0018                                                                                                    |                                 |                            | 68395                                           | 68404                               | 1000  | 68413                                   |       |                                          |      | 68422                                    |       |      |       |      |
|                                                        | 0.0022                                                                                                    |                                 |                            | 68396                                           | 68405                               |       | 68414                                   |       |                                          |      | 68423                                    |       |      |       |      |
|                                                        | 0.0027                                                                                                    |                                 |                            | 68397                                           | 68406                               |       | 68415                                   |       |                                          |      | 68424                                    |       |      |       |      |
|                                                        | 0.0033                                                                                                    |                                 |                            | 68398                                           | 68407                               |       | 68416                                   |       |                                          |      | 68425                                    |       |      |       |      |
|                                                        | 0.0039                                                                                                    |                                 |                            | 68399                                           | 68408                               | 68417 | 68426                                   |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0047                                                                                                    | 5.0 x 11.0 x 12.5               | 0.82                       | 68101                                           | 68106                               |       | 68112                                   | 1000  |                                          |      | 68141                                    |       | 1100 |       |      |
|                                                        | 0.0056                                                                                                    |                                 |                            | 68102                                           | 68107                               | 68113 | 68142                                   |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0068                                                                                                    |                                 |                            | 68103                                           | 68108                               | 68114 | 68143                                   |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0082                                                                                                    | 6.0 x 12.0 x 12.5               | 1.1                        | 68104                                           | 68109                               | 750   | 68115                                   | 750   |                                          |      | 68144                                    |       | 900  |       |      |
|                                                        | 0.010                                                                                                     |                                 |                            | 68105                                           | 68111                               |       | 68116                                   |       |                                          |      | 68145                                    |       |      |       |      |
|                                                        | PITCH = 10.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                                 |                                     |       |                                         |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0010                                                                                                    | 4.0 x 10.0 x 12.5               | 0.6                        | 68436                                           | 68445                               | 1000  | 68454                                   | 1250  |                                          |      | -                                        |       | -    | 68463 | 1400 |
|                                                        | 0.0012                                                                                                    |                                 |                            | 68437                                           | 68446                               |       | 68455                                   |       |                                          |      |                                          |       |      | 68464 |      |
|                                                        | 0.0015                                                                                                    |                                 |                            | 68438                                           | 68447                               |       | 68456                                   |       | 68465                                    |      |                                          |       |      |       |      |
|                                                        | 0.0018                                                                                                    |                                 |                            | 68439                                           | 68448                               |       | 68457                                   |       | 68466                                    |      |                                          |       |      |       |      |
|                                                        | 0.0022                                                                                                    |                                 |                            | 68441                                           | 68449                               |       | 68458                                   |       | 68467                                    |      |                                          |       |      |       |      |
|                                                        | 0.0027                                                                                                    |                                 |                            | 68442                                           | 68451                               |       | 68459                                   |       | 68468                                    |      |                                          |       |      |       |      |
|                                                        | 0.0033                                                                                                    |                                 |                            | 68443                                           | 68452                               |       | 68461                                   |       | 68469                                    |      |                                          |       |      |       |      |
|                                                        | 0.0039                                                                                                    |                                 |                            | 68444                                           | 68453                               |       | 68462                                   |       | 68471                                    |      |                                          |       |      |       |      |
|                                                        | 0.0047                                                                                                    | 5.0 x 11.0 x 12.5               | 0.82                       | 68159                                           | 68164                               | 1000  | 68168                                   | 1000  | 68191                                    | 1100 |                                          |       |      |       |      |
|                                                        | 0.0056                                                                                                    |                                 |                            | 68161                                           | 68165                               |       | 68169                                   |       | 68192                                    |      |                                          |       |      |       |      |
|                                                        | 0.0068                                                                                                    | 6.0 x 12.0 x 12.5               | 1.1                        | 68162                                           | 68166                               | 750   | 68171                                   | 750   | 68193                                    | 900  |                                          |       |      |       |      |
|                                                        | 0.0082                                                                                                    |                                 |                            | 68163                                           | 68167                               |       | 68172                                   |       | 68194                                    |      |                                          |       |      |       |      |
|                                                        | PITCH = 10.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V)  |                                 |                            |                                                 |                                     |       |                                         |       |                                          |      |                                          |       |      |       |      |
|                                                        | 0.0010                                                                                                    | 4.0 x 10.0 x 12.5               | 0.6                        | 68481                                           | 68489                               | 1000  | 68498                                   | 1250  | -                                        | -    |                                          | 68507 |      | 1400  |      |
|                                                        | 0.0012                                                                                                    |                                 |                            | 68482                                           | 68491                               |       | 68499                                   |       |                                          |      |                                          | 68508 |      |       |      |
|                                                        | 0.0015                                                                                                    |                                 |                            | 68483                                           | 68492                               |       | 68501                                   |       |                                          |      |                                          | 68509 |      |       |      |
|                                                        | 0.0018                                                                                                    |                                 |                            | 68484                                           | 68493                               |       | 68502                                   |       |                                          |      | 68511                                    |       |      |       |      |
|                                                        | 0.0022                                                                                                    |                                 |                            | 68485                                           | 68494                               |       | 68503                                   |       |                                          |      | 68512                                    |       |      |       |      |
|                                                        | 0.0027                                                                                                    |                                 |                            | 68486                                           | 68495                               |       | 68504                                   |       |                                          |      | 68513                                    |       |      |       |      |
|                                                        | 0.0033                                                                                                    |                                 |                            | 68487                                           | 68496                               |       | 68505                                   |       |                                          |      | 68514                                    |       |      |       |      |
|                                                        | 0.0039                                                                                                    |                                 |                            | 68488                                           | 68497                               |       | 68506                                   |       |                                          |      | 68515                                    |       |      |       |      |
| 0.0047                                                 | 5.0 x 11.0 x 12.5                                                                                         | 0.82                            | 68245                      | 68249                                           | 1000                                | 68254 | 1000                                    | 68357 |                                          |      | 1100                                     |       |      |       |      |
| 0.0056                                                 |                                                                                                           |                                 | 68246                      | 68251                                           |                                     | 68255 |                                         | 68358 |                                          |      |                                          |       |      |       |      |
| 0.0068                                                 | 6.0 x 12.0 x 12.5                                                                                         | 1.1                             | 68247                      | 68252                                           | 750                                 | 68256 | 750                                     | 68359 |                                          |      | 900                                      |       |      |       |      |
| 0.0082                                                 |                                                                                                           |                                 | 68248                      | 68253                                           |                                     | 68257 |                                         | 68361 |                                          |      |                                          |       |      |       |      |

## Notes

- SPQ = Standard Packing Quantity

<sup>(1)</sup> H = in-tape height; P<sub>0</sub> = sprocket hole distance; for detailed specifications refer to packaging information: [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)

<sup>(2)</sup> Reel diameter = 365 mm is available on request

<sup>(3)</sup> Weight for short lead product only



| ELECTRICAL DATA AND ORDERING INFORMATION - PITCH 15 mm                                                   |                                                                                                           |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|----------------------------------------------|-------------------------------------|-------|-----------------------------------------|------|------------------------------------------|-------|------------------------------------------|------|-------|------|
| U <sub>RAC</sub><br>(V)                                                                                  | CAP.<br>(μF)                                                                                              | DIMENSIONS<br>w x h x l<br>(mm) | MASS<br>(g) <sup>(3)</sup> | CATALOG NUMBER BFC2 338 6X XXX AND PACKAGING |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          |                                                                                                           |                                 |                            | LOOSE IN BOX                                 |                                     |       |                                         |      | AMMOPACK                                 |       | REEL<br>Ø = 500 mm <sup>(1)(2)</sup>     |      |       |      |
|                                                                                                          |                                                                                                           |                                 |                            | SHORT LEADS                                  |                                     |       | LONG LEADS                              |      |                                          |       |                                          |      |       |      |
|                                                                                                          |                                                                                                           |                                 |                            | l <sub>t</sub> = 3.5 mm<br>± 0.3 mm          | l <sub>t</sub> = 5.0 mm<br>± 1.0 mm | SPQ   | l <sub>t</sub> =<br>25.0 mm<br>± 2.0 mm | SPQ  | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ   | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ  |       |      |
| 300                                                                                                      | PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.0068                                                                                                    | 5.0 x 11.0 x 17.5               | 1.0                        | 60682                                        | 62682                               | 1000  | 64682                                   | 1000 | -                                        | -     | 68146                                    | 1100 |       |      |
|                                                                                                          | 0.0082                                                                                                    |                                 |                            | 60822                                        | 62822                               |       | 64822                                   |      |                                          |       | 68147                                    |      |       |      |
|                                                                                                          | 0.010                                                                                                     |                                 |                            | 60103                                        | 62103                               |       | 64103                                   |      |                                          |       | 68148                                    |      |       |      |
|                                                                                                          | 0.012                                                                                                     |                                 |                            | 60123                                        | 62123                               |       | 64123                                   |      |                                          |       | 68149                                    |      |       |      |
|                                                                                                          | 0.015                                                                                                     | 6.0 x 12.0 x 17.5               | 1.4                        | 60153                                        | 62153                               | 1000  | 64153                                   | 1000 |                                          |       | 68151                                    | 900  |       |      |
|                                                                                                          | 0.018                                                                                                     |                                 |                            | 60183                                        | 62183                               |       | 64183                                   |      |                                          |       | 68152                                    |      |       |      |
|                                                                                                          | PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.022                                                                                                     | 7.0 x 13.5 x 17.5               | 1.8                        | 60223                                        | 62223                               | 750   | 64223                                   | 500  | -                                        | -     | 68153                                    | 800  |       |      |
|                                                                                                          | 0.027                                                                                                     |                                 |                            | 60273                                        | 62273                               |       | 64273                                   |      |                                          |       | 68154                                    |      |       |      |
|                                                                                                          | 0.033                                                                                                     | 8.5 x 15.0 x 17.5               | 2.4                        | 60333                                        | 62333                               | 750   | 64333                                   | 500  |                                          |       | 68155                                    | 650  |       |      |
|                                                                                                          | 0.039                                                                                                     |                                 |                            | 60393                                        | 62393                               |       | 64393                                   |      |                                          |       | 68156                                    |      |       |      |
|                                                                                                          | 0.047                                                                                                     | 10.0 x 16.5 x 17.5              | 3.0                        | 60473                                        | 62473                               | 500   | 64473                                   | 450  |                                          |       | 68157                                    | 600  |       |      |
|                                                                                                          | 0.056                                                                                                     |                                 |                            | 60563                                        | 62563                               |       | 64563                                   |      |                                          |       | 68158                                    |      |       |      |
|                                                                                                          | PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.0068                                                                                                    | 5.0 x 11.0 x 17.5               | 1.0                        | 61682                                        | 63682                               | 1000  | 65682                                   | 1000 | -                                        | -     | 68202                                    | 1100 |       |      |
|                                                                                                          | 0.0082                                                                                                    |                                 |                            | 61822                                        | 63822                               |       | 65822                                   |      |                                          |       | 68203                                    |      |       |      |
|                                                                                                          | 0.010                                                                                                     |                                 |                            | 61103                                        | 63103                               |       | 65103                                   |      |                                          |       | 68204                                    |      |       |      |
|                                                                                                          | 0.012                                                                                                     |                                 |                            | 61123                                        | 63123                               |       | 65123                                   |      |                                          |       | 68205                                    |      |       |      |
|                                                                                                          | 0.015                                                                                                     | 6.0 x 12.0 x 17.5               | 1.4                        | 61153                                        | 63153                               | 1000  | 65153                                   | 1000 |                                          |       | 68206                                    | 900  |       |      |
|                                                                                                          | 0.018                                                                                                     |                                 |                            | 61183                                        | 63183                               |       | 65183                                   |      |                                          |       | 68207                                    |      |       |      |
|                                                                                                          | PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.022                                                                                                     | 7.0 x 13.5 x 17.5               | 1.8                        | 61223                                        | 63223                               | 750   | 65223                                   | 500  | -                                        | -     | 68208                                    | 800  |       |      |
|                                                                                                          | 0.027                                                                                                     | 8.5 x 15.0 x 17.5               | 2.4                        | 61273                                        | 63273                               |       | 65273                                   |      |                                          |       | 68209                                    |      |       |      |
|                                                                                                          | 0.033                                                                                                     |                                 |                            | 61333                                        | 63333                               | 65333 | 68211                                   |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.039                                                                                                     | 10.0 x 16.5 x 17.5              | 3                          | 61393                                        | 63393                               | 500   | 65393                                   | 450  |                                          |       | 68212                                    | 600  |       |      |
|                                                                                                          | 0.047                                                                                                     |                                 |                            | 61473                                        | 63473                               |       | 65473                                   |      |                                          |       | 68213                                    |      |       |      |
|                                                                                                          | PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.60 mm ± 0.06 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V)  |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
|                                                                                                          | 0.0068                                                                                                    | 5.0 x 11.0 x 17.5               | 1.0                        | 68258                                        | 68284                               | 1000  | 68309                                   | 1000 |                                          |       | -                                        | -    | 68381 | 1100 |
|                                                                                                          | 0.0082                                                                                                    |                                 |                            | 68259                                        | 68285                               |       | 68311                                   |      | 68382                                    |       |                                          |      |       |      |
| 0.010                                                                                                    | 68261                                                                                                     |                                 |                            | 68286                                        | 68312                               |       | 68383                                   |      |                                          |       |                                          |      |       |      |
| 0.012                                                                                                    | 68262                                                                                                     |                                 |                            | 68287                                        | 68313                               |       | 68384                                   |      |                                          |       |                                          |      |       |      |
| 0.015                                                                                                    | 6.0 x 12.0 x 17.5                                                                                         | 1.4                             | 68263                      | 68288                                        | 1000                                | 68314 | 1000                                    |      |                                          | 68385 |                                          |      | 900   |      |
| 0.015                                                                                                    |                                                                                                           |                                 | 68263                      | 68288                                        |                                     | 68314 |                                         |      |                                          | 68385 |                                          |      |       |      |
| PITCH = 15.0 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V) |                                                                                                           |                                 |                            |                                              |                                     |       |                                         |      |                                          |       |                                          |      |       |      |
| 0.018                                                                                                    | 7.0 x 13.5 x 17.5                                                                                         | 1.8                             | 68264                      | 68289                                        | 750                                 | 68315 | 500                                     | -    | -                                        | 68386 | 800                                      |      |       |      |
| 0.022                                                                                                    |                                                                                                           |                                 | 68265                      | 68291                                        |                                     | 68316 |                                         |      |                                          | 68387 |                                          |      |       |      |
| 0.027                                                                                                    | 8.5 x 15.0 x 17.5                                                                                         | 2.4                             | 68266                      | 68292                                        | 750                                 | 68317 | 500                                     |      |                                          | 68388 | 650                                      |      |       |      |
| 0.033                                                                                                    |                                                                                                           |                                 | 68267                      | 68293                                        |                                     | 68318 |                                         |      |                                          | 68389 |                                          |      |       |      |
| 0.039                                                                                                    | 10.0 x 16.5 x 17.5                                                                                        | 3.0                             | 68268                      | 68294                                        | 500                                 | 68319 | 450                                     |      |                                          | 68391 | 600                                      |      |       |      |
| 0.039                                                                                                    |                                                                                                           |                                 | 68268                      | 68294                                        |                                     | 68319 |                                         |      |                                          | 68391 |                                          |      |       |      |

## Notes

- SPQ = Standard Packing Quantity
- (1) H = in-tape height; P<sub>0</sub> = sprocket hole distance; for detailed specifications refer to packaging information: [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)
- (2) Reel diameter = 365 mm is available on request
- (3) Weight for short lead product only



| ELECTRICAL DATA AND ORDERING INFORMATION - PITCH 22.5 mm |                                                                                                           |                                 |                            |                                              |                                     |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------|----------------------------|----------------------------------------------|-------------------------------------|-----|-----------------------------------------|-----|------------------------------------------|----------|------------------------------------------|--------------------------------------|--|--|--|--|
| U <sub>RAC</sub><br>(V)                                  | CAP.<br>(μF)                                                                                              | DIMENSIONS<br>w x h x l<br>(mm) | MASS<br>(g) <sup>(3)</sup> | CATALOG NUMBER BFC2 338 6X XXX AND PACKAGING |                                     |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          |                                                                                                           |                                 |                            | LOOSE IN BOX                                 |                                     |     |                                         |     |                                          | AMMOPACK |                                          | REEL<br>Ø = 500 mm <sup>(1)(2)</sup> |  |  |  |  |
|                                                          |                                                                                                           |                                 |                            | SHORT LEADS                                  |                                     |     | LONG LEADS                              |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          |                                                                                                           |                                 |                            | l <sub>t</sub> = 3.5 mm<br>± 0.3 mm          | l <sub>t</sub> = 5.0 mm<br>± 1.0 mm | SPQ | l <sub>t</sub> =<br>25.0 mm<br>± 2.0 mm | SPQ | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ      | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ                                  |  |  |  |  |
| 300                                                      | PITCH = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.047<br>0.056                                                                                            | 7.0 x 16.5 x 26.0               | 2.9                        | 68123<br>68124                               | 68125<br>68126                      | 200 | 68127<br>68128                          | 250 | -                                        | -        | -                                        | -                                    |  |  |  |  |
|                                                          | 0.068<br>0.082                                                                                            | 8.5 x 18.0 x 26.0               | 3.8                        | 60683<br>60823                               | 62683<br>62823                      | 200 | 64683<br>64823                          | 250 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.10                                                                                                      | 10.0 x 19.5 x 26.0              | 6.8                        | 60104                                        | 62104                               | 200 | 64104                                   | 200 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.12<br>0.15                                                                                              | 12.0 x 22.0 x 26.0              | 7.8                        | 60124<br>60154                               | 62124<br>62154                      | 150 | 64124<br>64154                          | 200 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | PITCH = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                 |                            |                                              |                                     |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.047                                                                                                     | 7.0 x 16.5 x 26.0               | 2.9                        | 68173                                        | 68175                               | 200 | 68177                                   | 250 | -                                        | -        | -                                        | -                                    |  |  |  |  |
|                                                          | 0.056                                                                                                     | 8.5 x 18.0 x 26.0               | 3.8                        | 68174                                        | 68176                               |     | 68178                                   |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.068                                                                                                     |                                 |                            | 61683                                        | 63683                               |     | 65683                                   |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.082<br>0.10                                                                                             | 10.0 x 19.5 x 26.0              | 6.8                        | 61823<br>61104                               | 63823<br>63104                      | 150 | 65823<br>65104                          | 200 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.12<br>0.15                                                                                              | 12.0 x 22.0 x 26.0              | 7.8                        | 61124<br>61154                               | 63124<br>63154                      |     | 65124<br>65154                          | 200 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | PITCH = 22.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V)  |                                 |                            |                                              |                                     |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.047                                                                                                     | 7.0 x 16.5 x 26.0               | 2.9                        | 68269                                        | 68295                               | 200 | 68321                                   | 250 | -                                        | -        | -                                        | -                                    |  |  |  |  |
|                                                          | 0.056                                                                                                     | 8.5 x 18.0 x 26.0               | 3.8                        | 68271                                        | 68296                               |     | 68322                                   |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.068                                                                                                     |                                 |                            | 68272                                        | 68297                               |     | 68323                                   |     |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.082                                                                                                     | 10.0 x 19.5 x 26.0              | 6.8                        | 68273                                        | 68298                               | 150 | 68324                                   | 200 |                                          |          |                                          |                                      |  |  |  |  |
|                                                          | 0.10                                                                                                      | 12.0 x 22.0 x 26.0              | 7.8                        | 68274                                        | 68299                               |     | 68325                                   |     |                                          |          |                                          |                                      |  |  |  |  |
| 0.12                                                     | 68275                                                                                                     |                                 |                            | 68301                                        | 68326                               |     |                                         |     |                                          |          |                                          |                                      |  |  |  |  |

**Notes**

- SPQ = Standard Packing Quantity

<sup>(1)</sup> H = in-tape height; P<sub>0</sub> = sprocket hole distance; for detailed specifications refer to packaging information: [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)

<sup>(2)</sup> Reel diameter = 365 mm is available on request

<sup>(3)</sup> Weight for short lead product only

| ELECTRICAL DATA AND ORDERING INFORMATION - PITCH 27.5 mm |                                                                                                           |                                          |                            |                                              |                                     |     |                                         |       |                                          |     |                                          |     |   |   |   |   |  |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------|----------------------------------------------|-------------------------------------|-----|-----------------------------------------|-------|------------------------------------------|-----|------------------------------------------|-----|---|---|---|---|--|
| U <sub>RAC</sub><br>(V)                                  | CAP.<br>(μF)                                                                                              | DIMENSIONS<br>w x h x l<br>(mm)          | MASS<br>(g) <sup>(3)</sup> | CATALOG NUMBER BFC2 338 6X XXX AND PACKAGING |                                     |     |                                         |       |                                          |     |                                          |     |   |   |   |   |  |
|                                                          |                                                                                                           |                                          |                            | LOOSE IN BOX                                 |                                     |     |                                         |       | AMMOPACK                                 |     | REEL<br>Ø = 500 mm <sup>(1)(2)</sup>     |     |   |   |   |   |  |
|                                                          |                                                                                                           |                                          |                            | SHORT LEADS                                  |                                     |     | LONG LEADS                              |       |                                          |     |                                          |     |   |   |   |   |  |
|                                                          |                                                                                                           |                                          |                            | l <sub>t</sub> = 3.5 mm<br>± 0.3 mm          | l <sub>t</sub> = 5.0 mm<br>± 1.0 mm | SPQ | l <sub>t</sub> =<br>25.0 mm<br>± 2.0 mm | SPQ   | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ | H = 18.5 mm;<br>P <sub>0</sub> = 12.7 mm | SPQ |   |   |   |   |  |
| 300                                                      | PITCH = 27.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 20 % (U <sub>RDC</sub> = 1000 V) |                                          |                            |                                              |                                     |     |                                         |       |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.18<br>0.22                                                                                              | 13.0 x 23.0 x 31.0                       | 9.2                        | 60184<br>60224                               | 62184<br>62224                      | 100 | 64184<br>64224                          | 125   | -                                        | -   | -                                        | -   |   |   |   |   |  |
|                                                          | 0.27                                                                                                      | 15.0 x 25.0 x 31.0                       | 12.3                       | 60274                                        | 62274                               | 100 | 64274                                   | 125   |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.33<br>0.39                                                                                              | 18.0 x 28.0 x 31.0                       | 16.1                       | 60334<br>60394                               | 62334<br>62394                      | 100 | 64334<br>64394                          | 100   |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.47                                                                                                      | 21.0 x 31.0 x 31.0                       | 20.3                       | 60474                                        | 62474                               | 50  | 64474                                   | 75    |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | PITCH = 27.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 10 % (U <sub>RDC</sub> = 1000 V) |                                          |                            |                                              |                                     |     |                                         |       |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.18<br>0.22                                                                                              | 13.0 x 23.0 x 31.0<br>15.0 x 25.0 x 31.0 | 9.2<br>12.3                | 61184<br>61224                               | 63184<br>63224                      | 100 | 65184<br>65224                          | 125   | -                                        | -   | -                                        | -   |   |   |   |   |  |
|                                                          | 0.27<br>0.33                                                                                              | 18.0 x 28.0 x 31.0                       | 16.1                       | 61274<br>61334                               | 63274<br>63334                      |     | 65274<br>65334                          | 100   |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.39<br>0.47                                                                                              | 21.0 x 31.0 x 31.0                       | 20.3                       | 61394<br>61474                               | 63394<br>63474                      | 50  | 65394<br>65474                          | 75    |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | PITCH = 27.5 mm ± 0.4 mm; d <sub>t</sub> = 0.80 mm ± 0.08 mm; C-tol. = ± 5 % (U <sub>RDC</sub> = 1000 V)  |                                          |                            |                                              |                                     |     |                                         |       |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.15<br>0.18                                                                                              | 13.0 x 23.0 x 31.0                       | 9.2                        | 68276<br>68277                               | 68302<br>68303                      | 100 | 68327<br>68328                          | 125   |                                          |     |                                          |     | - | - | - | - |  |
|                                                          | 0.22                                                                                                      | 15.0 x 25.0 x 31.5                       | 12.3                       | 68278                                        | 68304                               |     | 68329                                   | 100   |                                          |     |                                          |     |   |   |   |   |  |
|                                                          | 0.27<br>0.33                                                                                              | 18.0 x 28.0 x 31.5                       | 16.1                       | 68279<br>68281                               | 68305<br>68306                      |     | 68331<br>68332                          |       | 100                                      |     |                                          |     |   |   |   |   |  |
|                                                          | 0.39                                                                                                      | 21.0 x 31.0 x 31.0                       | 20.3                       | 68282                                        | 68307                               |     | 50                                      | 68333 | 75                                       |     |                                          |     |   |   |   |   |  |

**Notes**

- SPQ = Standard Packing Quantity

<sup>(1)</sup> H = in-tape height; P<sub>0</sub> = sprocket hole distance; for detailed specifications refer to packaging information: [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139)

<sup>(2)</sup> Reel diameter = 365 mm is available on request

<sup>(3)</sup> Weight for short lead product only

| <b>APPROVALS</b>                                                                                                                                                                                                                                                                                                                                            |                     |                |                     |                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|---------------------|------------------------------------------------------------------------|
| <b>SAFETY APPROVALS Y2</b>                                                                                                                                                                                                                                                                                                                                  | <b>VOLTAGE</b>      | <b>VALUE</b>   | <b>FILE NUMBERS</b> | <b>LINK</b>                                                            |
| EN 60384-14 (ENEC)<br>(= IEC 60384-14 ed-4 (2013))                                                                                                                                                                                                                                                                                                          | 300 V <sub>AC</sub> | 1 nF to 470 nF | FI 2016035          | <a href="http://www.vishay.com/doc?28212">www.vishay.com/doc?28212</a> |
| UL 60384-14                                                                                                                                                                                                                                                                                                                                                 | 300 V <sub>AC</sub> | 1 nF to 470 nF | E354331             | <a href="http://www.vishay.com/doc?28189">www.vishay.com/doc?28189</a> |
| CSA-E384-14-95                                                                                                                                                                                                                                                                                                                                              | 300 V <sub>AC</sub> | 1 nF to 470 nF | E354331             |                                                                        |
| CB-test certificate                                                                                                                                                                                                                                                                                                                                         | 300 V <sub>AC</sub> | 1 nF to 470 nF | FI 9216             | <a href="http://www.vishay.com/doc?28213">www.vishay.com/doc?28213</a> |
| The ENEC-approval together with the CB-certificate replace all national marks of the following countries (they have already signed the ENEC-agreement): Austria; Belgium; Czech. Republic; Denmark; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Luxembourg; Netherlands; Norway; Portugal; Slovenian; Spain; Switzerland and United Kingdom. |                     |                |                     |                                                                        |
|                                                                                                  |                     |                |                     |                                                                        |

## 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)

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

In order to withstand vibration and shock tests, it must be ensured that the stand-off pips are in good contact with the printed-circuit board:

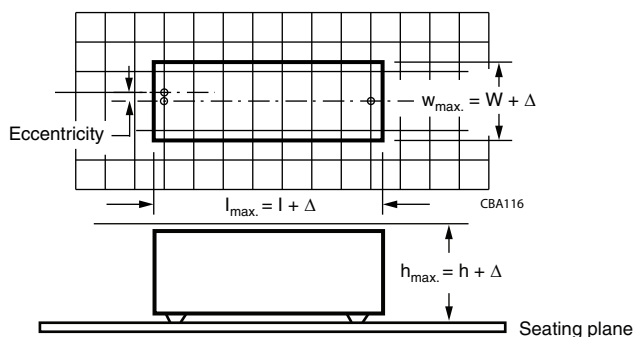
- For pitches  $\leq 15$  mm capacitors shall be mechanically fixed by the leads
- For larger pitches the capacitors shall be mounted in the same way and the body clamped

### Space Requirements on Printed-Circuit Board

The maximum space for length ( $l_{max.}$ ), width ( $w_{max.}$ ), and height ( $h_{max.}$ ) of film capacitors to take in account on the printed-circuit board is shown in the drawings:

- For products with pitch  $\leq 15$  mm,  $\Delta w = \Delta l = 0.3$  mm;  $\Delta h = 0.1$  mm
- For products with  $15$  mm  $<$  pitch,  $\leq 27.5$  mm,  $\Delta w = \Delta l = 0.5$  mm;  $\Delta h = 0.1$  mm

Eccentricity defined as in drawing. The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.



## SOLDERING CONDITIONS

For general soldering conditions and wave soldering profile, we refer to the application note:

“Soldering Guidelines for Film Capacitors”: [www.vishay.com/doc?28171](http://www.vishay.com/doc?28171)

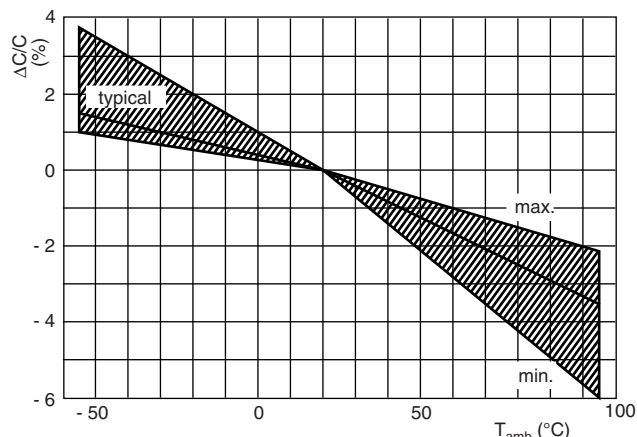
### Storage Temperature

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

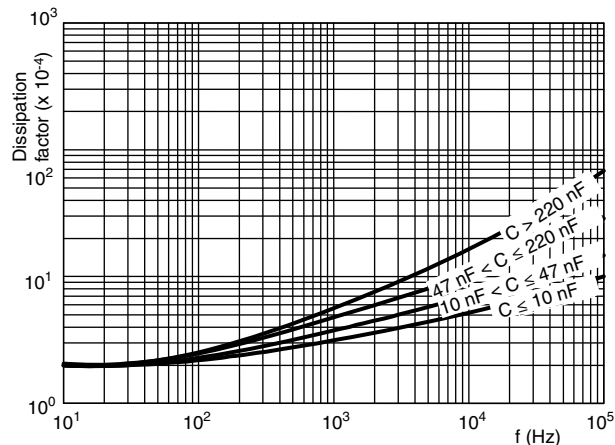
### Ratings and Characteristics Reference Conditions

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  $50$  %  $\pm 2$  %.

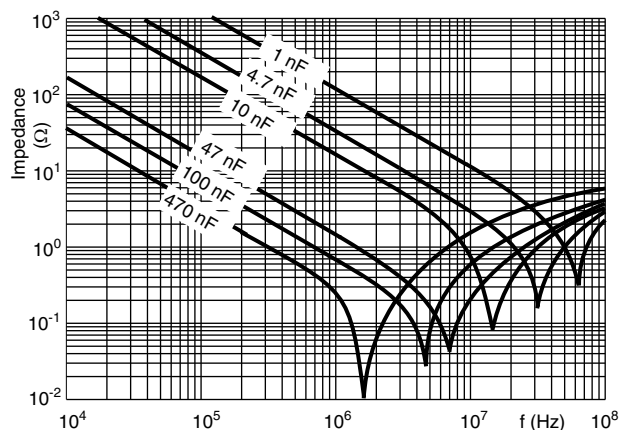
For reference testing, a conditioning period shall be applied over  $96$  h  $\pm 4$  h by heating the products in a circulating air oven at the rated temperature and a relative humidity not exceeding 20 %.

**CHARACTERISTICS**


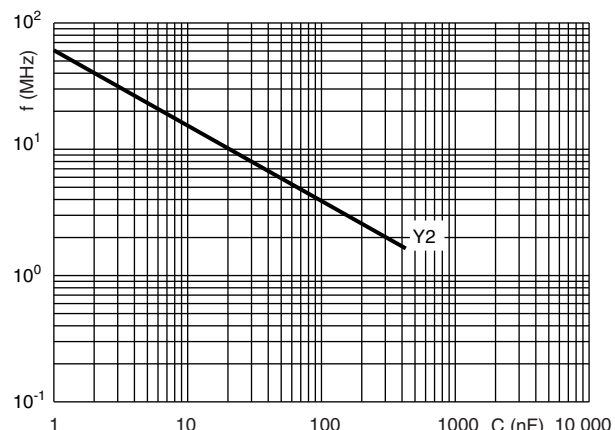
Capacitance as a function of ambient temperature  
(typical curve)



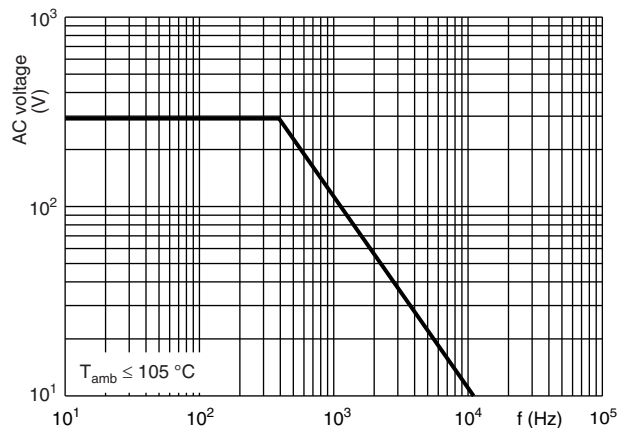
Tangent of loss angle as a function of frequency  
(typical curve)



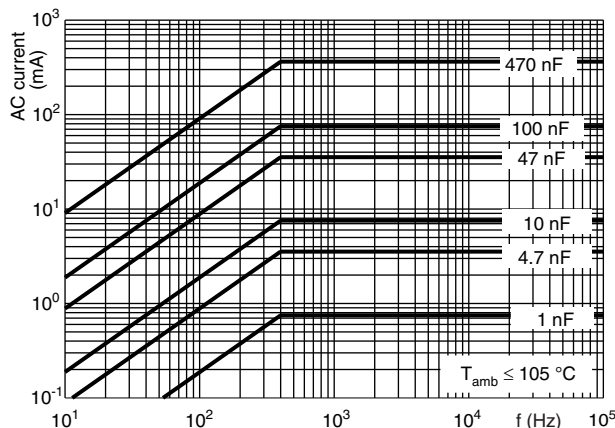
Impedance as a function of frequency  
(typical curve)



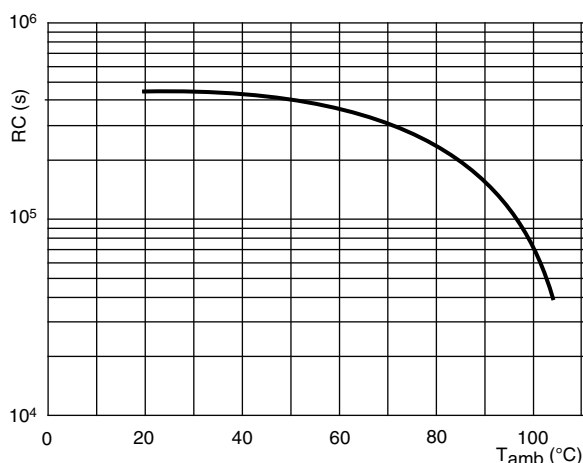
Resonant frequency as a function of capacitance  
(typical curve)



Max. RMS voltage as a function of frequency



Max. RMS current as a function of frequency



Insulation resistance as a function of ambient temperature

## APPLICATION NOTES

- For Y2 electromagnetic interference suppression in **standard line bypass applications** (between line and ground) (50 Hz / 60 Hz) with a maximum mains voltage of 300 V<sub>AC</sub>.
- For series impedance applications we refer to the application note: [www.vishay.com/doc?28153](http://www.vishay.com/doc?28153)
- For capacitors connected in parallel, normally the proof voltage and possibly the rated voltage must be reduced. For information depending of the capacitance value and the number of parallel connections contact [rfi@vishay.com](mailto:rfi@vishay.com)
- These capacitors are not intended for continuous pulse applications. For these situations, capacitors of the AC and pulse program must be used.
- The maximum ambient temperature must not exceed 105 °C.
- Rated voltage pulse slope:  
if the pulse voltage is lower than the rated voltage, the values of the specific reference data can be multiplied by 420 V<sub>DC</sub> and divided by the applied voltage.

## INSPECTION REQUIREMENTS

### General Notes

Sub-clause numbers of tests and performance requirements refer to the "Sectional Specification, Publication IEC 60384-14 ed-4 (2013) and Specific Reference Data."

| GROUP C INSPECTION REQUIREMENTS              |                                                                             |                                                               |
|----------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                   | CONDITIONS                                                                  | PERFORMANCE REQUIREMENTS                                      |
| SUB-GROUP C1A PART OF SAMPLE OF SUB-GROUP C1 |                                                                             |                                                               |
| 4.1 Dimensions (detail)                      |                                                                             | As specified in chapters "General Data" of this specification |
| Initial measurements                         | Capacitance<br>Tangent of loss angle:<br>at 10 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             | No pre-drying<br>Method: 1A<br>Solder bath: 280 °C ± 5 °C<br>Duration: 10 s |                                                               |



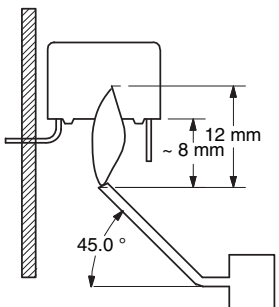
| GROUP C INSPECTION REQUIREMENTS                     |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                          | CONDITIONS                                                                                                                                                                                                                  | PERFORMANCE REQUIREMENTS                                                                                                                                                                                                                                              |
| <b>SUB-GROUP C1A PART OF SAMPLE OF SUB-GROUP C1</b> |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       |
| 4.19 Component solvent resistance                   | Isopropylalcohol at room temperature<br>Method: 2<br>Immersion time: 5 min $\pm$ 0.5 min<br>Recovery time:<br>min. 1 h, max. 2 h                                                                                            |                                                                                                                                                                                                                                                                       |
| 4.4.2 Final measurements                            | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance                                                                                                                             | No visible damage<br>Legible marking<br><br>$ \Delta C/C  \leq 5\%$ of the value measured initially<br><br>Increase of $\tan \delta \leq 0.008$<br>Compared to values measured initially<br><br>As specified in section "Insulation Resistance" of this specification |
| <b>SUB-GROUP C1B PART OF SAMPLE OF SUB-GROUP C1</b> |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                       |
| Initial measurements                                | Capacitance<br>Tangent of loss angle:<br>at 10 kHz                                                                                                                                                                          |                                                                                                                                                                                                                                                                       |
| 4.20 Solvent resistance of the marking:             | Isopropylalcohol at room temperature<br>Method: 1<br>Rubbing material: cotton wool<br>Immersion time: 5 min $\pm$ 0.5 min                                                                                                   | No visible damage<br>Legible marking                                                                                                                                                                                                                                  |
| 4.6 Rapid change of temperature                     | $\theta A = -55\text{ }^{\circ}\text{C}$<br>$\theta B = +105\text{ }^{\circ}\text{C}$<br>5 cycles<br>Duration $t = 30\text{ min}$                                                                                           |                                                                                                                                                                                                                                                                       |
| 4.6.1 Inspection                                    | Visual examination                                                                                                                                                                                                          | No visible damage                                                                                                                                                                                                                                                     |
| 4.7 Vibration                                       | Mounting: 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 |                                                                                                                                                                                                                                                                       |
| 4.7.2 Final inspection                              | Visual examination                                                                                                                                                                                                          | No visible damage                                                                                                                                                                                                                                                     |
| 4.9 Shock                                           | Mounting: see section "Mounting" for more information<br>Pulse shape: half sine<br>Acceleration: 490 m/s <sup>2</sup><br>Duration of pulse: 11 ms                                                                           |                                                                                                                                                                                                                                                                       |
| 4.9.2 Final measurements                            | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Insulation resistance                                                                                                                             | No visible damage<br><br>$ \Delta C/C  \leq 5\%$ of the value measured initially<br><br>Increase of $\tan \delta \leq 0.008$<br>Compared to values measured initially<br><br>As specified in section "Insulation Resistance" of this specification                    |



| GROUP C INSPECTION REQUIREMENTS                                            |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST                                                 | CONDITIONS                                                                                                                                                                | PERFORMANCE REQUIREMENTS                                                                                                                                                                                                                                                                                                                  |
| <b>SUB-GROUP C1 COMBINED SAMPLE OF SPECIMENS OF SUB-GROUPS C1A AND C1B</b> |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
| 4.11 Climatic sequence                                                     |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.1 Initial measurements                                                | Capacitance<br>measured in 4.4.2 and 4.9.2<br>Tangent of loss angle:<br>measured initially in C1A and C1B                                                                 |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.2 Dry heat                                                            | Temperature: 105 °C<br>Duration: 16 h                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.3 Damp heat cyclic<br>Test Db<br>First cycle                          |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.4 Cold                                                                | Temperature: -55 °C<br>Duration: 2 h                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.5 Damp heat cyclic<br>Test Db<br>remaining cycles                     |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
| 4.11.6 Final measurements                                                  | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Voltage proof<br>2250 V <sub>DC</sub> ; 1 min between terminations<br><br>Insulation resistance | No visible damage<br>Legible marking<br><br>$ \Delta C/C  \leq 5\%$ of the value measured in 4.11.1.<br><br>Increase of $\tan \delta \leq 0.008$<br>Compared to values measured in 4.11.1<br><br>No permanent breakdown or flash-over<br><br>$\geq 50\%$ of values specified in section<br>“Insulation Resistance” of this specification  |
| <b>SUB-GROUP C2</b>                                                        |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |
| 4.12 Damp heat steady state                                                | 56 days, 40 °C, 90 % to 95 % RH, no load<br>Capacitance                                                                                                                   |                                                                                                                                                                                                                                                                                                                                           |
| 4.12.1 Initial measurements                                                | Tangent of loss angle at 1 kHz                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                           |
| 4.12.3 Final measurements                                                  | Visual examination<br><br>Capacitance<br><br>Tangent of loss angle<br><br>Voltage proof<br>2250 V <sub>DC</sub> ; 1 min between terminations<br><br>Insulation resistance | No visible damage<br>Legible marking<br><br>$ \Delta C/C  \leq 5\%$ of the value measured in 4.12.1.<br><br>Increase of $\tan \delta \leq 0.007$<br>Compared to values measured in 4.12.1.<br><br>No permanent breakdown or flash-over<br><br>$\geq 50\%$ of values specified in section<br>“Insulation Resistance” of this specification |



| GROUP C INSPECTION REQUIREMENTS |                                                                                                                                                                           |                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| SUB-CLAUSE NUMBER AND TEST      | CONDITIONS                                                                                                                                                                | PERFORMANCE REQUIREMENTS                                                                  |
| <b>SUB-GROUP C3</b>             |                                                                                                                                                                           |                                                                                           |
| 4.13.1 Initial measurements     | Capacitance<br>Tangent of loss angle:<br>at 10 kHz                                                                                                                        |                                                                                           |
| 4.13 Impulse voltage            | 3 successive impulses, full wave, peak voltage:<br>X1: 5 kV<br>Max. 24 pulses                                                                                             | No selfhealing breakdowns or flash-over                                                   |
| 4.14 Endurance                  | Duration: 1000 h<br>$1.7 \times U_{RAC}$ at 105 °C<br>Once in every hour the voltage is increased to 1000 V <sub>RMS</sub> for 0.1 s via resistor of $47 \Omega \pm 5 \%$ |                                                                                           |
| 4.14.7 Final measurements       | Visual examination                                                                                                                                                        | No visible damage<br>Legible marking                                                      |
|                                 | Capacitance                                                                                                                                                               | $ \Delta C/C  \leq 10 \%$ compared to values measured in 4.13.1.                          |
|                                 | Tangent of loss angle                                                                                                                                                     | Increase of $\tan \delta \leq 0.008$<br>Compared to values measured in 4.13.1.            |
|                                 | Voltage proof<br>2250 V <sub>DC</sub> ; 1 min between terminations<br>2100 V <sub>AC</sub> ; 1 min between terminations and case                                          | No permanent breakdown or flash-over                                                      |
|                                 | Insulation resistance                                                                                                                                                     | $\geq 50 \%$ of values specified in section "Insulation Resistance" of this specification |
| <b>SUB-GROUP C4</b>             |                                                                                                                                                                           |                                                                                           |
| 4.15 Charge and discharge       | 10 000 cycles<br>charged to 420 V <sub>DC</sub><br>Discharge resistance:<br>$R = \frac{420 V_{DC}}{1.5 \times C (dU/dt)}$                                                 |                                                                                           |
| 4.15.1 Initial measurements     | Capacitance<br>Tangent of loss angle:<br>at 10 kHz                                                                                                                        |                                                                                           |
| 4.15.3 Final measurements       | Capacitance                                                                                                                                                               | $ \Delta C/C  \leq 10 \%$ compared to values measured in 4.15.1.                          |
|                                 | Tangent of loss angle                                                                                                                                                     | Increase of $\tan \delta \leq 0.008$<br>Compared to values measured in 4.15.1.            |
|                                 | Insulation resistance                                                                                                                                                     | $\geq 50 \%$ of values specified in section "Insulation Resistance" of this specification |

| <b>GROUP C INSPECTION REQUIREMENTS</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                      |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SUB-CLAUSE NUMBER AND TEST</b>      | <b>CONDITIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>PERFORMANCE REQUIREMENTS</b>                                                                                                                      |
| <b>SUB-GROUP C5</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                      |
| 4.16 Radio frequency characteristic    | Resonance frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                   | $\geq 0.9$ times the value as specified in section "Resonant Frequency" of this specification                                                        |
| <b>SUB-GROUP C6</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                      |
| 4.17 Passive flammability<br>Class B   | <p>Bore of gas jet: <math>\varnothing 0.5</math> mm<br/>           Fuel: Butane<br/>           Test duration for actual volume <math>V</math> in <math>\text{mm}^3</math>:<br/> <math>V \leq 250</math>: 10 s<br/> <math>250 &lt; V \leq 500</math>: 20 s<br/> <math>500 &lt; V \leq 1750</math>: 30 s<br/> <math>V &gt; 1750</math>: 60 s<br/>           One flame application</p>  | After removing test flame from capacitor, the capacitor must not continue to burn for more than 10 s. No burning particle must drop from the sample. |
| <b>SUB-GROUP C7</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                      |
| 4.18 Active flammability               | 20 cycles of 5 kV discharges on the test capacitor connected to $U_{\text{RAC}}$ .                                                                                                                                                                                                                                                                                                                                                                                    | <p>The cheese cloth around the capacitors shall not burn with a flame.</p> <p>No electrical measurements are required.</p>                           |



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