

# Vishay ESTA Power Film Capacitors

**Flexible Design Options**  
Up to 1000 VAC<sub>RMS</sub>



PhMKP

**Low Self-Inductance**



HDMKP

**Long Life Expectancy**



DCMKP

**High Reliability and  
Long Life Expectancy**



ACMKP

**Low Losses at  
High Frequencies**



GLI

**Compact Design for  
Maximum Output, 56 kvar**



PhMKD

**Insulation Level Up to 36 kV  
(70 kV / 170 kV<sub>p</sub>)**



Phao, Phafo

**Frequency Range Up to 100 kHz**












Phawo









# VISHAY ESTA POWER FILM CAPACITORS

## Focus Products

| Power Electronic Capacitors   |  |                        |                       |                       |                        |                        |                              |                          |     |
|---|--|------------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------------|--------------------------|-----|
| Series  | Rated Voltage min. (V)   | Rated Voltage max. (V) | Capacitance min. (µF) | Capacitance max. (µF) | Rated Current min. (A) | Rated Current max. (A) | Dimensions min. to max. (mm) | Filling Agent            |     |
|  | <b>ACMKP-Tubular</b>   | 1000                   | 3000                  | 0.2                   | 10                     | 5                      | 20                           | 84.4 x 140 to 340        | Dry |
|   | Low PD level; high reliability and life expectancy   |                        |                       |                       |                        |                        |                              |                          |     |
|  | <b>GLI-A</b>   | 700                    | 2150                  | 7.5                   | 230                    | 20                     | 80                           | 87 x 44 to 87            | Dry |
|   | Low inductance; low losses at high frequencies; high current ratings; custom designs available |                        |                       |                       |                        |                        |                              |                          |     |
|  | <b>GLI-I</b>   | 700                    | 2150                  | 7.5                   | 230                    | 20                     | 80                           | 87 x 44 to 87            | Dry |
|   | Low inductance; low losses at high frequencies; high current ratings; custom designs available |                        |                       |                       |                        |                        |                              |                          |     |
|  | <b>GLI-B</b>   | 700                    | 2150                  | 7.5                   | 230                    | 20                     | 80                           | 87 x 44 to 87            | Dry |
|   | Low inductance; low losses at high frequencies; high current ratings; custom designs available |                        |                       |                       |                        |                        |                              |                          |     |
|  | <b>HDMKP</b>   | 900                    | 2700                  | 40                    | 2235                   | 17                     | 120                          | 84.4 to 116 x 105 to 260 | Dry |
|   | High impulse current rating; low inductance; compact design                                    |                        |                       |                       |                        |                        |                              |                          |     |

| Power Electronic Capacitors   |   |                        |                       |                       |                        |                        |               |             |                           |
|---|---|------------------------|-----------------------|-----------------------|------------------------|------------------------|---------------|-------------|---------------------------|
| Series  | Rated Voltage min. (V)  | Rated Voltage max. (V) | Capacitance min. (µF) | Capacitance max. (µF) | Rated Current min. (A) | Rated Current max. (A) | Filling Agent | Application |                           |
|    | <b>DCMKP - Rectangular</b>  | 800                    | 25 000                | 50                    | 20 000                 | 100                    | 800           | Dry         | DC-link                   |
|   | High RMS and impulse current rating; low inductance; high reliability and life expectancy; custom designs available |                        |                       |                       |                        |                        |               |             |                           |
|   | <b>DCMKP - Rectangular</b>  | 800                    | 25 000                | 50                    | 20 000                 | 100                    | 800           | Dry         | HVDC, power transmissions |
|   | High RMS and impulse current rating; low inductance; high reliability and life expectancy; custom designs available |                        |                       |                       |                        |                        |               |             |                           |
|  | <b>ACMKP - Rectangular</b>  | 200                    | 3000                  | 50                    | 5 000                  | 100                    | 800           | Dry         | AC-filter                 |
|   | High RMS and impulse current rating; low inductance; high reliability and life expectancy; custom designs available |                        |                       |                       |                        |                        |               |             |                           |
|  | <b>DCMKP - Rectangular</b>  | 800                    | 25 000                | 50                    | 20 000                 | 100                    | 800           | Dry         | Industrial drives         |
|   | High RMS and impulse current rating; low inductance; high reliability and life expectancy; custom designs available |                        |                       |                       |                        |                        |               |             |                           |



| Low Voltage Power Capacitors  |   |                        |                    |                    |                       |                       |                              |                   |            |
|---|---|------------------------|--------------------|--------------------|-----------------------|-----------------------|------------------------------|-------------------|------------|
| Series  | Rated Voltage min. (V)  | Rated Voltage max. (V) | Output min. (kvar) | Output max. (kvar) | Capacitance min. (µF) | Capacitance max. (µF) | Dimensions min. to max. (mm) | Filling Agent     |            |
|  | <b>PhMKP 3-phase</b>  | 230                    | 1000               | 2.5                | 14                    | Δ 3 x 11.5            | Δ 3 x 100.3                  | 64 x 190 to 265   | Dry or oil |
|   | MKP film; self-healing; all-phase tear-off fuse system; slim diameter; stacked winding elements; IP20         |                        |                    |                    |                       |                       |                              |                   |            |
|  | <b>PhMKP 1-phase</b>  | 230                    | 690                | 2.5                | 10                    | 1 x 49.7              | 1 x 251.0                    | 64 x 82 to 240    | Oil        |
|   | MKP film; self-healing; all connection tear-off fuse system; slim diameter; IP20                              |                        |                    |                    |                       |                       |                              |                   |            |
|  | <b>PhMKP 3-phase</b>  | 230                    | 1000               | 8.33               | 30                    | Δ 3 x 20.3            | Δ 3 x 300.9                  | 84.4 x 190 to 340 | Dry or oil |
|   | MKP film; self-healing; all-phase tear-off fuse system; slim diameter; stacked winding elements; IP00 or IP20 |                        |                    |                    |                       |                       |                              |                   |            |
|  | <b>PhMKP 1-phase</b>  | 230                    | 690                | 5                  | 20                    | 1 x 165.7             | 1 x 332.2                    | 84.4 x 140 to 240 | Oil        |
|   | MKP film; self-healing; all connection tear-off fuse system; slim diameter; IP00 or IP20                      |                        |                    |                    |                       |                       |                              |                   |            |
|  | <b>PhMKP 3-phase</b>  | 230                    | 1000               | 10                 | 37.1                  | Δ 3 x 77.0            | Δ 3 x 335.0                  | 116 x 160 to 265  | Dry or oil |
|   | MKP film; self-healing; all-phase tear-off fuse system; low profile height; stacked winding elements; IP20    |                        |                    |                    |                       |                       |                              |                   |            |
|  | <b>PhMKP 3-phase</b>  | 400                    | 1000               | 25                 | 37.1                  | Δ 3 x 115.4           | Δ 3 x 219.3                  | 136 x 190 to 230  | Dry or oil |
|   | MKP film; self-healing; all-phase tear-off fuse system; low profile height; stacked winding elements; IP20    |                        |                    |                    |                       |                       |                              |                   |            |




# VISHAY ESTA POWER FILM CAPACITORS

## Focus Products


### Three Phase Low-Voltage Power Capacitors

| Series   | Rated Voltage min. (V)  | Rated Voltage max. (V) | Output min. (kvar) | Output max. (kvar) | Capacitance min. (µF) | Capacitance max. (µF) | Dimensions min. to max. (mm) | Installation |
|--|---|------------------------|--------------------|--------------------|-----------------------|-----------------------|------------------------------|--------------|
|  <b>PhMKDg 3-phase</b>  | 230   | 1000                   | 30                 | 56.2               | Δ 3 x 115.5           | Δ 3 x 331.6           | Δ 160 x 210                  | Indoor       |
|  | MKP film; self-healing; dry; all-phase tear-off fuse system; very compact 50 kvar unit with low profile height; M10 connection bolts; IP00  |                        |                    |                    |                       |                       |                              |              |
|  <b>PhMKDgF 3-phase</b> | 230   | 1000                   | 30                 | 56.2               | Δ 3 x 115.5           | Δ 3 x 331.6           | Δ 160 x 210                  | Outdoor      |
|  | MKP film; self-healing; dry; all-phase tear-off fuse system; very compact 50 kvar unit with low profile height; M10 connection bolts; IP00; for upside-down outdoor pole-mounting; full aluminum casing with welded top; no painting required |                        |                    |                    |                       |                       |                              |              |

### Three Phase High-Voltage Power Capacitors

| Series  | Connection   | Rated Voltage max. (kV) | Insulation Level (kV) | Output min. (kvar) | Output max. (kvar) | Frequency (Hz) | Filling Agent | Installation  |        |
|---|--|-------------------------|-----------------------|--------------------|--------------------|----------------|---------------|---------------|--------|
|  | All-film dielectric; polypropylene; low losses 0.15 W/kvar; biodegradable; IEC 60871; ANSI / IEEE; CSA; with pressure switch |                         |                       |                    |                    |                |               |               |        |
|   | <b>Phao 3.3/.../D</b>  | Three phase             | 3300                  | 3600               | 50                 | 600            | 50 to 60      | Synthetic oil | Indoor |
|   | <b>Phao 4.16/.../D</b>   | Three phase             | 4160                  | 7200               | 50                 | 650            | 50 to 60      | Synthetic oil | Indoor |
|   | <b>Phao 6.6/.../D</b>  | Three phase             | 6600                  | 7200               | 50                 | 650            | 50 to 60      | Synthetic oil | Indoor |
|   | <b>Phao 11/.../D</b>   | Three phase             | 11 000                | 12 000             | 50                 | 750            | 50 to 60      | Synthetic oil | Indoor |

### Single Phase High-Voltage Power Capacitors

| Series   | Connection   | Rated Voltage max. (kV) | Insulation Level (kV) | Output min. (kvar) | Output max. (kvar) | Frequency (Hz) | Filling Agent | Installation  |         |
|--|--|-------------------------|-----------------------|--------------------|--------------------|----------------|---------------|---------------|---------|
|  | With or without internal fuses; all-film dielectric; polypropylene; low losses 0.15 W/kvar; biodegradable; IEC 60871; ANSI / IEEE; CSA |                         |                       |                    |                    |                |               |               |         |
|  | <b>Phao 3.64/kvar/1</b>  | Single phase            | 3640                  | 7200               | 50                 | 800            | 50 to 60      | Synthetic oil | Indoor  |
|  | <b>Phao 6.35/kvar/1</b>  | Single phase            | 6350                  | 12 000             | 50                 | 900            | 50 to 60      | Synthetic oil | Indoor  |
|  | <b>Phao 8.66/kvar/1</b>  | Single phase            | 8660                  | 17 500             | 50                 | 900            | 50 to 60      | Synthetic oil | Indoor  |
|  | <b>Phao 12.7/kvar/1</b>  | Single phase            | 12 700                | 24 000             | 50                 | 900            | 50 to 60      | Synthetic oil | Indoor  |
|  | <b>Phao 19.9/kvar/1</b>  | Single phase            | 19 900                | 36 000             | 50                 | 800            | 50 to 60      | Synthetic oil | Indoor  |
|  | <b>Phafo 3.64/kvar/1</b>   | Single phase            | 3640                  | 7200               | 50                 | 800            | 50 to 60      | Synthetic oil | Outdoor |
|  | <b>Phafo 6.35/kvar/1</b>   | Single phase            | 6350                  | 12 000             | 50                 | 900            | 50 to 60      | Synthetic oil | Outdoor |
|  | <b>Phafo 8.66/kvar/1</b>   | Single phase            | 8660                  | 17 500             | 50                 | 900            | 50 to 60      | Synthetic oil | Outdoor |
| <b>Phafo 12.7/kvar/1</b>   | Single phase   | 12 700                  | 24 000                | 50                 | 900                | 50 to 60       | Synthetic oil | Outdoor       |         |



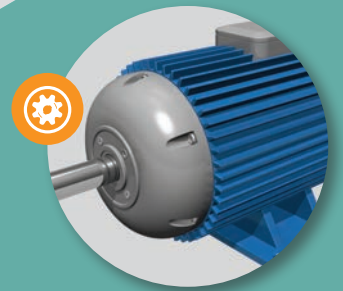
# Vishay ESTA Power Capacitors Offer Custom Designs for the Best Power Solutions

## Advantages of Vishay ESTA Power Capacitors

- High power
- Low losses
- High reliability
- Compact design

## For the Following Applications

- Power factor correction (PFC) and filtering
- Industrial drives
- Power transmission, FACTS, HVDC
- Induction heating



Use DCMKP for long life expectancy



Use PhMKP in your wind turbine applications for flexible Green design options

## Useful Links

- Vishay ESTA Power Capacitors Gateway Page [www.vishay.com/capacitors/power-heavy-current/](http://www.vishay.com/capacitors/power-heavy-current/)
- For more information, please contact: [esta@vishay.com](mailto:esta@vishay.com)

