



**THE DATASHEET OF
MKP1848C55012JK2**



Metallized Polypropylene DC-Link Film Capacitor Industrial Grade



FEATURES

- High density DC-link capacitor (more C per volume)
- Very long useful life time: up to 100 000 h at U_{NDC} and 70 °C
- High ripple current capability, low ESR, low ESL
- Temperature range: 105 °C
- Mounting: radial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

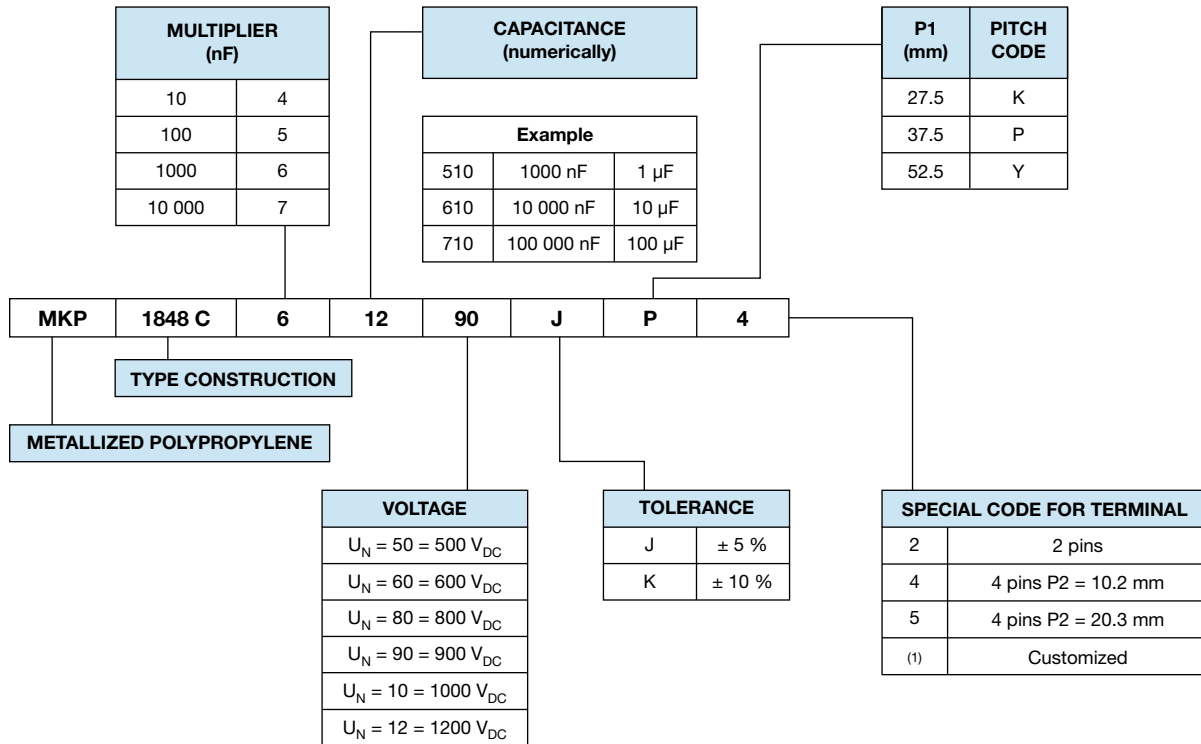
- Renewable energies inverters
- UPS
- Battery chargers
- Motor drives

| QUICK REFERENCE DATA | |
|--|--|
| Rated capacitance range | 1 µF to 500 µF |
| Capacitance tolerance | ± 5 % |
| Climatic testing class | 55/105/56 |
| Rated temperature | 85 °C |
| Maximum permissible case temperature | 105 °C, observing voltage derating |
| Maximum applicable peak to peak ripple voltage | 0.2 x U_{NDC} |
| Reference standards | IEC 61071, IEC 60068 |
| Dielectric | Polypropylene film |
| Electrodes | Metallized dielectric capacitor |
| Construction | Mono construction |
| Encapsulation | Plastic case sealed with resin; flame retardant |
| Terminals | Tinned wire |
| Self inductance (L_s) | < 1 nH per mm of lead spacing |
| Withstanding DC voltage between terminals ⁽¹⁾ | 1.5 U_{NDC} for 10 s, cut off current 10 mA, rise time ≤ 1000 V/s |
| Insulation resistance | RC between leads, after 1 min > 10 000 s For $U_{NDC} \leq 500$ V measuring voltage 100 V For $U_{NDC} > 500$ V measuring voltage 500 V |
| Life time expectancy ⁽²⁾ | Useful life time: > 100 000 h at U_{NDC} and 70 °C FIT: < 10 x 10 ⁻⁹ /h (10 per 10 ⁹ component h) at 0.5 x U_{NDC} , 40 °C |
| Marking | C-value; tolerance; rated voltage; code for dielectric material; code for manufacturing origin; manufacturer's type designation; manufacturer's logo; year and week of manufacture |

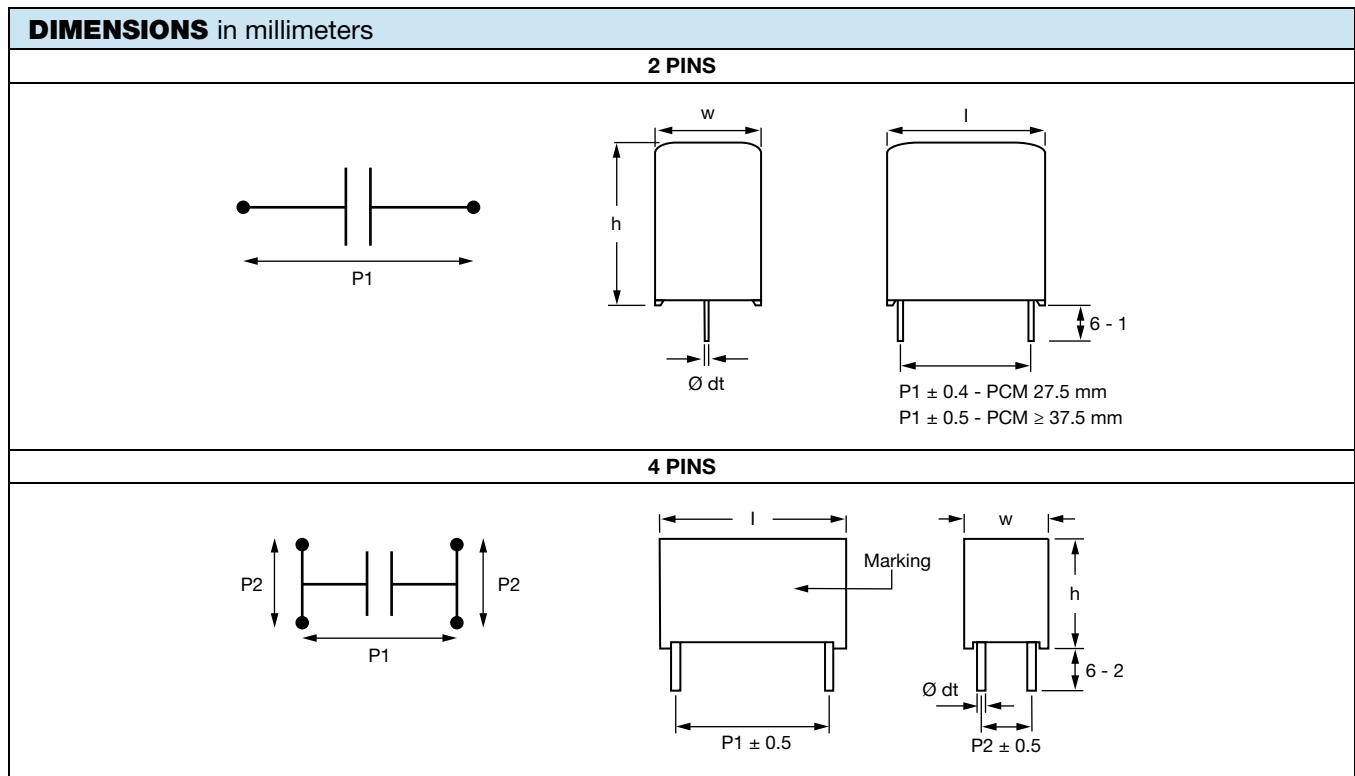
Notes

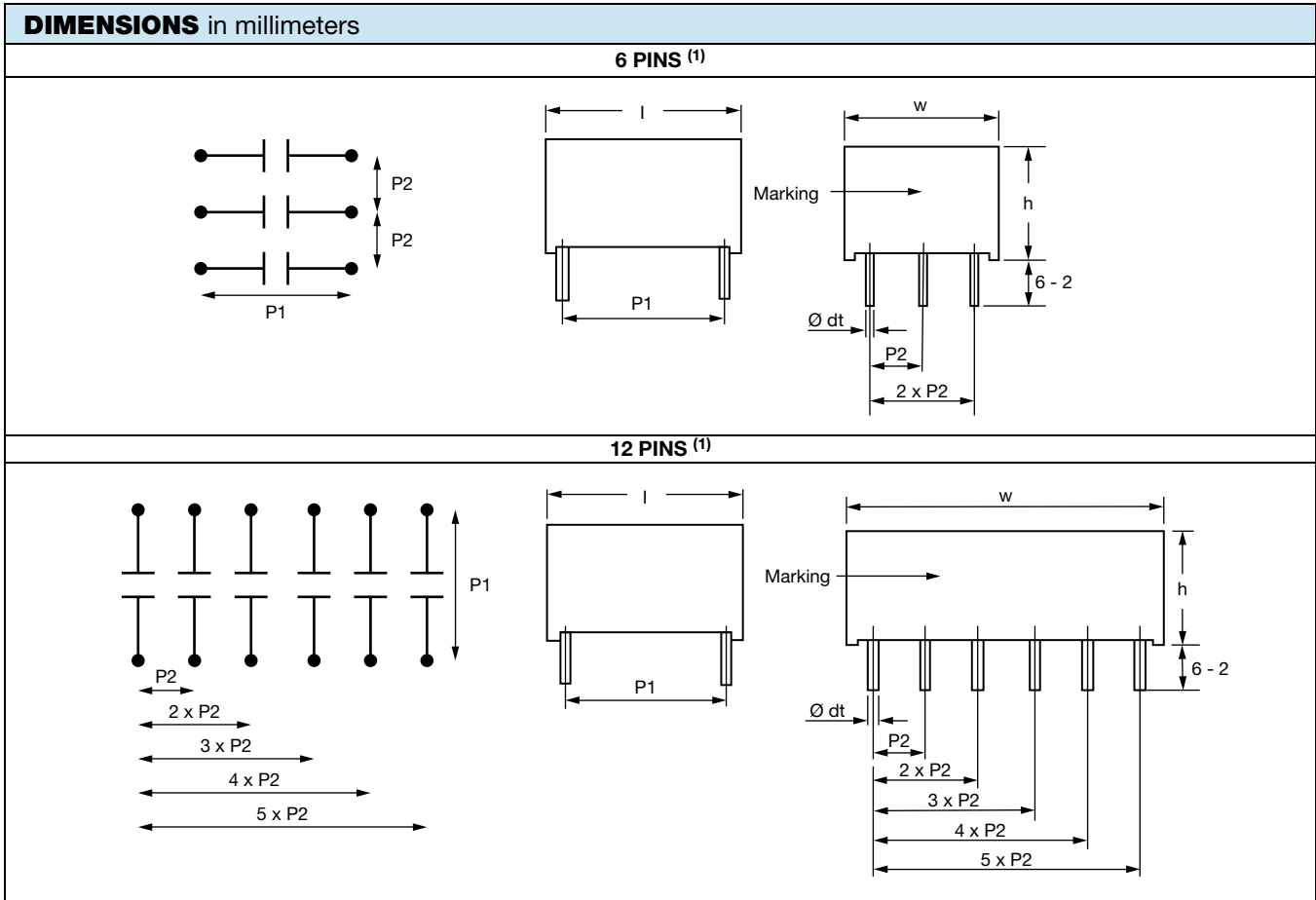
- For more detailed data and test requirements, contact dc-film@vishay.com
 - For general information like characteristics and definitions used for film capacitors follow the link: www.vishay.com/doc?28147
- ⁽¹⁾ See document "Voltage Proof Test for Metallized Capacitors" (www.vishay.com/doc?28169)
- ⁽²⁾ Statements about life time are based on calculations which are based on internal tests again. They have to be understood exclusively as estimations. Also due to external factors, the life time in the field application may deviate from the calculated life time

| DC VOLTAGE RATINGS | | | | | | |
|----------------------|-------|-------|-------|--------|--------|--------|
| U_{NDC} at 85 °C | 500 V | 600 V | 800 V | 900 V | 1000 V | 1200 V |
| U_{OPDC} at 70 °C | 600 V | 720 V | 960 V | 1100 V | 1200 V | 1440 V |
| U_{OPDC} at 105 °C | 350 V | 420 V | 560 V | 650 V | 700 V | 850 V |

COMPOSITION OF CATALOG NUMBER

Note

(1) Tabs terminals or customized terminals are available on request




Notes

- $\varnothing dt \pm 10\%$ of standard diameter specified
 - For pitch 27.5 mm marking will be either on top or front side.
For pitch ≥ 37.5 mm marking will be on front side only / 6 pins and 12 pins lateral side
- ⁽¹⁾ 6 pins and 12 pins capacitors nominal capacitance is achieved by connecting the represented individual cells in parallel

| ELECTRICAL DATA AND ORDERING CODE | | | | | | | | | | | | | | | |
|--|-----------------------------------|---|------|------|------------|------------|-----------------------|--------------------------|--|-----------|-------------------------------------|-----------|--|------------------|------------------------------|
| U_{NDC} AT 85 °C (V) | CAP. ⁽⁸⁾ (μ F) | DIMENSION ⁽⁵⁾ (mm) | | | P1 (mm) | P2 (mm) | dV/dt (V/ μ s) | I _{PEAK} (A) | I _{RMS} ⁽²⁾ (A) | | ESR ⁽³⁾ (m Ω) | | tan δ 10 kHz ($< 10^{-4}$) ⁽⁴⁾ | | ORDERING CODE ⁽¹⁾ |
| | | w | h | l | | | | | 2 PINS | 4 PINS | 2 PINS | 4 PINS | 2 PINS | 4 PINS | |
| | | U _{OPDC} AT 70 °C = 600 V, U _{OPDC} AT 105 °C = 350 V | | | | | | | | | | | | | |
| 500 | 1 | 9.0 | 19.0 | 32.0 | 27.5 | - | 40 | 40 | 1.5 | - | 90 | - | 110 | - | MKP1848C51050JK2 |
| | 2 | 9.0 | 19.0 | 32.0 | 27.5 | - | 40 | 80 | 2 | - | 45 | - | 110 | - | MKP1848C52050JK2 |
| | 3 | 9.0 | 19.0 | 32.0 | 27.5 | - | 40 | 120 | 2.5 | - | 30 | - | 110 | - | MKP1848C53050JK2 |
| | 4 | 11.0 | 21.0 | 32.0 | 27.5 | - | 40 | 160 | 3.5 | - | 23 | - | 110 | - | MKP1848C54050JK2 |
| | 5 | 11.0 | 21.0 | 32.0 | 27.5 | - | 40 | 200 | 3.5 | - | 18 | - | 110 | - | MKP1848C55050JK2 |
| | 6 | 15.0 | 25.0 | 32.0 | 27.5 | - | 40 | 240 | 4.5 | - | 15 | - | 110 | - | MKP1848C56050JK2 |
| | 7 | 15.0 | 25.0 | 32.0 | 27.5 | - | 40 | 280 | 5 | - | 13 | - | 110 | - | MKP1848C57050JK2 |
| | 8 | 15.0 | 25.0 | 32.0 | 27.5 | - | 40 | 320 | 6 | - | 12 | - | 110 | - | MKP1848C58050JK2 |
| | 9 | 18.0 | 28.0 | 32.0 | 27.5 | - | 40 | 360 | 7 | - | 11 | - | 110 | - | MKP1848C59050JK2 |
| | 10 | 18.0 | 28.0 | 32.0 | 27.5 | - | 40 | 400 | 7 | - | 10 | - | 110 | - | MKP1848C61050JK2 |
| | 12 | 18.0 | 28.0 | 32.0 | 27.5 | - | 40 | 480 | 8 | - | 8 | - | 110 | - | MKP1848C61250JK2 |
| | 15 | 21.0 | 31.0 | 32.0 | 27.5 | - | 40 | 600 | 9 | - | 7 | - | 110 | - | MKP1848C61550JK2 |
| 18 | 20.0 | 35.0 | 32.0 | 27.5 | - | 40 | 720 | 9 | - | 6 | - | 110 | - | MKP1848C61850JK2 | |
| 20 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 20 | 400 | 8 | 9 | 9 | 8 | 210 | 200 | MKP1848C62050JP* | |



| ELECTRICAL DATA AND ORDERING CODE | | | | | | | | | | | | | | | |
|---|---------------|---|------|------|-------------|-------------|--------------|-----------------------|--------------------------|--------|--------------|--------|--|------------------|-------------------|
| U _{NDc} AT 85 °C (V) | CAP. (6) (μF) | DIMENSION (5) (mm) | | | P1 (mm) | P2 (mm) | dV/dt (V/μs) | I _{PEAK} (A) | I _{RMS} (2) (A) | | ESR (3) (mΩ) | | tan δ 10 kHz (< 10 ⁻⁴) (4) | | ORDERING CODE (1) |
| | | w | h | l | | | | | 2 PINS | 4 PINS | 2 PINS | 4 PINS | 2 PINS | 4 PINS | |
| | | U _{OPDC} AT 70 °C = 600 V, U _{OPDC} AT 105 °C = 350 V | | | | | | | | | | | | | |
| 500 | 22 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 20 | 440 | 9 | 10 | 9 | 7 | 210 | 200 | MKP1848C62250JP* |
| | 25 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 20 | 500 | 9 | 10 | 8 | 6 | 210 | 200 | MKP1848C62550JP* |
| | 30 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 20 | 600 | 11 | 13 | 7 | 5 | 210 | 200 | MKP1848C63050JP* |
| | 35 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 20 | 700 | 12 | 14 | 6 | 4.5 | 210 | 200 | MKP1848C63550JP* |
| | 40 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 20 | 800 | 13 | 15 | 5 | 4 | 210 | 200 | MKP1848C64050JP* |
| | 45 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 20 | 900 | 14 | 16 | 4.5 | 3.5 | 210 | 200 | MKP1848C64550JP* |
| | 50 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 20 | 1000 | 15 | 17 | 4 | 3 | 210 | 200 | MKP1848C65050JP* |
| | 55 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 20 | 1100 | 16 | 18 | 3.5 | 3 | 210 | 200 | MKP1848C65550JP* |
| | 60 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 20 | 1200 | 16 | 18 | 3.5 | 3 | 210 | 200 | MKP1848C66050JP* |
| | 65 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 20 | 1300 | 18 | 19 | 2.5 | 2 | 210 | 200 | MKP1848C66550JP* |
| | 50 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 10 | 500 | 10 | 11 | 7 | 6 | 450 | 400 | MKP1848C65050JY* |
| | 55 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 10 | 550 | 11 | 13 | 7 | 6 | 450 | 400 | MKP1848C65550JY* |
| | 60 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 10 | 600 | 12 | 14 | 6 | 5 | 450 | 400 | MKP1848C66050JY* |
| | 65 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 10 | 650 | 12 | 14 | 6 | 5 | 450 | 400 | MKP1848C66550JY* |
| | 70 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 10 | 700 | 13 | 15 | 6 | 5 | 450 | 400 | MKP1848C67050JY* |
| | 75 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 10 | 750 | 14 | 16 | 5 | 4 | 450 | 400 | MKP1848C67550JY* |
| | 80 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 10 | 800 | 15 | 17 | 4.5 | 3 | 450 | 400 | MKP1848C68050JY* |
| | 90 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 10 | 900 | 16 | 18 | 4 | 3 | 450 | 400 | MKP1848C69050JY* |
| | 100 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 10 | 1000 | 17 | 19 | 4 | 3 | 450 | 400 | MKP1848C71050JY* |
| | 110 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 10 | 1100 | - | 19 | - | 2.5 | - | 450 | MKP1848C71150JY5 |
| 120 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 10 | 1200 | - | 19 | - | 2.5 | - | 450 | MKP1848C71250JY5 | |
| 250 (6) | 65.5 | 65.0 | 57.5 | 52.5 | 20.3 | 10 | 833 | - | 25 | - | 2 | - | 450 | MKP1848C72550JY5 | |
| 500 (7) | 130.0 | 65.0 | 57.5 | 52.5 | 20.3 | 10 | 833 | - | 45 | - | 1.5 | - | 500 | MKP1848C75050JY5 | |
| U _{OPDC} AT 70 °C = 720 V, U _{OPDC} AT 105 °C = 420 V | | | | | | | | | | | | | | | |
| 600 | 1 | 9.0 | 19.0 | 32.0 | 27.5 | - | 50 | 50 | 2.5 | - | 55 | - | 85 | - | MKP1848C51060JK2 |
| | 2 | 9.0 | 19.0 | 32.0 | 27.5 | - | 50 | 100 | 3 | - | 35 | - | 85 | - | MKP1848C52060JK2 |
| | 3 | 11.0 | 21.0 | 32.0 | 27.5 | - | 50 | 150 | 4 | - | 23 | - | 85 | - | MKP1848C53060JK2 |
| | 4 | 11.0 | 21.0 | 32.0 | 27.5 | - | 50 | 200 | 4 | - | 21 | - | 85 | - | MKP1848C54060JK2 |
| | 5 | 13.0 | 23.0 | 32.0 | 27.5 | - | 50 | 250 | 5 | - | 17 | - | 85 | - | MKP1848C55060JK2 |
| | 6 | 15.0 | 25.0 | 32.0 | 27.5 | - | 50 | 300 | 6 | - | 14 | - | 85 | - | MKP1848C56060JK2 |
| | 7 | 15.0 | 25.0 | 32.0 | 27.5 | - | 50 | 350 | 6 | - | 12 | - | 85 | - | MKP1848C57060JK2 |
| | 8 | 18.0 | 28.0 | 32.0 | 27.5 | - | 50 | 400 | 8 | - | 9 | - | 85 | - | MKP1848C58060JK2 |
| | 9 | 18.0 | 28.0 | 32.0 | 27.5 | - | 50 | 450 | 8 | - | 9 | - | 85 | - | MKP1848C59060JK2 |
| | 10 | 18.0 | 28.0 | 32.0 | 27.5 | - | 50 | 500 | 9 | - | 8 | - | 85 | - | MKP1848C61060JK2 |
| | 12 | 21.0 | 31.0 | 32.0 | 27.5 | - | 50 | 600 | 10 | - | 7 | - | 85 | - | MKP1848C61260JK2 |
| | 15 | 20.0 | 35.0 | 32.0 | 27.5 | - | 50 | 750 | 10 | - | 6 | - | 85 | - | MKP1848C61560JK2 |
| | 10 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 25 | 250 | 7 | 8 | 14 | 12 | 160 | 140 | MKP1848C61060JP* |
| | 12 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 25 | 300 | 8 | 9 | 12 | 10 | 160 | 140 | MKP1848C61260JP* |
| | 15 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 25 | 375 | 9 | 10 | 9 | 8 | 160 | 140 | MKP1848C61560JP* |
| | 20 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 25 | 500 | 11 | 12 | 7 | 6 | 160 | 140 | MKP1848C62060JP* |
| | 22 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 25 | 550 | 11 | 12 | 8 | 7 | 160 | 140 | MKP1848C62260JP* |
| | 25 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 25 | 625 | 11 | 13 | 7 | 6 | 160 | 140 | MKP1848C62560JP* |
| | 30 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 25 | 750 | 13 | 15 | 6 | 5 | 160 | 140 | MKP1848C63060JP* |
| | 35 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 25 | 875 | 17 | 18 | 4 | 3.5 | 160 | 140 | MKP1848C63560JP* |
| 40 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 25 | 1000 | 17 | 18 | 4 | 3.5 | 160 | 140 | MKP1848C64060JP* | |
| 45 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 25 | 1125 | 17 | 18 | 4 | 3.5 | 160 | 140 | MKP1848C64560JP* | |
| 50 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 25 | 1250 | 18 | 19 | 3.0 | 2.5 | 160 | 140 | MKP1848C65060JP* | |



| ELECTRICAL DATA AND ORDERING CODE | | | | | | | | | | | | | | | |
|---|---------------|---|------|------|---------|-------------|--------------|-----------------------|--------------------------|--------|--------------|--------|--|------------------|-------------------|
| U _{NDc} AT 85 °C (V) | CAP. (6) (μF) | DIMENSION (5) (mm) | | | P1 (mm) | P2 (mm) | dV/dt (V/μs) | I _{PEAK} (A) | I _{RMS} (2) (A) | | ESR (3) (mΩ) | | tan δ 10 kHz (< 10 ⁻⁴) (4) | | ORDERING CODE (1) |
| | | w | h | l | | | | | 2 PINS | 4 PINS | 2 PINS | 4 PINS | 2 PINS | 4 PINS | |
| | | U _{OPDC} AT 70 °C = 720 V, U _{OPDC} AT 105 °C = 420 V | | | | | | | | | | | | | |
| 600 | 40 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 14 | 560 | 13 | 14 | 7 | 6 | 350 | 300 | MKP1848C64060JY* |
| | 45 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 14 | 630 | 13 | 14 | 7 | 6 | 350 | 300 | MKP1848C64560JY* |
| | 50 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 14 | 700 | 15 | 16 | 6 | 5 | 350 | 300 | MKP1848C65060JY* |
| | 55 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 14 | 770 | 15 | 16 | 6 | 5 | 350 | 300 | MKP1848C65560JY* |
| | 60 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 14 | 840 | 15 | 17 | 5 | 4 | 350 | 300 | MKP1848C66060JY* |
| | 65 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 14 | 910 | 18 | 20 | 4 | 3.5 | 350 | 300 | MKP1848C66560JY* |
| | 70 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 14 | 980 | 18 | 20 | 4.5 | 4 | 350 | 300 | MKP1848C67060JY* |
| | 75 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 14 | 1050 | 18 | 21 | 4 | 3.5 | 350 | 300 | MKP1848C67560JY* |
| | 80 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 14 | 1120 | 18 | 21 | 4 | 3.5 | 350 | 300 | MKP1848C68060JY* |
| | 90 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 14 | 1260 | - | 22 | - | 3 | - | 300 | MKP1848C69060JY5 |
| | 100 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 14 | 1400 | - | 23 | - | 2.5 | - | 300 | MKP1848C71060JY5 |
| 200 (6) | 65.5 | 65.0 | 57.5 | 52.5 | 20.3 | 14 | 933 | - | 30 | - | 2 | - | 350 | MKP1848C72060JY5 | |
| 400 (7) | 130.0 | 65.0 | 57.5 | 52.5 | 20.3 | 14 | 933 | - | 50 | - | 1.5 | - | 400 | MKP1848C74060JY5 | |
| U _{OPDC} AT 70 °C = 960 V, U _{OPDC} AT 105 °C = 560 V | | | | | | | | | | | | | | | |
| 800 | 1 | 9.0 | 19.0 | 32.0 | 27.5 | - | 60 | 60 | 2.5 | - | 55 | - | 70 | - | MKP1848C51080JK2 |
| | 2 | 9.0 | 19.0 | 32.0 | 27.5 | - | 60 | 120 | 3 | - | 35 | - | 70 | - | MKP1848C52080JK2 |
| | 3 | 11.0 | 21.0 | 32.0 | 27.5 | - | 60 | 180 | 4 | - | 23 | - | 70 | - | MKP1848C53080JK2 |
| | 4 | 13.0 | 23.0 | 32.0 | 27.5 | - | 60 | 240 | 5 | - | 17 | - | 70 | - | MKP1848C54080JK2 |
| | 5 | 15.0 | 25.0 | 32.0 | 27.5 | - | 60 | 300 | 6 | - | 14 | - | 70 | - | MKP1848C55080JK2 |
| | 6 | 18.0 | 28.0 | 32.0 | 27.5 | - | 60 | 360 | 7 | - | 12 | - | 70 | - | MKP1848C56080JK2 |
| | 7 | 18.0 | 28.0 | 32.0 | 27.5 | - | 60 | 420 | 8 | - | 10 | - | 70 | - | MKP1848C57080JK2 |
| | 8 | 18.0 | 28.0 | 32.0 | 27.5 | - | 60 | 480 | 8 | - | 9 | - | 70 | - | MKP1848C58080JK2 |
| | 9 | 21.0 | 31.0 | 32.0 | 27.5 | - | 60 | 540 | 10 | - | 7.5 | - | 70 | - | MKP1848C59080JK2 |
| | 10 | 21.0 | 31.0 | 32.0 | 27.5 | - | 60 | 600 | 10 | - | 7 | - | 70 | - | MKP1848C61080JK2 |
| | 12 | 20.0 | 35.0 | 32.0 | 27.5 | - | 60 | 720 | 11 | - | 6 | - | 70 | - | MKP1848C61280JK2 |
| | 10 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 350 | 7 | 8 | 14 | 12 | 140 | 120 | MKP1848C61080JP* |
| | 12 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 420 | 8 | 9 | 12 | 10 | 140 | 120 | MKP1848C61280JP* |
| | 15 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 525 | 9 | 10 | 9 | 8 | 140 | 120 | MKP1848C61580JP* |
| | 20 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 35 | 700 | 11 | 12 | 7 | 6 | 140 | 120 | MKP1848C62080JP* |
| | 22 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 35 | 770 | 13 | 14 | 6 | 5 | 140 | 120 | MKP1848C62280JP* |
| | 25 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 35 | 875 | 13 | 14 | 6 | 5 | 140 | 120 | MKP1848C62580JP* |
| | 30 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 35 | 1050 | 16 | 17 | 5 | 4 | 140 | 120 | MKP1848C63080JP* |
| | 35 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 35 | 1225 | 17 | 18 | 4 | 3.5 | 140 | 120 | MKP1848C63580JP* |
| | 40 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 35 | 1400 | 18 | 19 | 3 | 2.5 | 140 | 120 | MKP1848C64080JP* |
| | 30 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 540 | 11 | 12 | 9 | 8 | 280 | 240 | MKP1848C63080JY* |
| | 35 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 630 | 12 | 13 | 8 | 7 | 280 | 240 | MKP1848C63580JY* |
| | 40 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 720 | 13 | 14 | 7 | 6 | 280 | 240 | MKP1848C64080JY* |
| | 45 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 810 | 14 | 15 | 6 | 5 | 280 | 240 | MKP1848C64580JY* |
| | 50 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 900 | 15 | 16 | 6 | 5 | 280 | 240 | MKP1848C65080JY* |
| | 55 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 990 | 17 | 18 | 5 | 4 | 280 | 240 | MKP1848C65580JY* |
| | 60 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 1080 | 18 | 19 | 5 | 4 | 280 | 240 | MKP1848C66080JY* |
| | 65 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 1170 | 19 | 20 | 4 | 3.5 | 280 | 240 | MKP1848C66580JY* |
| | 70 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 1260 | - | 20 | - | 3.5 | - | 240 | MKP1848C67080JY5 |
| | 75 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 1350 | - | 22 | - | 3 | - | 240 | MKP1848C67580JY5 |
| | 80 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 1440 | - | 22 | - | 3 | - | 240 | MKP1848C68080JY5 |
| | 160 (6) | 65.5 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 960 | - | 30 | - | 2.5 | - | 280 | MKP1848C71680JY5 |
| 320 (7) | 130.0 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 960 | - | 55 | - | 1.5 | - | 280 | MKP1848C73280JY5 | |



ELECTRICAL DATA AND ORDERING CODE

| U _{NDc} AT 85 °C (V) | CAP. (6) (µF) | DIMENSION (5) (mm) | | | P1 (mm) | P2 (mm) | dV/dt (V/µs) | I _{PEAK} (A) | I _{RMS} (2) (A) | | ESR (3) (mΩ) | | tan δ 10 kHz ($< 10^{-4}$) (4) | | ORDERING CODE (1) |
|--|--|--|------|------|------------|-------------|-----------------|--------------------------|-----------------------------|-----------|-----------------|-----------|--|------------------|-------------------|
| | | w | h | l | | | | | 2 PINS | 4 PINS | 2 PINS | 4 PINS | 2 PINS | 4 PINS | |
| | | U _{OPDC} AT 70 °C = 1100 V, U _{OPDC} AT 105 °C = 650 V | | | | | | | | | | | | | |
| 900 | 1 | 9.0 | 19.0 | 32.0 | 27.5 | - | 65 | 65 | 2 | - | 65 | - | 60 | - | MKP1848C51090JK2 |
| | 2 | 11.0 | 21.0 | 32.0 | 27.5 | - | 65 | 130 | 3 | - | 30 | - | 60 | - | MKP1848C52090JK2 |
| | 3 | 13.0 | 23.0 | 32.0 | 27.5 | - | 65 | 195 | 4 | - | 20 | - | 60 | - | MKP1848C53090JK2 |
| | 4 | 15.0 | 25.0 | 32.0 | 27.5 | - | 65 | 260 | 5 | - | 16 | - | 60 | - | MKP1848C54090JK2 |
| | 5 | 18.0 | 28.0 | 32.0 | 27.5 | - | 65 | 325 | 7 | - | 13 | - | 60 | - | MKP1848C55090JK2 |
| | 6 | 18.0 | 28.0 | 32.0 | 27.5 | - | 65 | 390 | 7 | - | 11 | - | 60 | - | MKP1848C56090JK2 |
| | 7 | 21.0 | 31.0 | 32.0 | 27.5 | - | 65 | 455 | 9 | - | 9 | - | 60 | - | MKP1848C57090JK2 |
| | 8 | 21.0 | 31.0 | 32.0 | 27.5 | - | 65 | 520 | 9 | - | 8 | - | 60 | - | MKP1848C58090JK2 |
| | 9 | 20.0 | 35.0 | 32.0 | 27.5 | - | 65 | 585 | 9 | - | 7 | - | 60 | - | MKP1848C59090JK2 |
| | 10 | 20.0 | 35.0 | 32.0 | 27.5 | - | 65 | 650 | 9 | - | 7 | - | 60 | - | MKP1848C61090KK2 |
| | 9 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 315 | 8 | 9 | 14 | 12 | 120 | 110 | MKP1848C59090JP* |
| | 10 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 350 | 8 | 9 | 13 | 11 | 120 | 110 | MKP1848C61090JP* |
| | 12 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 420 | 8 | 9 | 11 | 9 | 120 | 110 | MKP1848C61290JP* |
| | 15 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 35 | 525 | 10 | 11 | 9 | 8 | 120 | 110 | MKP1848C61590JP* |
| | 20 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 35 | 700 | 13 | 14 | 6 | 5 | 120 | 110 | MKP1848C62090JP* |
| | 22 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 35 | 770 | 14 | 15 | 6 | 5 | 120 | 110 | MKP1848C62290JP* |
| | 25 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 35 | 875 | 15 | 16 | 5 | 4.5 | 120 | 110 | MKP1848C62590JP* |
| | 30 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 35 | 1050 | 17 | 18 | 4.5 | 4 | 120 | 110 | MKP1848C63090JP* |
| | 35 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 35 | 1225 | 18 | 19 | 3.5 | 3 | 120 | 110 | MKP1848C63590JP* |
| | 30 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 540 | 12 | 13 | 8 | 7 | 240 | 220 | MKP1848C63090JY* |
| | 35 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 630 | 13 | 14 | 7 | 6 | 240 | 220 | MKP1848C63590JY* |
| | 40 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 720 | 14 | 15 | 6 | 5 | 240 | 220 | MKP1848C64090JY* |
| | 45 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 810 | 16 | 17 | 6 | 5 | 240 | 220 | MKP1848C64590JY* |
| | 50 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 900 | 17 | 18 | 5 | 4.5 | 240 | 220 | MKP1848C65090JY* |
| 55 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 990 | - | 19 | - | 4 | - | 220 | MKP1848C65590JY5 | |
| 60 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 1080 | - | 20 | - | 3.5 | - | 220 | MKP1848C66090JY5 | |
| 120 (6) | 65.5 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 720 | - | 25 | - | 3 | - | 240 | MKP1848C71290JY5 | |
| 240 (7) | 130.0 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 720 | - | 45 | - | 1.5 | - | 240 | MKP1848C72490JY5 | |
| 1000 | U _{OPDC} AT 70 °C = 1200 V, U _{OPDC} AT 105 °C = 700 V | | | | | | | | | | | | | | |
| | 1 | 9.0 | 19.0 | 32.0 | 27.5 | - | 70 | 70 | 2 | - | 65 | - | 50 | - | MKP1848C51010JK2 |
| | 2 | 13.0 | 23.0 | 32.0 | 27.5 | - | 70 | 140 | 3.5 | - | 30 | - | 50 | - | MKP1848C52010JK2 |
| | 3 | 15.0 | 25.0 | 32.0 | 27.5 | - | 70 | 210 | 5 | - | 21 | - | 50 | - | MKP1848C53010JK2 |
| | 4 | 18.0 | 28.0 | 32.0 | 27.5 | - | 70 | 280 | 6 | - | 16 | - | 50 | - | MKP1848C54010JK2 |
| | 5 | 21.0 | 31.0 | 32.0 | 27.5 | - | 70 | 350 | 7 | - | 13 | - | 50 | - | MKP1848C55010JK2 |
| | 6 | 21.0 | 31.0 | 32.0 | 27.5 | - | 70 | 420 | 8 | - | 10 | - | 50 | - | MKP1848C56010JK2 |
| | 7 | 20.0 | 35.0 | 32.0 | 27.5 | - | 70 | 490 | 9 | - | 9 | - | 50 | - | MKP1848C57010JK2 |
| | 5 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 175 | 6 | 7 | 21 | 19 | 100 | 90 | MKP1848C55010JP* |
| | 6 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 210 | 6 | 7 | 18 | 16 | 100 | 90 | MKP1848C56010JP* |
| | 7 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 245 | 6 | 7 | 18 | 16 | 100 | 90 | MKP1848C57010JP* |
| | 8 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 280 | 7 | 8 | 16 | 14 | 100 | 90 | MKP1848C58010JP* |
| | 9 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 35 | 315 | 7 | 8 | 14 | 12 | 100 | 90 | MKP1848C59010JP* |
| | 10 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 35 | 350 | 8 | 9 | 12 | 11 | 100 | 90 | MKP1848C61010JP* |
| | 12 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 35 | 420 | 9 | 10 | 10 | 9 | 100 | 90 | MKP1848C61210JP* |
| | 15 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 35 | 525 | 11 | 12 | 8 | 7 | 100 | 90 | MKP1848C61510JP* |
| | 20 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 35 | 700 | 14 | 15 | 6 | 5 | 100 | 90 | MKP1848C62010JP* |
| | 22 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 35 | 770 | 14 | 15 | 6 | 5 | 100 | 90 | MKP1848C62210JP* |
| | 25 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 35 | 875 | 16 | 17 | 4 | 3.5 | 100 | 90 | MKP1848C62510JP* |



| ELECTRICAL DATA AND ORDERING CODE | | | | | | | | | | | | | | | |
|--|--|--|------|------|------------|-------------|-----------------|--------------------------|--|-----------|----------------------------|-----------|---|------------------|------------------------------|
| U _{NDC} AT 85 °C (V) | CAP. ⁽⁶⁾ (μF) | DIMENSION ⁽⁵⁾ (mm) | | | P1 (mm) | P2 (mm) | dV/dt (V/μs) | I _{PEAK} (A) | I _{RMS} ⁽²⁾ (A) | | ESR ⁽³⁾ (mΩ) | | tan δ 10 kHz ($< 10^{-4}$) ⁽⁴⁾ | | ORDERING CODE ⁽¹⁾ |
| | | w | h | l | | | | | 2 PINS | 4 PINS | 2 PINS | 4 PINS | 2 PINS | 4 PINS | |
| | | U _{OPDC} AT 70 °C = 1200 V, U _{OPDC} AT 105 °C = 700 V | | | | | | | | | | | | | |
| 1000 | 15 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 270 | 9 | 10 | 14 | 12 | 210 | 190 | MKP1848C61510JY* |
| | 20 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 360 | 9 | 10 | 12 | 11 | 210 | 190 | MKP1848C62010JY* |
| | 22 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 18 | 396 | 10 | 11 | 11 | 10 | 210 | 190 | MKP1848C62210JY* |
| | 25 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 450 | 11 | 12 | 10 | 9 | 210 | 190 | MKP1848C62510JY* |
| | 30 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 540 | 12 | 13 | 8 | 7 | 210 | 190 | MKP1848C63010JY* |
| | 35 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 630 | 14 | 15 | 7 | 6 | 210 | 190 | MKP1848C63510JY* |
| | 40 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 18 | 720 | 15 | 17 | 6 | 5 | 210 | 190 | MKP1848C64010JY* |
| | 45 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 810 | - | 17 | - | 5 | - | 190 | MKP1848C64510JY5 |
| | 50 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 18 | 900 | - | 18 | - | 4 | - | 190 | MKP1848C65010JY5 |
| | 100 ⁽⁶⁾ | 65.5 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 600 | - | 25 | - | 3.5 | - | 210 | MKP1848C71010JY5 |
| 200 ⁽⁷⁾ | 130.0 | 65.0 | 57.5 | 52.5 | 20.3 | 18 | 600 | - | 45 | - | 1.5 | - | 210 | MKP1848C72010JY5 | |
| 1200 | U _{OPDC} AT 70 °C = 1440 V, U _{OPDC} AT 105 °C = 850 V | | | | | | | | | | | | | | |
| | 1 | 11.0 | 21.0 | 32.0 | 27.5 | - | 85 | 85 | 3 | - | 45 | - | 45 | - | MKP1848C51012JK2 |
| | 2 | 15.0 | 25.0 | 32.0 | 27.5 | - | 85 | 170 | 4 | - | 23 | - | 45 | - | MKP1848C52012JK2 |
| | 3 | 18.0 | 28.0 | 32.0 | 27.5 | - | 85 | 255 | 6 | - | 15 | - | 45 | - | MKP1848C53012JK2 |
| | 4 | 21.0 | 31.0 | 32.0 | 27.5 | - | 85 | 340 | 8 | - | 12 | - | 45 | - | MKP1848C54012JK2 |
| | 5 | 20.0 | 35.0 | 32.0 | 27.5 | - | 85 | 425 | 8 | - | 10 | - | 45 | - | MKP1848C55012JK2 |
| | 5 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 40 | 200 | 6 | 7 | 18 | 16 | 90 | 80 | MKP1848C55012JP* |
| | 6 | 18.5 | 35.5 | 43.0 | 37.5 | 10.2 | 40 | 240 | 7 | 8 | 15 | 14 | 90 | 80 | MKP1848C56012JP* |
| | 7 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 40 | 280 | 8 | 9 | 13 | 12 | 90 | 80 | MKP1848C57012JP* |
| | 8 | 21.5 | 38.5 | 42.0 | 37.5 | 10.2 | 40 | 320 | 9 | 10 | 11 | 10 | 90 | 80 | MKP1848C58012JP* |
| | 9 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 40 | 360 | 10 | 11 | 10 | 9 | 90 | 80 | MKP1848C59012JP* |
| | 10 | 24.0 | 44.0 | 42.0 | 37.5 | 10.2 | 40 | 400 | 10 | 11 | 9 | 8 | 90 | 80 | MKP1848C61012JP* |
| | 12 | 30.0 | 45.0 | 42.0 | 37.5 | 10.2 / 20.3 | 40 | 480 | 12 | 13 | 8 | 7 | 90 | 80 | MKP1848C61212JP* |
| | 15 | 30.0 | 57.0 | 42.0 | 37.5 | 20.3 | 40 | 600 | 14 | 14 | 6 | 5 | 90 | 80 | MKP1848C61512JP* |
| | 10 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 20 | 200 | 8 | 9 | 18 | 16 | 180 | 160 | MKP1848C61012JY* |
| | 12 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 20 | 240 | 8 | 9 | 15 | 13 | 180 | 160 | MKP1848C61212JY* |
| | 15 | 25.0 | 45.0 | 57.5 | 52.5 | 10.2 | 20 | 300 | 9 | 10 | 12 | 11 | 180 | 160 | MKP1848C61512JY* |
| | 20 | 30.0 | 45.0 | 57.5 | 52.5 | 20.3 | 20 | 400 | 11 | 12 | 9 | 8 | 180 | 160 | MKP1848C62012JY* |
| | 22 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 20 | 440 | 13 | 14 | 8 | 7 | 180 | 160 | MKP1848C62212JY* |
| | 25 | 35.0 | 50.0 | 57.5 | 52.5 | 20.3 | 20 | 500 | 14 | 15 | 7 | 6 | 180 | 160 | MKP1848C62512JY* |
| | 30 | 45.0 | 45.0 | 57.5 | 52.5 | 20.3 | 20 | 600 | - | 16 | - | 5 | - | 160 | MKP1848C63012JY5 |
| | 60 ⁽⁶⁾ | 65.5 | 65 | 57.5 | 52.5 | 20.3 | 20 | 400 | - | 40 | - | 2.5 | - | 180 | MKP1848C66012JY5 |
| | 65 ⁽⁶⁾ | 65.5 | 65 | 57.5 | 52.5 | 20.3 | 20 | 433 | - | 40 | - | 2 | - | 180 | MKP1848C66512JY5 |
| 140 ⁽⁷⁾ | 130.0 | 65 | 57.5 | 52.5 | 20.3 | 20 | 466 | - | 45 | - | 1.5 | - | 180 | MKP1848C71412JY5 | |

Notes

- (1) Change the * symbol with special code for the terminals
- (2) Maximum RMS current at 10 kHz, +85 °C, Δt = +15 °C, capacitance tolerance ≤ ± 5 %
- (3) Equivalent series resistance typical values at f = 10 kHz to 100 kHz for P = 27.5 mm, at f = 10 kHz to 70 kHz for P = 37.5 mm, at f = 10 kHz to 50 kHz for P = 52.5 mm
- (4) Maximum tan δ values
- (5) Standard dimension
- (6) 6 pins. The dV/dt and I_{PEAK} specified are for individual capacitance value
- (7) 12 pins. The dV/dt and I_{PEAK} specified are for individual capacitance value
- (8) Intermediate capacitance values available on request



| PACKAGING INFORMATION | | | | | | |
|-------------------------|--------------------|-----------------------------|------------------|------------------------------|-------------|-----------------------------|
| U _{NDC} (V) | HEIGHT (mm) | CAP. ⁽⁵⁾ (μF) | Ø dt | ORDERING CODE ⁽¹⁾ | MASS (g) | SPQ ⁽²⁾ (pcs) |
| 500 | 19 | 1 | 0.8 | MKP1848C51050JK2 | 6 | 160 |
| | 19 | 2 | 0.8 | MKP1848C52050JK2 | 5.5 | 160 |
| | 19 | 3 | 0.8 | MKP1848C53050JK2 | 5.5 | 160 |
| | 21 | 4 | 0.8 | MKP1848C54050JK2 | 8.5 | 130 |
| | 21 | 5 | 0.8 | MKP1848C55050JK2 | 8.5 | 130 |
| | 25 | 6 | 0.8 | MKP1848C56050JK2 | 10.5 | 100 |
| | 25 | 7 | 0.8 | MKP1848C57050JK2 | 12.5 | 100 |
| | 25 | 8 | 0.8 | MKP1848C58050JK2 | 11.5 | 100 |
| | 28 | 9 | 0.8 | MKP1848C59050JK2 | 15 | 80 |
| | 28 | 10 | 0.8 | MKP1848C61050JK2 | 16 | 80 |
| | 28 | 12 | 0.8 | MKP1848C61250JK2 | 15 | 80 |
| | 31 | 15 | 0.8 | MKP1848C61550JK2 | 21.5 | 65 |
| | 35 | 18 | 0.8 | MKP1848C61850JK2 | 20 | 70 |
| | 35.5 | 20 | 1.0 | MKP1848C62050JP* | 36 | 105 |
| | 38.5 | 22 | 1.0 | MKP1848C62250JP* | 38 | 91 |
| | 38.5 | 25 | 1.0 | MKP1848C62550JP* | 36 | 91 |
| | 44 | 30 | 1.0 | MKP1848C63050JP* | 48 | 77 |
| | 44 | 35 | 1.0 | MKP1848C63550JP* | 57 | 77 |
| | 45 | 40 | 1.0 | MKP1848C64050JP* | 60 | 63 |
| | 45 | 45 | 1.0 | MKP1848C64550JP* | 70 | 63 |
| | 45 | 50 | 1.0 | MKP1848C65050JP* | 75 | 63 |
| | 57 | 55 | 1.0 | MKP1848C65550JP* | 68 | 63 |
| | 57 | 60 | 1.0 | MKP1848C66050JP* | 68 | 63 |
| | 57 | 65 | 1.0 | MKP1848C66550JP* | 70 | 63 |
| | 45 | 50 | 1.2 | MKP1848C65050JY* | 70 | 55 |
| | 45 | 55 | 1.2 | MKP1848C65550JY* | 96 | 55 |
| | 45 | 60 | 1.2 | MKP1848C66050JY* | 91 | 45 |
| | 45 | 65 | 1.2 | MKP1848C66550JY* | 100 | 45 |
| | 45 | 70 | 1.2 | MKP1848C67050JY* | 112 | 45 |
| | 50 | 75 | 1.2 | MKP1848C67550JY* | 108 | 40 |
| 50 | 80 | 1.2 | MKP1848C68050JY* | 115 | 40 | |
| 50 | 90 | 1.2 | MKP1848C69050JY* | 127 | 40 | |
| 50 | 100 | 1.2 | MKP1848C71050JY* | 130 | 40 | |
| 45 | 110 | 1.2 | MKP1848C71150JY5 | 135 | 30 | |
| 45 | 120 | 1.2 | MKP1848C71250JY5 | 150 | 30 | |
| 65 | 250 ⁽³⁾ | 1.2 | MKP1848C72550JY5 | 266 | 20 | |
| 65 | 500 ⁽⁴⁾ | 1.2 | MKP1848C75050JY5 | 490 | 10 | |
| 600 | 19 | 1 | 0.8 | MKP1848C51060JK2 | 6 | 160 |
| | 19 | 2 | 0.8 | MKP1848C52060JK2 | 5.5 | 160 |
| | 21 | 3 | 0.8 | MKP1848C53060JK2 | 8.5 | 130 |
| | 21 | 4 | 0.8 | MKP1848C54060JK2 | 8.5 | 130 |
| | 23 | 5 | 0.8 | MKP1848C55060JK2 | 10.5 | 115 |
| | 25 | 6 | 0.8 | MKP1848C56060JK2 | 12.5 | 100 |
| | 25 | 7 | 0.8 | MKP1848C57060JK2 | 11.5 | 100 |
| | 28 | 8 | 0.8 | MKP1848C58060JK2 | 15 | 80 |
| | 28 | 9 | 0.8 | MKP1848C59060JK2 | 16 | 80 |
| | 28 | 10 | 0.8 | MKP1848C61060JK2 | 15 | 80 |
| | 31 | 12 | 0.8 | MKP1848C61260JK2 | 21.5 | 65 |
| | 35 | 15 | 0.8 | MKP1848C61560JK2 | 20 | 70 |
| | 35.5 | 10 | 1.0 | MKP1848C61060JP* | 34 | 105 |
| | 35.5 | 12 | 1.0 | MKP1848C61260JP* | 32 | 105 |
| | 35.5 | 15 | 1.0 | MKP1848C61560JP* | 30 | 105 |
| | 38.5 | 20 | 1.0 | MKP1848C62060JP* | 36 | 91 |
| | 38.5 | 22 | 1.0 | MKP1848C62260JP* | 38 | 91 |
| | 38.5 | 25 | 1.0 | MKP1848C62560JP* | 36 | 91 |
| | 44 | 30 | 1.0 | MKP1848C63060JP* | 48 | 77 |
| | 45 | 35 | 1.0 | MKP1848C63560JP* | 57 | 63 |



| PACKAGING INFORMATION | | | | | | |
|-------------------------|--------------------|-----------------------------|------------------|------------------------------|-------------|-----------------------------|
| U _{NDC} (V) | HEIGHT (mm) | CAP. ⁽⁵⁾ (µF) | Ø dt | ORDERING CODE ⁽¹⁾ | MASS (g) | SPQ ⁽²⁾ (pcs) |
| 600 | 45 | 40 | 1.0 | MKP1848C64060JP* | 60 | 63 |
| | 45 | 45 | 1.0 | MKP1848C64560JP* | 60 | 63 |
| | 57 | 50 | 1.0 | MKP1848C65060JP* | 68 | 63 |
| | 45 | 40 | 1.2 | MKP1848C64060JY* | 66 | 55 |
| | 45 | 45 | 1.2 | MKP1848C64560JY* | 70 | 55 |
| | 45 | 50 | 1.2 | MKP1848C65060JY* | 88 | 45 |
| | 45 | 55 | 1.2 | MKP1848C65560JY* | 96 | 45 |
| | 45 | 60 | 1.2 | MKP1848C66060JY* | 91 | 45 |
| | 50 | 65 | 1.2 | MKP1848C66560JY* | 100 | 40 |
| | 50 | 70 | 1.2 | MKP1848C67060JY* | 112 | 40 |
| | 50 | 75 | 1.2 | MKP1848C67560JY* | 108 | 40 |
| | 50 | 80 | 1.2 | MKP1848C68060JY* | 102 | 40 |
| | 45 | 90 | 1.2 | MKP1848C69060JY5 | 127 | 30 |
| | 45 | 100 | 1.2 | MKP1848C71060JY5 | 120 | 30 |
| | 65 | 200 ⁽³⁾ | 1.2 | MKP1848C72060JY5 | 266 | 20 |
| 65 | 400 ⁽⁴⁾ | 1.2 | MKP1848C74060JY5 | 490 | 10 | |
| 800 | 19 | 1 | 0.8 | MKP1848C51080JK2 | 6 | 160 |
| | 19 | 2 | 0.8 | MKP1848C52080JK2 | 5.5 | 160 |
| | 21 | 3 | 0.8 | MKP1848C53080JK2 | 8.5 | 130 |
| | 23 | 4 | 0.8 | MKP1848C54080JK2 | 10.5 | 115 |
| | 25 | 5 | 0.8 | MKP1848C55080JK2 | 12 | 100 |
| | 28 | 6 | 0.8 | MKP1848C56080JK2 | 17 | 80 |
| | 28 | 7 | 0.8 | MKP1848C57080JK2 | 16 | 80 |
| | 28 | 8 | 0.8 | MKP1848C58080JK2 | 15 | 80 |
| | 31 | 9 | 0.8 | MKP1848C59080JK2 | 22 | 65 |
| | 31 | 10 | 0.8 | MKP1848C61080JK2 | 21 | 65 |
| | 35 | 12 | 0.8 | MKP1848C61280JK2 | 20 | 70 |
| | 35.5 | 10 | 1.0 | MKP1848C61080JP* | 34 | 105 |
| | 35.5 | 12 | 1.0 | MKP1848C61280JP* | 32 | 105 |
| | 35.5 | 15 | 1.0 | MKP1848C61580JP* | 30 | 105 |
| | 38.5 | 20 | 1.0 | MKP1848C62080JP* | 36 | 91 |
| | 44 | 22 | 1.0 | MKP1848C62280JP* | 49 | 77 |
| | 44 | 25 | 1.0 | MKP1848C62580JP* | 47 | 77 |
| | 45 | 30 | 1.0 | MKP1848C63080JP* | 62 | 63 |
| | 45 | 35 | 1.0 | MKP1848C63580JP* | 55 | 63 |
| | 57 | 40 | 1.0 | MKP1848C64080JP* | 60 | 63 |
| | 45 | 30 | 1.2 | MKP1848C63080JY* | 76 | 55 |
| | 45 | 35 | 1.2 | MKP1848C63580JY* | 71 | 55 |
| | 45 | 40 | 1.2 | MKP1848C64080JY* | 66 | 55 |
| | 45 | 45 | 1.2 | MKP1848C64580JY* | 95 | 45 |
| | 45 | 50 | 1.2 | MKP1848C65080JY* | 88 | 45 |
| | 50 | 55 | 1.2 | MKP1848C65580JY* | 112 | 40 |
| | 50 | 60 | 1.2 | MKP1848C66080JY* | 107 | 40 |
| | 50 | 65 | 1.2 | MKP1848C66580JY* | 100 | 40 |
| | 45 | 70 | 1.2 | MKP1848C67080JY5 | 128 | 30 |
| | 45 | 75 | 1.2 | MKP1848C67580JY5 | 123 | 30 |
| 45 | 80 | 1.2 | MKP1848C68080JY5 | 119 | 30 | |
| 65 | 160 ⁽³⁾ | 1.2 | MKP1848C71680JY5 | 264 | 20 | |
| 65 | 320 ⁽⁴⁾ | 1.2 | MKP1848C73280JY5 | 359 | 10 | |



| PACKAGING INFORMATION | | | | | | |
|-------------------------|--------------------|-----------------------------|------------------|------------------------------|-------------|-----------------------------|
| U _{NDC} (V) | HEIGHT (mm) | CAP. ⁽⁵⁾ (µF) | Ø dt | ORDERING CODE ⁽¹⁾ | MASS (g) | SPQ ⁽²⁾ (pcs) |
| 900 | 19 | 1 | 0.8 | MKP1848C51090JK2 | 6.5 | 160 |
| | 21 | 2 | 0.8 | MKP1848C52090JK2 | 9 | 130 |
| | 23 | 3 | 0.8 | MKP1848C53090JK2 | 11 | 115 |
| | 25 | 4 | 0.8 | MKP1848C54090JK2 | 12 | 100 |
| | 28 | 5 | 0.8 | MKP1848C55090JK2 | 17 | 80 |
| | 28 | 6 | 0.8 | MKP1848C56090JK2 | 16 | 80 |
| | 31 | 7 | 0.8 | MKP1848C57090JK2 | 23 | 65 |
| | 31 | 8 | 0.8 | MKP1848C58090JK2 | 21 | 65 |
| | 35 | 9 | 0.8 | MKP1848C59090JK2 | 20 | 70 |
| | 35 | 10 | 0.8 | MKP1848C61090JK2 | 20 | 70 |
| | 35.5 | 9 | 1.0 | MKP1848C59090JP* | 32 | 105 |
| | 35.5 | 10 | 1.0 | MKP1848C61090JP* | 32 | 105 |
| | 35.5 | 12 | 1.0 | MKP1848C61290JP* | 30 | 105 |
| | 38.5 | 15 | 1.0 | MKP1848C61590JP* | 37 | 91 |
| | 44 | 20 | 1.0 | MKP1848C62090JP* | 47 | 77 |
| | 45 | 22 | 1.0 | MKP1848C62290JP* | 65 | 63 |
| | 45 | 25 | 1.0 | MKP1848C62590JP* | 61 | 63 |
| | 57 | 30 | 1.0 | MKP1848C63090JP* | 68 | 63 |
| | 57 | 35 | 1.0 | MKP1848C63590JP* | 70 | 63 |
| | 45 | 30 | 1.2 | MKP1848C63090JY* | 69 | 55 |
| | 45 | 35 | 1.2 | MKP1848C63590JY* | 97 | 45 |
| | 45 | 40 | 1.2 | MKP1848C64090JY* | 91 | 45 |
| | 50 | 45 | 1.2 | MKP1848C64590JY* | 112 | 40 |
| 50 | 50 | 1.2 | MKP1848C65090JY* | 104 | 40 | |
| 45 | 55 | 1.2 | MKP1848C65590JY5 | 131 | 30 | |
| 45 | 60 | 1.2 | MKP1848C66090JY5 | 125 | 30 | |
| 65 | 120 ⁽³⁾ | 1.2 | MKP1848C71290JY5 | 276 | 20 | |
| 65 | 240 ⁽⁴⁾ | 1.2 | MKP1848C72490JY5 | 393 | 10 | |
| 1000 | 19 | 1 | 0.8 | MKP1848C51010JK2 | 6 | 160 |
| | 23 | 2 | 0.8 | MKP1848C52010JK2 | 11 | 115 |
| | 25 | 3 | 0.8 | MKP1848C53010JK2 | 12 | 100 |
| | 28 | 4 | 0.8 | MKP1848C54010JK2 | 16.5 | 80 |
| | 31 | 5 | 0.8 | MKP1848C55010JK2 | 22.5 | 65 |
| | 31 | 6 | 0.8 | MKP1848C56010JK2 | 21 | 65 |
| | 35 | 7 | 0.8 | MKP1848C57010JK2 | 21 | 70 |
| | 35.5 | 5 | 1.0 | MKP1848C55010JP* | 32 | 105 |
| | 35.5 | 6 | 1.0 | MKP1848C56010JP* | 30 | 105 |
| | 35.5 | 7 | 1.0 | MKP1848C57010JP* | 33 | 105 |
| | 35.5 | 8 | 1.0 | MKP1848C58010JP* | 31 | 105 |
| | 35.5 | 9 | 1.0 | MKP1848C59010JP* | 30 | 105 |
| | 38.5 | 10 | 1.0 | MKP1848C61010JP* | 39 | 91 |
| | 38.5 | 12 | 1.0 | MKP1848C61210JP* | 36 | 91 |
| | 44 | 15 | 1.0 | MKP1848C61510JP* | 47 | 77 |
| | 45 | 20 | 1.0 | MKP1848C62010JP* | 57 | 63 |
| | 57 | 22 | 1.0 | MKP1848C62210JP* | 60 | 63 |
| | 57 | 25 | 1.0 | MKP1848C62510JP* | 60 | 63 |
| | 45 | 15 | 1.2 | MKP1848C61510JY* | 70 | 55 |
| | 45 | 20 | 1.2 | MKP1848C62010JY* | 73 | 55 |
| | 45 | 22 | 1.2 | MKP1848C62210JY* | 70 | 55 |
| | 45 | 25 | 1.2 | MKP1848C62510JY* | 98 | 45 |
| | 45 | 30 | 1.2 | MKP1848C63010JY* | 89 | 45 |
| 50 | 35 | 1.2 | MKP1848C63510JY* | 109 | 40 | |
| 50 | 40 | 1.2 | MKP1848C64010JY* | 99 | 40 | |
| 45 | 45 | 1.2 | MKP1848C64510JY5 | 124 | 30 | |
| 45 | 50 | 1.2 | MKP1848C65010JY5 | 117 | 30 | |
| 65 | 100 ⁽³⁾ | 1.2 | MKP1848C71010JY5 | 259 | 20 | |
| 65 | 200 ⁽⁴⁾ | 1.2 | MKP1848C72010JY5 | 608 | 10 | |



| PACKAGING INFORMATION | | | | | | |
|-------------------------|--------------------|-----------------------------------|------------------|------------------------------|-------------|-----------------------------|
| U _{NDC} (V) | HEIGHT (mm) | CAP. ⁽⁵⁾ (μ F) | \emptyset dt | ORDERING CODE ⁽¹⁾ | MASS (g) | SPQ ⁽²⁾ (pcs) |
| 1200 | 21 | 1 | 0.8 | MKP1848C51012JK2 | 9 | 130 |
| | 25 | 2 | 0.8 | MKP1848C52012JK2 | 12 | 100 |
| | 28 | 3 | 0.8 | MKP1848C53012JK2 | 16 | 80 |
| | 31 | 4 | 0.8 | MKP1848C54012JK2 | 21.5 | 65 |
| | 35 | 5 | 0.8 | MKP1848C55012JK2 | 20 | 70 |
| | 35.5 | 5 | 1.0 | MKP1848C55012JP* | 33 | 105 |
| | 35.5 | 6 | 1.0 | MKP1848C56012JP* | 30 | 105 |
| | 38.5 | 7 | 1.0 | MKP1848C57012JP* | 39 | 91 |
| | 38.5 | 8 | 1.0 | MKP1848C58012JP* | 37 | 91 |
| | 44 | 9 | 1.0 | MKP1848C59012JP* | 50 | 77 |
| | 44 | 10 | 1.0 | MKP1848C61012JP* | 48 | 77 |
| | 45 | 12 | 1.0 | MKP1848C61212JP* | 63 | 63 |
| | 57 | 15 | 1.0 | MKP1848C61512JP* | 60 | 63 |
| | 45 | 10 | 1.2 | MKP1848C61012JY* | 81 | 55 |
| | 45 | 12 | 1.2 | MKP1848C61212JY* | 77 | 55 |
| | 45 | 15 | 1.2 | MKP1848C61512JY* | 70 | 55 |
| | 45 | 20 | 1.2 | MKP1848C62012JY* | 91 | 45 |
| | 50 | 22 | 1.2 | MKP1848C62212JY* | 115 | 40 |
| | 50 | 25 | 1.2 | MKP1848C62512JY* | 108 | 40 |
| | 45 | 30 | 1.2 | MKP1848C63012JY5 | 126 | 30 |
| 65 | 60 ⁽³⁾ | 1.2 | MKP1848C66012JY5 | 256 | 20 | |
| 65 | 65 ⁽³⁾ | 1.2 | MKP1848C66512JY5 | 257 | 20 | |
| 65 | 140 ⁽⁴⁾ | 1.2 | MKP1848C71412JY5 | 608 | 10 | |

Notes

- (1) Change the * symbol with special code for the terminals
(2) SPQ = Standard Packing Quantity
(3) 6 pins
(4) 12 pins
(5) Intermediate capacitance values available on request

CONSTRUCTION DESCRIPTION

Low inductive wound cell elements of metallized polypropylene film, potted with resin in a flame retardant case.

SPECIFIC METHOD OF MOUNTING TO WITHSTAND VIBRATION AND SHOCK

The capacitor unit is designed for mounting on a printed circuit board.

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

The capacitors shall be mechanically fixed by the leads and the body clamped.

SPACE REQUIREMENTS ON PRINTED-CIRCUIT BOARD

For product height with seating plane as given by "IEC 60717" as reference.

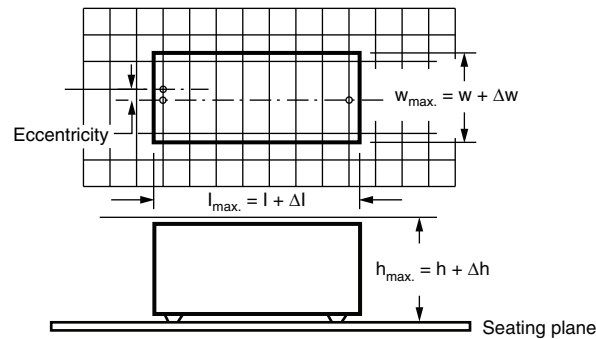
For 2 pins:

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 $15 \text{ mm} < \text{pitch} \leq 27.5 \text{ mm}$ $\Delta w = \Delta l = 0.5 \text{ mm}$ and $\Delta h = 0.1 \text{ mm}$
- For products with $\text{pitch} = 37.5 \text{ mm}$, $\Delta w = \Delta l = 0.7 \text{ mm}$ and $\Delta h = 0.5 \text{ mm}$
- For products with $\text{pitch} = 52.5 \text{ mm}$, $\Delta w = \Delta l = 1.0 \text{ mm}$ and $\Delta h = 0.5 \text{ mm}$

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

The maximum length and width of film capacitors is shown in the figure:



For the minimum product dimensions for length ($l_{min.}$), width ($w_{min.}$) and height ($h_{min.}$) following tolerances of the components are valid:

$l_{min.} = l - \Delta l$, $w_{min.} = w - \Delta w$, and $h_{min.} = h - \Delta h$ following

- for products with $15 \text{ mm} < \text{pitch} \leq 27.5 \text{ mm}$, $\Delta l = 1.0 \text{ mm}$, and $\Delta w = \Delta h = 0.5 \text{ mm}$
- for products with $\text{pitch} = 37.5 \text{ mm}$, $\Delta l = 1.0 \text{ mm}$, and $\Delta w = \Delta h = 1.0 \text{ mm}$
- for products with $\text{pitch} = 52.5 \text{ mm}$, $\Delta l = 1.5 \text{ mm}$, and $\Delta w = \Delta h = 1.0 \text{ mm}$

For 4 pins, 6 pins, and 12 pins:

| DIMENSIONS in millimeters | | | | |
|----------------------------------|-------------------------|-------------------------|------------|-----------|
| | | | | |
| P1 | L_{max.} | W_{max.} | Ø D | H |
| 37.5 | $l + 1.5$ | $w + 1.8$ | 1.5 | $h + 0.5$ |
| 52.5 | $l + 1.8$ | $w + 2.0$ | 1.7 | $h + 0.5$ |

SOLDERING CONDITIONS

For general soldering conditions and wave soldering profile we refer to the document “Soldering Conditions Vishay Film Capacitors”: www.vishay.com/doc?28171

STORAGE TEMPERATURE

$T_{stg} = -25 \text{ °C}$ to $+35 \text{ °C}$ with relative humidity of maximum 75 % without condensation

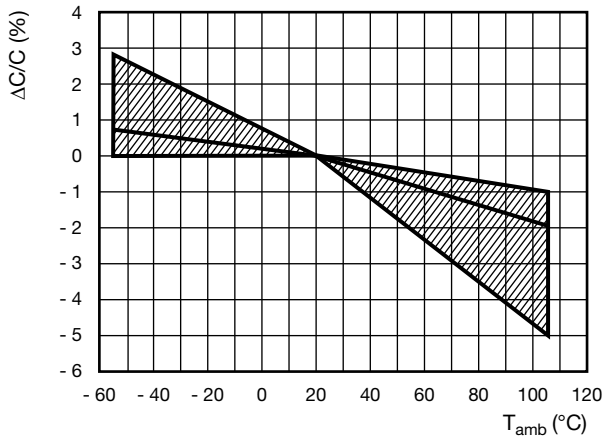


RATINGS AND CHARACTERISTICS REFERENCE CONDITIONS

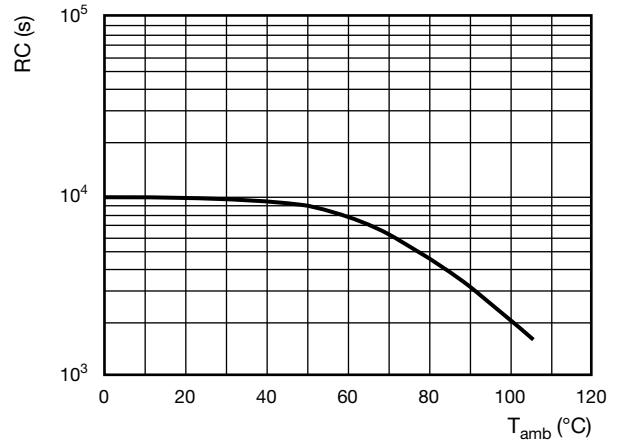
Unless otherwise specified, all electrical values apply to an ambient temperature of 23 °C ± 1 °C, an atmospheric pressure of 86 kPa to 106 kPa and a relative humidity of 50 % ± 2 %.

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

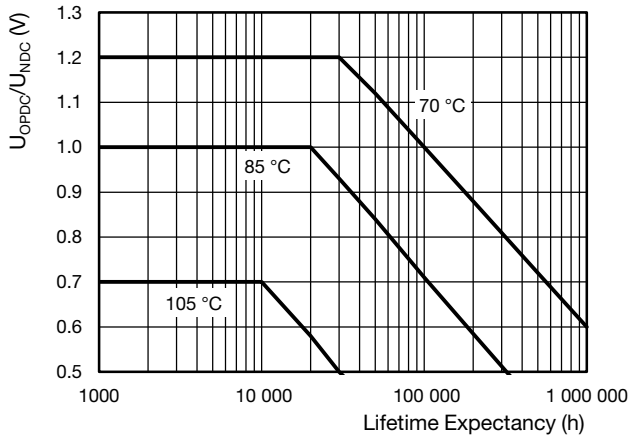
CHARACTERISTICS



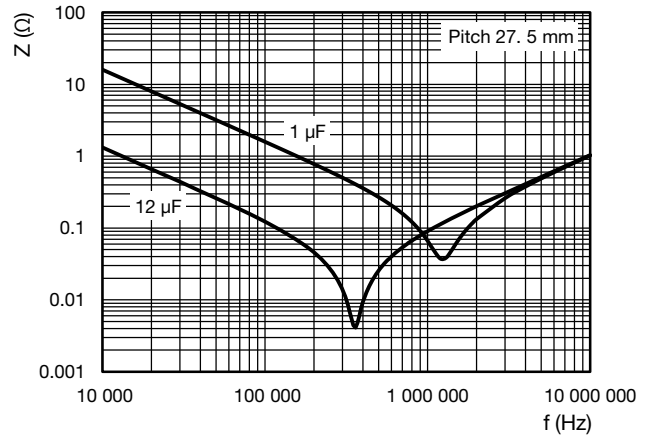
Capacitance as a function of ambient temperature (typical)



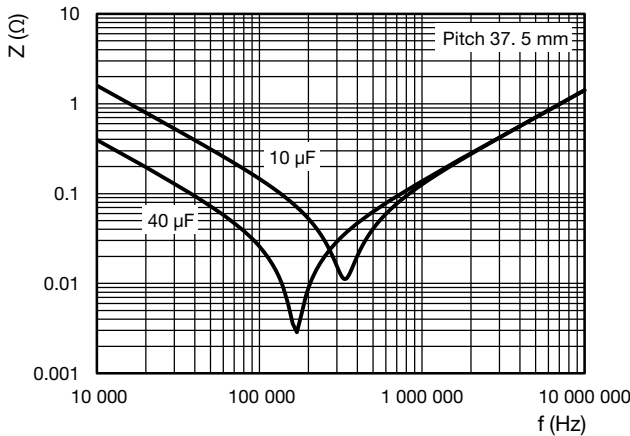
Insulation resistance as a function of ambient temperature (typical)



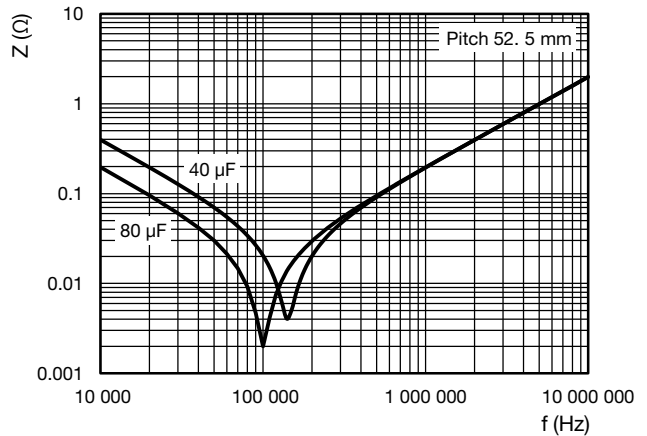
Lifetime expectancy (typical)



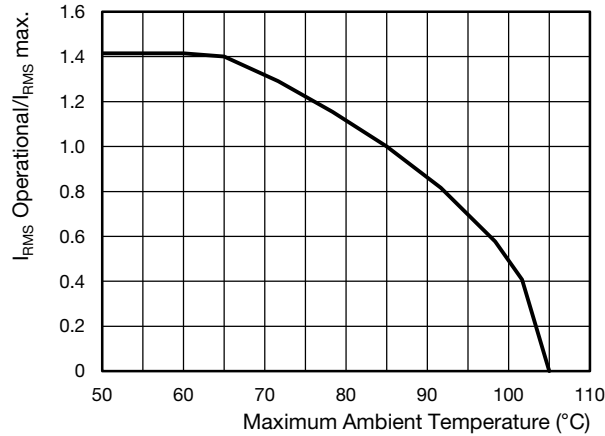
Impedance vs. Frequency (typical)



Impedance vs. Frequency (typical)



Impedance vs. Frequency (typical)



Maximum I_{RMS} current in function of the ambient temperature

| HEAT CONDUCTIVITY | | | |
|-------------------|------|------|---------------------------|
| DIMENSION (mm) | | | HEAT CONDUCTIVITY (mW/°C) |
| w | h | l | |
| 9.0 | 19.0 | 32.0 | 24 |
| 11.0 | 21.0 | 32.0 | 28 |
| 13.0 | 23.0 | 32.0 | 32 |
| 15.0 | 25.0 | 32.0 | 36 |
| 18.0 | 28.0 | 32.0 | 44 |
| 21.0 | 31.0 | 32.0 | 51 |
| 20.0 | 35.0 | 32.0 | 56 |
| 18.5 | 35.5 | 43.0 | 54 |
| 21.5 | 38.5 | 42.0 | 61 |
| 24.0 | 44.0 | 42.0 | 70 |
| 30.0 | 45.0 | 42.0 | 81 |
| 25.0 | 45.0 | 57.5 | 77 |
| 30.0 | 45.0 | 57.5 | 85 |
| 35.0 | 50.0 | 57.5 | 100 |
| 45.0 | 45.0 | 57.5 | 94 |
| 65.5 | 65.0 | 57.5 | 152 |
| 130.0 | 65.0 | 57.5 | 243 |

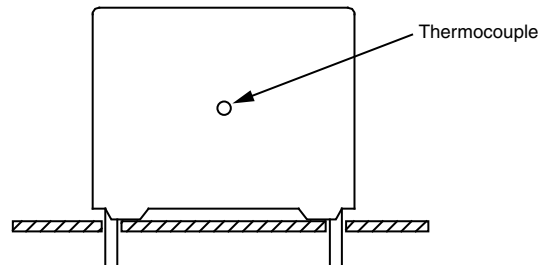
POWER DISSIPATION AND MAXIMUM COMPONENT TEMPERATURE RISE

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

The component temperature rise (ΔT) can be measured or calculated by $\Delta T = P/G$:

- $\Delta T = T_{\text{case}} - T_{\text{ambient}} =$ case temperature rise ($^{\circ}\text{C}$) with a maximum of 15°C at rated temperature.
- $P = I_{\text{RMS}}^2 \times \text{ESR} =$ power dissipation of the component (mW)
- $G =$ heat conductivity of the component ($\text{mW}/^{\circ}\text{C}$)

MEASURING THE COMPONENT TEMPERATURE



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

To avoid external thermal radiation or convection, the capacitor must be tested in a closed area, free from air circulation.

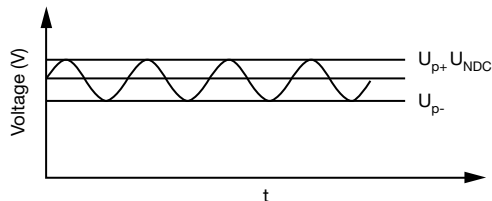
APPLICATION NOTES AND LIMITING CONDITIONS

These capacitors are not suitable for mains applications as across-the-line capacitors without additional protection. These mains applications are strictly regulated in safety standards and therefore electromagnetic interference suppression capacitors conforming the standards must be used.

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

1. The continuous peak voltage (U_{p+}) shall not exceed the DC voltage rating (U_{NDC})
2. The peak-to-peak ripple voltage (U_{pp}) shall not be greater than $0.2 \times U_{\text{NDC}}$

Non reversing recurrent waveform



3. 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 dc-film@vishay.com.
4. The voltage peak slope (dU/dt) shall not exceed the pulse slope at the DC voltage rating. If the pulse voltage is lower than the rated DC voltage, the rated voltage pulse slope may be multiplied by U_{NDC} and divided by the applied voltage.

For all other pulses following equation must be fulfilled:

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

T is the pulse duration

| MAXIMUM REPETITIVE PEAK VOLTAGES | |
|----------------------------------|--------------------------|
| REPETITIVE SURGE VOLTAGE | MAXIMUM DURATION PER DAY |
| $1.1 \times U_{\text{NDC}}$ | 30 % of on load duration |
| $1.15 \times U_{\text{NDC}}$ | 30 min |
| $1.2 \times U_{\text{NDC}}$ | 5 min |
| $1.3 \times U_{\text{NDC}}$ | 1 min |
| $1.5 \times U_{\text{NDC}}$ | 110 ms |

Note

- The capacitor unit may be subjected to the surge above without any significant reduction of lifetime expectancy



| INSPECTION REQUIREMENTS | | |
|--|--|---|
| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
| ROUTINE TEST - FINAL INSPECTION | | |
| 5.14.2-1 External inspection, visual examination | | Legible marking as specified |
| 5.14.2-2 Dimensions | | See specification drawing |
| 5.3-1 Capacitance | 1 kHz at room temperature | See specific reference data |
| 5.3-2 tan δ | 1 kHz at room temperature 10 kHz at room temperature | See specific reference data |
| 5.5.1-2 Voltage test between terminals | 1.5 x U _{NDC} at T _{amb} Duration: 10 s | No visible damage or puncture No flashover |
| 5.7 Insulation resistance | U _{NDC} ≤ 500 V measuring voltage 100 V at room temperature U _{NDC} > 500 V measuring voltage 500 V at room temperature Duration: 1 min | See specific reference data |
| TYPE TESTS | | |
| 5.14.2 External inspection | Check for finish, marking and overall dimensions | Legible marking and finish as specified Dimensions: see specification drawing |
| 5.14.0 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.14.1-1/4 Robustness of terminations IEC 60068-2-21 | Tensile Ua1 Wire diameter Section modulus Load ≤ 0.8 mm ≤ 0.5 mm ² 10 N ≤ 1.25 mm ≤ 1.2 mm ² 20 N Duration: 10 s ± 1 s Bending, Ub method 1 Wire diameter Section modulus Load ≤ 0.8 mm ≤ 0.05 mm ² 10 N ≤ 1.25 mm ≤ 0.019 mm ² 20 N 4 x 90°, duration: 2 s to 3 s/bend | |
| 5.14.1-6 Resistance to soldering heat IEC 60068-2-20 | No pre-drying, method 1A Solder bath: 260 °C ± 5 °C Duration: 10 s ± 1 s | |
| 5.14.4 Final measurements | Capacitance tan δ | \Delta C/C ≤ 0.5 % Increase of tan δ ≤ 0.0050 compared to the values measured in 5.14.0 |
| 5.14.0 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.14.3-1 Vibration IEC 60068-2-6 | 10 Hz to 55 Hz; amplitude ± 0.35 mm or acceleration 98 m/s ² Test duration: 10 frequency cycles 3 axes offset from each other by 90° 1 octave/min Visual examination | No visible damage |
| 5.14.3-2 Shock or impact IEC 60068-2-6 | Pulse shape: half sine Acceleration: 490 m/s ² Duration of pulse: 11 ms Visual examination | No visible damage |
| 5.14.4 Final measurements | Capacitance tan δ | \Delta C/C ≤ 0.5 % Increase of tan δ ≤ 0.0050 compared to the values measured in 5.14.0 |



| INSPECTION REQUIREMENTS | | |
|--|--|---|
| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
| 5.5.3-1 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz R insulation | |
| 5.5.3-2 Voltage test between terminals | 1.5 x U _{NDC} at T _{amb} Duration: 60 s | |
| 5.5.3-3 Final measurements | Capacitance tan δ R insulation | $ \Delta C/C \leq 0.5 \%$ Increase of tan $\delta \leq 0.0050$ R insulation $\leq 50 \%$ of specified values |
| 5.9-1 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.9-2 Surge discharge test | 1.1 x U _{NDC} Number of discharges: 5 Time lapse: every 2 min (10 min total) | |
| 5.9-2 Voltage test between terminals | Within 5 min after the surge discharge test Duration: 60 s 1.5 x U _{NDC} at T _{amb} | |
| 5.9-3 Final measurements | Capacitance tan δ at 10 kHz | $ \Delta C/C \leq 1.0 \%$ tan $\delta \leq 1.2 \times$ initial tan $\delta + 0.0001$ compared to the values measured in 5.9-1 |
| 5.11-1 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.11-2 Self healing test | 1.5 x U _{NDC} Duration: 10 s Number of clearings ≤ 5 Clearing = voltage drop of 5 % increase the voltage at 100 V/s till 5 clearings occur with a max. of 2.5 x U _{NDC} for a duration of 10 s | |
| 5.11-3 Final measurements | Capacitance tan δ | $ \Delta C/C \leq 0.5 \%$ tan $\delta \leq 1.2 \times$ initial tan $\delta + 0.0001$ compared to the values measured in 5.11-1 |
| 5.13-0 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.13-1 Change of temperature according to IEC 60682-2-14 | Test Nb T _{max.} = 85 °C T _{min.} = -55 °C Transition time: 1 h, equivalent to 1 °C/ min. 5 cycles | |
| 5.13-2 Damp heat steady state according to IEC 60682-2-78 | Test Ca T _{max.} = 40 °C + 2 °C RH = 93 % \pm 3 % Duration: 56 days | |
| 5.5.3-2 Voltage test between terminals | 1.5 x U _{NDC} at ambient temperature Duration: 60 s | |
| 5.13-3 Final measurements | Visual examination | No puncturing or flashover Self healing punctures are permitted |
| | Capacitance tan δ at 1 V _{RMS} 10 kHz | $ \Delta C/C \leq 2.0 \%$ Increase of tan $\delta \leq 0.0150$ compared to the values measured in 5.13-0 |



| INSPECTION REQUIREMENTS | | |
|--|---|---|
| SUB-CLAUSE NUMBER AND TEST | CONDITIONS | PERFORMANCE REQUIREMENTS |
| 5.10.0 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.10-1 Thermal stability test under overload conditions | Natural cooling $T_{amb} \pm 5\text{ °C}$ $1.21 \times P_{max.} = (U_2/2) \times W_2 \times C \times \tan \delta =$ $1.21 \times (I_{max.}^2/W_2 \times C) \times \tan \delta$ with $W_2 = 2 \times p \times f_2$ for $I_{max.}$ (see specific reference data) $f_2 = 10\text{ kHz}$ Duration: 48 h | |
| 5.10-2 Final measurements | Measure the temperature every 1.5 h during the last 6 h | Temperature rise $\leq 1\text{ °C}$ $ \Delta C/C \leq 2.0\%$ Increase of $\tan \delta \leq 1.2 \times \text{initial } \delta + 0.0150$ |
| 5.12 Resonance frequency measurement | Impedance analyser at T_{amb} | < 0.9 times the value as specified in typical curve "Resonant frequency" of this specification |
| 5.15-0 Initial measurements | Capacitance at 1 kHz tan δ at 10 kHz | |
| 5.15-1 Endurance test between terminals | Sequence: $1.3 \times U_{NDC}$ at 85 °C $1.3 \times U_{OPDC}$ at 105 °C Duration: 500 h 1000 x discharge at $1.3 \times I_{peak}$ (maximum respective peak current in continuous operation) $1.3 \times U_{NDC}$ at 85 °C $1.3 \times U_{OPDC}$ at 105 °C Duration: 500 h | |
| 5.15-2 Final measurement | Capacitance tan δ | $ \Delta C/C \leq 3.0\%$ Increase of $\tan \delta \leq 0.0150$ compared to the values measured in 5.15-0 |
| 5.16.3-0A Initial measurements | Capacitance at 1 kHz | |
| 5.16.3-1A Destruction test sequence for <u>non segment film</u> | $T_{max.} = 85\text{ °C}$ Product enveloped with cheese cloth | |
| High DC voltage test | $3 \times U_{NDC}$ or DC voltage until repetitive product healings occur Duration = 15 min | Audible healings or check healings with oscilloscope |
| High AC voltage test | AC RMS voltage = $U_{NDC}/2 \sqrt{2}$ with minimum of 250 V_{AC} Duration = 5 min Repeat destruction sequence 3 x | |
| 5.16.3-2A Final measurements | Visual examination | No puncturing, flashover or burning of the cheese cloth Self healing punctures are permitted |



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