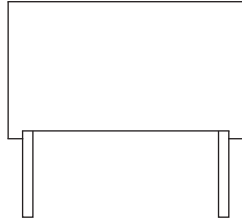


## Metallized Polyester Film Capacitors MKT Radial Type



### FEATURES

- 10.0 mm to 27.5 mm lead pitch
- Self-healing properties
- Flame retardant case
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

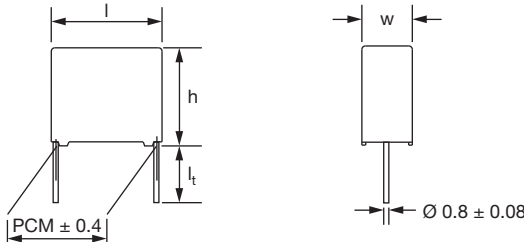
### APPLICATIONS

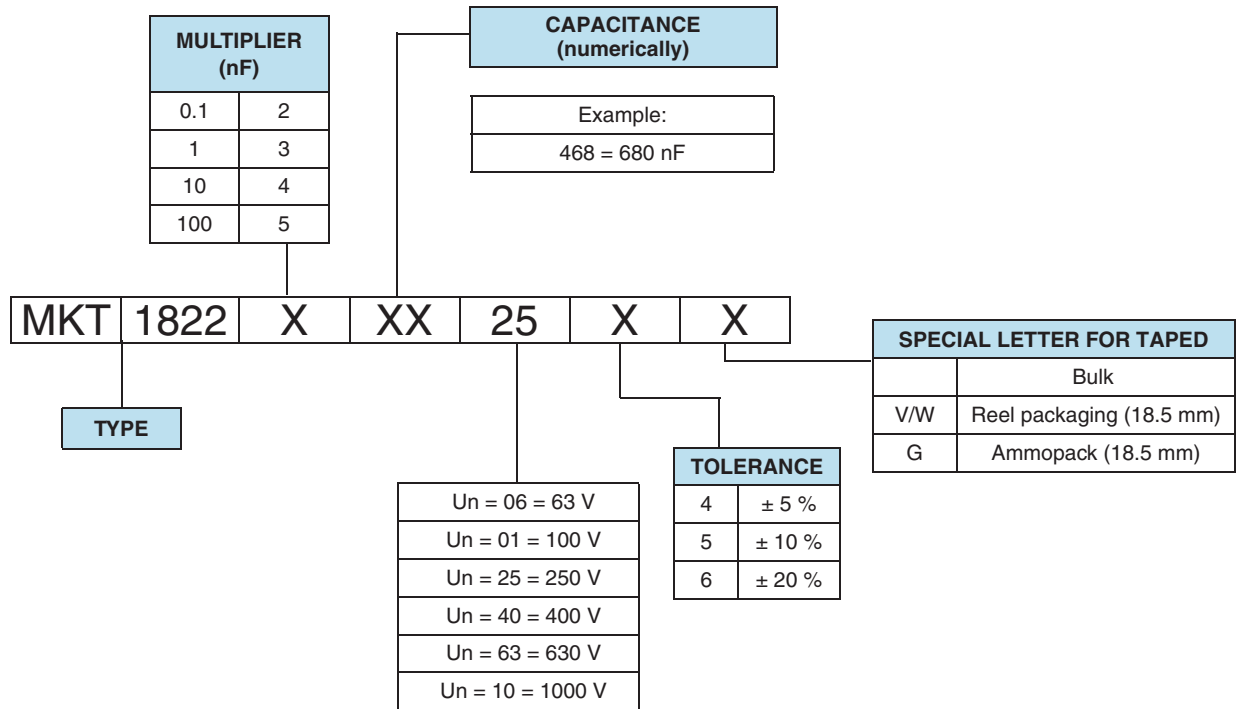
Blocking, bypassing, filtering, timing, coupling and decoupling circuits, interference suppression in low voltage applications.

| QUICK REFERENCE DATA                                   |   |
|--|---|
| Capacitance range (E12 series)                         | 1000 pF to 15 $\mu$ F (preferred values according to E6)  |
| Capacitance tolerance                                  | $\pm 20\%$ (M), $\pm 10\%$ (K), $\pm 5\%$ (J) (on request)  |
| Climatic testing class according to IEC 60068          | 55/100/56   |
| Reference standards                                    | IEC 60384-2   |
| Dielectric   | Polyester film  |
| Electrodes   | Vacuum deposited aluminum   |
| Construction   | Extended metallized film  |
| Encapsulation  | Flame retardant plastic case UL-class 94 V-0  |
| Leads  | Tinned wire   |
| Marking  | Manufacturer's logo; type; C-value; rated voltage; tolerance; date of manufacture   |
| Temperature range                                      | -55 °C to +100 °C   |
| Rated DC voltage                                       | 63 V <sub>DC</sub> , 100 V <sub>DC</sub> , 250 V <sub>DC</sub> , 400 V <sub>DC</sub> , 630 V <sub>DC</sub> , 1000 V <sub>DC</sub> |
| Permissible AC voltages (RMS) up to 60 Hz              | 40 V <sub>AC</sub> , 63 V <sub>AC</sub> , 160 V <sub>AC</sub> , 200 V <sub>AC</sub> , 220 V <sub>AC</sub>                         |
| Capacitance drift                                      | Up to +40 °C, $\pm 1.5\%$ for a period of two years   |
| Derating for DC and AC category voltage U <sub>C</sub> | At +85 °C: U <sub>C</sub> = 1.0 U <sub>R</sub><br>At +100 °C: U <sub>C</sub> = 0.8 U <sub>R</sub>                                 |
| Self inductance  | ~ 6 nH measured with 2 mm long leads  |
| Pull test on leads                                     | $\geq 30$ N in direction of leads according to IEC 60068-2-21   |

#### Note

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

| DIMENSIONS in millimeters  |
|--|
|  |

**COMPOSITION OF CATALOG NUMBER**

**Note**

- For detailed tape specifications refer to packaging information [www.vishay.com/doc?28139](http://www.vishay.com/doc?28139) or “Recommended Packaging” table

| SPECIFIC REFERENCE DATA   |  |                     |                     |                                     |                     |                      |
|---|--|---------------------|---------------------|-------------------------------------|---------------------|----------------------|
| DESCRIPTION   |  |                     |                     | MAX. VALUE                          |                     |                      |
| Tangent of loss angle:<br>$C \leq 0.1 \mu\text{F}$<br>$0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$<br>$C > 1.0 \mu\text{F}$ |  |                     |                     | at 1 kHz                            | at 10 kHz           | at 100 kHz           |
|   |  |                     |                     | $8 \times 10^{-3}$                  | $15 \times 10^{-3}$ | $25 \times 10^{-3}$  |
|   |  |                     |                     | $8 \times 10^{-3}$                  | $15 \times 10^{-3}$ | -                    |
|   |  |                     | $10 \times 10^{-3}$ | -                                   | -                   |                      |
| PCM (mm)  | MAXIMUM PULSE RISE TIME (dV/dt) [V/μs] |                     |                     |                                     |                     |                      |
|   | 63 V <sub>DC</sub>                     | 100 V <sub>DC</sub> | 250 V <sub>DC</sub> | 400 V <sub>DC</sub>                 | 630 V <sub>DC</sub> | 1000 V <sub>DC</sub> |
| 10  | 11                                     | 13                  | 22                  | 37                                  | 60                  | 130                  |
| 15  | 7                                      | 8                   | 13                  | 21                                  | 33                  | 65                   |
| 22.5  | 4                                      | 5                   | 8                   | 13                                  | 19                  | 34                   |
| 27.5  | 3                                      | 4                   | 6                   | 10                                  | 14                  | 25                   |
| If the maximum pulse voltage is less than the rated voltage higher dV/dt values can be permitted.                         |  |                     |                     |                                     |                     |                      |
| R between leads, for $C \leq 0.33 \mu\text{F}$ and $U_R \leq 100 \text{ V}$   |  |                     |                     | > 15 000 MΩ                         |                     |                      |
| R between leads, for $C \leq 0.33 \mu\text{F}$ and $U_R > 100 \text{ V}$  |  |                     |                     | > 30 000 MΩ                         |                     |                      |
| RC between leads, for $C > 0.33 \mu\text{F}$ and $U_R \leq 100 \text{ V}$   |  |                     |                     | > 5000 s                            |                     |                      |
| RC between leads, for $C > 0.33 \mu\text{F}$ and $U_R > 100 \text{ V}$  |  |                     |                     | > 10 000 s                          |                     |                      |
| R between leads and case, 100 V; (foil method)  |  |                     |                     | > 30 000 MΩ                         |                     |                      |
| Withstanding (DC) voltage (cut off current 10 mA); rise time < 1000 V/s   |  |                     |                     | $1.6 \times U_{\text{RDC}}$ , 1 min |                     |                      |
| Withstanding (DC) voltage between leads and case  |  |                     |                     | $2 \times U_{\text{RDC}}$ , 1 min   |                     |                      |
| Maximum application temperature   |  |                     |                     | 100 °C                              |                     |                      |



| ELECTRICAL DATA         |              |                     |                    |                 |                         |      |
|-------------------------|--------------|---------------------|--------------------|-----------------|-------------------------|------|
| U <sub>RDC</sub><br>(V) | CAP.<br>(μF) | CAPACITANCE<br>CODE | VOLTAGE<br>CODE    | V <sub>AC</sub> | DIMENSIONS<br>W x H x L | PCM  |
| 63                      | 0.22         | -422                | 06                 | 40              | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.33         | -433                |                    |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.47         | -447                |                    |                 | 5.5 x 10.5 x 13.0       | 10   |
|                         | 0.68         | -468                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 1.0          | -510                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 1.5          | -515                |                    |                 | 6.5 x 12.5 x 18.0       | 15   |
|                         | 2.2          | -522                |                    |                 | 7.5 x 13.5 x 18.0       | 15   |
|                         | 3.3          | -533                |                    |                 | 7.5 x 15.5 x 26.5       | 22.5 |
|                         | 4.7          | -547                |                    |                 | 8.5 x 16.5 x 26.5       | 22.5 |
|                         | 6.8          | -568                |                    |                 | 10.5 x 18.5 x 26.5      | 22.5 |
|                         | 10.0         | -610                |                    |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 15.0         | -615                |                    |                 | 13.5 x 23.5 x 31.5      | 27.5 |
| 100                     | 0.068        | -368                | 01                 | 63              | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.10         | -410                |                    |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.15         | -415                |                    |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.22         | -422                |                    |                 | 4.5 x 9.5 x 13.0        | 10   |
|                         | 0.33         | -433                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.47         | -447                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.68         | -468                |                    |                 | 6.5 x 12.5 x 18.0       | 15   |
|                         | 1.0          | -510                |                    |                 | 7.5 x 13.5 x 18.0       | 15   |
|                         | 1.5          | -515                |                    |                 | 7.5 x 15.5 x 26.5       | 22.5 |
|                         | 2.2          | -522                |                    |                 | 8.5 x 16.5 x 26.5       | 22.5 |
|                         | 3.3          | -533                |                    |                 | 10.5 x 18.5 x 26.5      | 22.5 |
|                         | 4.7          | -547                |                    |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 6.8          | -568                |                    |                 | 13.5 x 23.5 x 31.5      | 27.5 |
|                         | 10.0         | -610                |                    |                 | 15.0 x 24.5 x 31.5      | 27.5 |
| 15.0                    | -615         | 16.5 x 29.5 x 31.5  | 27.5               |                 |                         |      |
| 250                     | 0.033        | -333                | 25                 | 160             | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.047        | -347                |                    |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.068        | -368                |                    |                 | 4.5 x 9.5 x 13.0        | 10   |
|                         | 0.10         | -410                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.15         | -415                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.22         | -422                |                    |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.33         | -433                |                    |                 | 6.5 x 12.5 x 18.0       | 15   |
|                         | 0.47         | -447                |                    |                 | 6.5 x 14.5 x 26.5       | 22.5 |
|                         | 0.68         | -468                |                    |                 | 7.5 x 15.5 x 26.5       | 22.5 |
|                         | 1.0          | -510                |                    |                 | 8.5 x 16.5 x 26.5       | 22.5 |
|                         | 1.5          | -515                |                    |                 | 9.0 x 18.5 x 31.5       | 27.5 |
|                         | 2.2          | -522                |                    |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 3.3          | -533                |                    |                 | 13.5 x 23.5 x 31.5      | 27.5 |
|                         | 400          | 0.0010              |                    |                 | -210                    | 40   |
| 0.0015                  |              | -215                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.0022                  |              | -222                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.0033                  |              | -233                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.0047                  |              | -247                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.0068                  |              | -268                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.010                   |              | -310                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.015                   |              | -315                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.022                   |              | -322                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.033                   |              | -333                | 4.0 x 9.0 x 13.0   | 10              |                         |      |
| 0.047                   |              | -347                | 5.5 x 10.5 x 18.0  | 15              |                         |      |
| 0.068                   |              | -368                | 5.5 x 10.5 x 18.0  | 15              |                         |      |
| 0.10                    |              | -410                | 5.5 x 10.5 x 18.0  | 15              |                         |      |
| 0.15                    |              | -415                | 6.5 x 12.5 x 18.0  | 15              |                         |      |
| 0.22                    |              | -422                | 7.5 x 15.5 x 26.5  | 22.5            |                         |      |
| 0.33                    |              | -433                | 8.5 x 16.5 x 26.5  | 22.5            |                         |      |
| 0.47                    |              | -447                | 10.5 x 18.5 x 26.5 | 22.5            |                         |      |
| 0.68                    |              | -468                | 11.5 x 20.5 x 31.5 | 27.5            |                         |      |
| 1.0                     |              | -510                | 11.5 x 20.5 x 31.5 | 27.5            |                         |      |
| 1.5                     |              | -515                | 13.5 x 23.5 x 31.5 | 27.5            |                         |      |



| ELECTRICAL DATA         |              |                     |                   |                 |                         |      |
|-------------------------|--------------|---------------------|-------------------|-----------------|-------------------------|------|
| U <sub>RDC</sub><br>(V) | CAP.<br>(μF) | CAPACITANCE<br>CODE | VOLTAGE<br>CODE   | V <sub>AC</sub> | DIMENSIONS<br>W x H x L | PCM  |
| 630                     | 0.0010       | -210                | 63 <sup>(1)</sup> | 220             | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0015       | -215                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0022       | -222                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0033       | -233                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0047       | -247                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0068       | -268                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.010        | -310                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.015        | -315                |                   |                 | 5.5 x 10.5 x 13.0       | 10   |
|                         | 0.022        | -322                |                   |                 | 6.5 x 11.5 x 13.0       | 10   |
|                         | 0.033        | -333                |                   |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.047        | -347                |                   |                 | 6.5 x 12.5 x 18.0       | 15   |
|                         | 0.068        | -368                |                   |                 | 7.5 x 13.5 x 18.0       | 15   |
|                         | 0.10         | -410                |                   |                 | 6.5 x 14.5 x 26.5       | 22.5 |
|                         | 0.15         | -415                |                   |                 | 7.5 x 15.5 x 26.5       | 22.5 |
|                         | 0.22         | -422                |                   |                 | 8.5 x 16.5 x 26.5       | 22.5 |
|                         | 0.33         | -433                |                   |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 0.47         | -447                |                   |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 0.68         | -468                |                   |                 | 13.5 x 23.5 x 31.5      | 27.5 |
| 1.0                     | -510         | 15.0 x 24.5 x 31.5  | 27.5              |                 |                         |      |
| 1000                    | 0.0010       | -210                | 10 <sup>(1)</sup> | 220             | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0015       | -215                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0022       | -222                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0033       | -233                |                   |                 | 4.0 x 9.0 x 13.0        | 10   |
|                         | 0.0047       | -247                |                   |                 | 5.5 x 10.5 x 13.0       | 10   |
|                         | 0.0068       | -268                |                   |                 | 6.5 x 11.5 x 13.0       | 10   |
|                         | 0.010        | -310                |                   |                 | 5.5 x 10.5 x 18.0       | 15   |
|                         | 0.015        | -315                |                   |                 | 6.5 x 12.5 x 18.0       | 15   |
|                         | 0.022        | -322                |                   |                 | 7.5 x 13.5 x 18.0       | 15   |
|                         | 0.033        | -333                |                   |                 | 6.5 x 14.5 x 26.5       | 22.5 |
|                         | 0.047        | -347                |                   |                 | 7.5 x 15.5 x 26.5       | 22.5 |
|                         | 0.068        | -368                |                   |                 | 8.5 x 16.5 x 26.5       | 22.5 |
|                         | 0.10         | -410                |                   |                 | 10.5 x 18.5 x 26.5      | 22.5 |
|                         | 0.15         | -415                |                   |                 | 11.5 x 20.5 x 31.5      | 27.5 |
|                         | 0.22         | -422                |                   |                 | 13.5 x 23.5 x 31.5      | 27.5 |
|                         | 0.33         | -433                |                   |                 | 16.5 x 29.5 x 31.5      | 27.5 |
|                         | 0.47         | -447                |                   |                 | 20.0 x 35.0 x 31.5      | 27.5 |

**Note**

<sup>(1)</sup> Not suitable for mains applications

| RECOMMENDED PACKAGING |                      |                       |                          |                           |           |           |                     |
|-----------------------|----------------------|-----------------------|--------------------------|---------------------------|-----------|-----------|---------------------|
| LETTER<br>CODE        | TYPE OF<br>PACKAGING | HEIGHT<br>(H)<br>(mm) | REEL<br>DIAMETER<br>(mm) | ORDERING CODE<br>EXAMPLES | PCM<br>10 | PCM<br>15 | PCM<br>22.5 TO 27.5 |
| G                     | Ammo                 | 18.5                  | S <sup>(1)</sup>         | MKT1822-422-065-G         | X         | X         | -                   |
| W                     | Reel                 | 18.5                  | 350                      | MKT1822-422-065-W         | X         | X         | -                   |
| V                     | Reel                 | 18.5                  | 500                      | MKT1822-510-255-V         | -         | X         | X                   |
| G                     | Ammo                 | 18.5                  | L <sup>(2)</sup>         | MKT1822-510-255-G         | -         | -         | X                   |
| -                     | Bulk                 | -                     | -                        | MKT1822-510-255           | X         | X         | X                   |
| -                     | Bulk                 | -                     | -                        | MKT1822-522-255           | X         | -         | X                   |

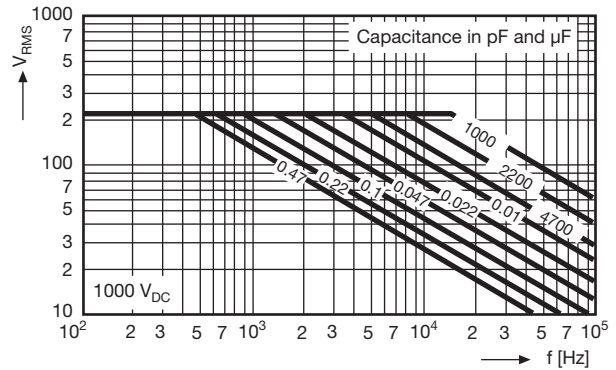
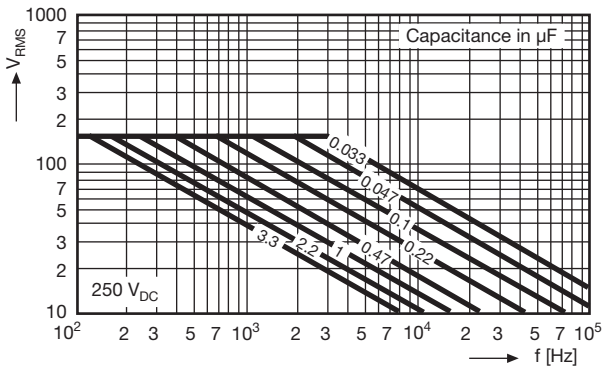
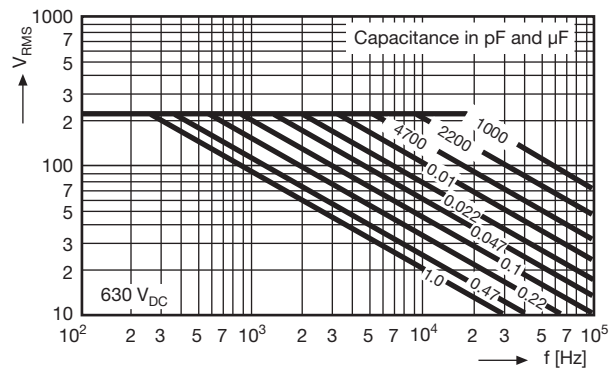
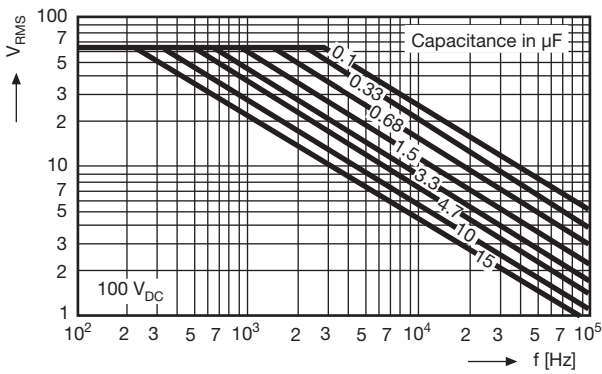
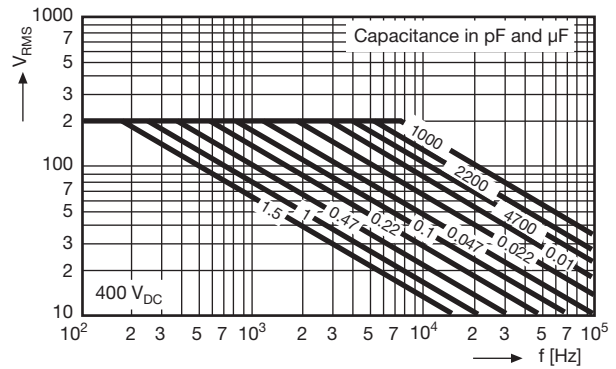
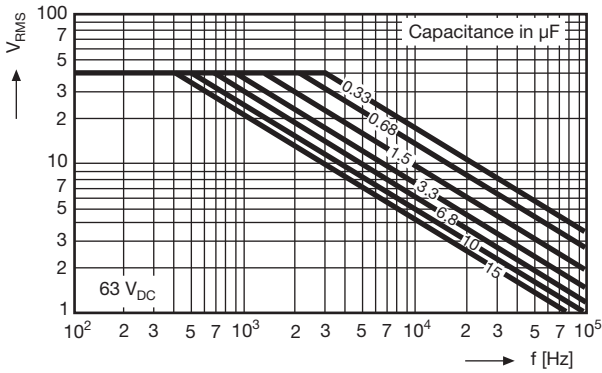
**Notes**

<sup>(1)</sup> S = Box size 55 mm x 210 mm x 340 mm (W x H x L)

<sup>(2)</sup> L = Box size 60 mm x 360 mm x 510 mm (W x H x L)



PERMISSIBLE AC VOLTAGE VS. FREQUENCY





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