Metallized Polypropylene (PP) - Capacitors for DC-Link Applications

Special Features

- Very high volume/capacitance ratio
- Self-healing, internal safety disconnector
- Versatile and safe contact configurations by screwable plates
- Dry construction without electrolyte or oil
- Very low disipation factor
- Negative capacitance change versus temperature
- Very low dielectric absorption
- According to RoHS 2002/95/EC

Electrical Data

- Capacitance range: 85 µF to 4500 µF
- Rated voltages: 400 VDC, 800 VDC, 1600 VDC
- Capacitance tolerances: ±20%, ±10%, ±5% available subject to special enquiry
- Operating temperature: –55° C to +85° C
- Insulation resistance at +20° C: ≥ 30’000 sec (MΩ x µF)
- (mean value: 100’000 sec)
- Measuring voltage: 100 V/1 min.
- Dissipation factors at +20° C:
- See General Data.

Test voltage: 1.1U, 2 sec

Dielectric absorption: 0.05 %

Voltage derating:
A voltage derating factor of 1.35 % per K must be applied from +85° C for DC voltages and from +75° C for AC voltages.

Reliability:
Operational life > 100’000 hours at 40° C
Failure rate < 36 fit 10.5 x U and 40° C
Specific dissipation:
See General Data.

Typical Applications

As intermediate circuit capacitor e.g. in high power converter technology

Construction

- Dielectric:
  Polypropylene (PP) film
- Capacitor electrodes:
  Vacuum-deposited
- Internal construction:

Encapsulation:
Solvent resistant, flame-retardant plastic case with resin seal optional screw fixing or moulded version (without screw fixing), UL 94 V-0.

Terminals:
Tinned plates, customized plate configurations are possible.

Marking:

Mounting Recommendation

Excessive mechanical strain, e.g. pressure or shock onto the capacitor body, is to be avoided during mounting and usage of the capacitors. When fixing the capacitor the screw torque is to be limited to max. 5 Nm.

Packing

Transportation-safe packing in cardboard boxes.

For further details and graphs please refer to Technical Information.
## Electrical parameters

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Size</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>400VDC/180VAC</td>
<td>125µF, 250µF</td>
<td>250 µF, 1000 µF</td>
</tr>
<tr>
<td>182x94 mm</td>
<td>120, 250</td>
<td>1.05, 1.10</td>
</tr>
<tr>
<td>3750 V</td>
<td>5000, 12000</td>
<td>1.05, 1.10</td>
</tr>
<tr>
<td>3000, 12500</td>
<td>V1</td>
<td>V2</td>
</tr>
<tr>
<td>105, 130</td>
<td>105, 130</td>
<td>105, 130</td>
</tr>
<tr>
<td>2750 V</td>
<td>3000, 12500</td>
<td>1.05, 1.10</td>
</tr>
<tr>
<td>105, 130</td>
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<td>105, 130</td>
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</tr>
</tbody>
</table>

**General guide**

The capacitors will be delivered without interconnection. Insulated in the sense of a breakdown voltage of 2 x Ue between the individual capacitors.

External wiring versions (to be implemented by user):

V1

C C

V2

C C

Customized solutions can be realized on request.

Part number completion:

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number code for digit 11-12 moulded boxed, box with screw fixing</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>H0 I0 J0</td>
</tr>
<tr>
<td>94</td>
<td>H1 I1 J1</td>
</tr>
<tr>
<td>94</td>
<td>H2 I2 J2</td>
</tr>
<tr>
<td>94</td>
<td>H3 I3 J3</td>
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<tr>
<td>94</td>
<td>H4 I4 J4</td>
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<tr>
<td>94</td>
<td>H5 I5 J5</td>
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<tr>
<td>94</td>
<td>H6 I6 J6</td>
</tr>
<tr>
<td>94</td>
<td>H7 I7 J7</td>
</tr>
<tr>
<td>94</td>
<td>H8 I8 J8</td>
</tr>
</tbody>
</table>

Tolerance: 20% = M
10% = K
5% = J

Packing: bulk = S

Pin length: none = 00

Rights reserved to amend design data without prior notification.
A WIMA part number consists of 18 digits and is composed as follows:

Field 1 - 4: Type description
Field 5 - 6: Rated voltage
Field 7 - 10: Capacitance
Field 11 - 12: Size and PCM
Field 13 - 14: Special features (e.g., Snubber versions)
Field 15: Capacitance tolerance
Field 16: Packing
Field 17 - 18: Lead length (untaped)

<table>
<thead>
<tr>
<th>Field 1</th>
<th>Field 2</th>
<th>Field 3</th>
<th>Field 4</th>
<th>Field 5</th>
<th>Field 6</th>
<th>Field 7</th>
<th>Field 8</th>
<th>Field 9</th>
<th>Field 10</th>
<th>Field 11</th>
<th>Field 12</th>
<th>Field 13</th>
<th>Field 14</th>
<th>Field 15</th>
<th>Field 16</th>
<th>Field 17</th>
<th>Field 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKS 2</td>
<td>63 VDC</td>
<td>0.01 µF</td>
<td>2.5x6.5x7.2</td>
<td>-</td>
<td>20%</td>
<td>bulk</td>
<td>6-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Type description:**

- SMD-PET = SMDT
- SMD-PPS = SMD1
- FKP 02 = FKP0
- MKS 02 = MKS0
- FKS 2 = FKS2
- FKP 2 = FKP2
- MKS 2 = MKS2
- FKS 3 = FKS3
- FKP 3 = FKP3
- MKS 4 = MKS4
- MKP 4 = MKP4
- MKP 10 = MKP1
- FKP 4 = FKP4
- MKP 1 = MKP1
- MKP X2 = MKP2
- MKP X2 R = MKPR
- MKP Y2 = MKY2
- MP 3-X2 = MPX2
- MP 3-X1 = MPX1
- MP 3-Y2 = MPY2
- MP 3R-Y2 = MPYR
- Snubber MKP = SNNMP
- Snubber FKP = SFP
- GTO MKP = GTPM
- DC-LINK MKP 4 = DCP4
- DC-LINK MKP 5 = DCP5
- DC-LINK MKP 6 = DCP6
- DC-LINK HC = DCH
- SuperCap C = SCSC
- SuperCap MC = SCMC
- SuperCap R = SCR
- SuperCap MR = SCMIR

**Rated voltage:**

- 2.5 VDC = A1
- 4 VDC = A2
- 14 VDC = A3
- 28 VDC = A4
- 40 VDC = A5
- 63 VDC = A6
- 100 VDC = D0
- 150 VDC = D0
- 220 VDC = D2
- 680 VDC = D8
- 1000 VDC = D10
- 1500 VDC = D15
- 2200 VDC = D22
- 6800 VDC = D88
- 10000 VDC = D100
- 15000 VDC = D150
- 22000 VDC = D220
- 68000 VDC = D880
- 100000 VDC = D1000

**Capacitance:**

- 22 pF = 0022
- 47 pF = 0047
- 100 nF = 0100
- 150 nF = 0150
- 220 nF = 0220
- 680 nF = 0680
- 1000 nF = 1100
- 1500 nF = 1150
- 2200 nF = 2220
- 6800 nF = 6860
- 10000 nF = 11000
- 15000 nF = 15100
- 22000 nF = 22200
- 68000 nF = 68600
- 100000 nF = 110000

**Size:**

- 4.8x3.3x3 Size 1812 = X1
- 4.8x3.3x4 Size 1812 = X2
- 5x7.5x1.35 Size 2220 = Y1
- 5x7.5x1.45 Size 2220 = Y2
- 7x2.6x1.3 Size 2824 = T1
- 7x2.6x1.5 Size 2824 = T2
- 10.2x7.6x5 Size 4030 = K1
- 12.7x10.2x6 Size 5040 = V1
- 15.5x13.7x7 Size 6054 = Q1
- 25x7x4.6 PCM = 2.5
- 3x7.5x4.6 PCM = 3C
- 5x11x18 PCM = 2B
- 6x12.5x18 PCM = 4B
- 5x14x26.5 PCM = 5A
- 6x15x26.5 PCM = 5B
- 9x19x31.5 PCM = 7A
- 11x22x41.5 PCM = 7B
- 94x49x182 DCH = 94

**Tolerance:**

- 20% = M
- 10% = K
- 5% = J
- 2.5% = H
- 1% = E

**Packing:**

- AMMO H16.5 340 x 340 = A
- AMMO H16.5 490 x 370 = B
- AMMO H18.5 340 x 340 = C
- AMMO H18.5 490 x 370 = D
- REEL H16.5 360 = F
- REEL H16.5 500 = H
- REEL H18.5 360 = I
- REEL H18.5 500 = J
- ROLL H16.5 = N
- ROLL H18.5 = O
- BUSTER W12 180 = P
- BUSTER W12 330 = Q
- BUSTER W16 330 = R
- BUSTER W24 330 = T
- Bulk Mini = M
- Bulk Standard = S
- Bulk Maxi = G
- TPS Mini = X
- TPS Standard = Y

**Special features:**

- Standard = 00
- Version A1 = 1A
- Version A1.1 = 1B
- Version A1.2 = 1C

**Lead length (untaped):**

- 3.5 ±0.5 = 9
- 6.2 = SD
- 16 ±1 = P1

The data on this page is not complete and serves only to explain the part number system. Part number information is listed on the pages of the respective WIMA range.