



Siemens Matsushita Components

# EMC- Components

Feed-Through Capacitors  
Feed-Through Filters  
in Solderless MKP Technology

Data Book Supplement

# Vakatseite

**1 General**

MeshContact is a solderless technology newly developed by Siemens Matsushita Components. It allows uniform concentric contacting of MKP capacitor winds, avoiding the thermal stress caused by soldering. The result is even better insertion loss, high insulation resistance plus compact, small casing.

Basically, feed- through components can be used to suppress interference in all electrical installations and equipment. The new series is also ideal for telephone switching systems and base stations and, through broadband suppression effective into the GHz region, prevents interference pulses from entering equipment from outside through the power supply network and vice versa.

There is now a building- block system available in this new technology for feed- through capacitors and filters, allowing fast and attractively priced solutions to be implemented. Interim ratings can be produced to order for special applications.



Feed- through elements fitted into a shielding wall

**Selector guide**

| Diameter | Voltage range | Capacitance range   |
|----------|---------------|---------------------|
| 30 mm    | up to 75 A    | 0,1 ... 1 $\mu$ F   |
| 55 mm    | up to 500 A   | 0,5 ... 4,7 $\mu$ F |

In feed-through capacitors the conductor carrying the load current is connected concentrically to one electrode and passes through the center of the capacitor. The other electrode makes concentric contact with the capacitor case.

Feed-through capacitors are designed to be effective from low frequency to far above 300 MHz. The low-loss winding with high-stability contact to the leads at its face ends is enclosed in a metal case with either a threaded stud at one end or an external thread.

Feed-through filters have  $\pi$  filter circuits consisting of two equal shunt capacitors and one ferromagnetic inductor connected in series. Due to the concentric arrangement of the components, high attenuation values are obtained for frequencies up to and exceeding 1 GHz.

**Safety note!**

If feed-through elements with high capacitances are used, protective measures (e.g. protective earthing) in accordance with equipment/system regulations (product standards) are required!

**2 Mounting instructions**

To fully utilize their RF characteristics, feed-through components must be fitted directly into the shielding wall. The component case must make perfect and unbroken (RF-tight!) contact with the shielding. This can be best achieved by screwing them into a threaded hole or bushing, so that good electrical contact is made by the flanks of the thread.

As an alternative, feed-through elements can be screwed into feed-through holes in a shielding wall and held by a retaining nut. Contact between the case and the shielding wall is produced by the contact surface on the thread.

The connecting line must be attached by fixing it between two countered nuts in order to avoid exposing the component to torque loads (use two spanners).

**NOTE**

**Due to the danger of exposing the feed throughs to mechanical loads caused by shock and vibration, it is not permissible to use rigid copper bars as connecting elements.**

**Construction**

- Building- block system
- MKP technology (dry, self- healing)  
Dielectric: polypropylene, metallized
- Metal case with synthetic resin terminals
- For central screw fixing

**Features**

- Compact dimensions
- Variable current rating and capacitance through building- block system
- High attenuation
- Simple fitting
- High contact reliability through central screw fixing



**Applications**

Broadband interference suppression for ac/dc supply lines, e.g. in

- shielded rooms
- telephone exchanges, base stations
- electrical machines and systems
- power supplies

**Terminals**

- Threaded studs

**Marking**

Manufacturer, ordering code, EMI suppression class, rated capacitance, rated voltage, rated current, climatic category, circuit diagram, date of manufacture (MM.YY)

**Standards**

Feed- through capacitors comply with EN 133 200

Feed- through filters comply with EN 133 400

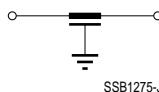
**Safety information**

Due to the high capacitance ratings protective measures (e.g. protective earthing) in accordance with equipment/system regulations are required.

**Circuit diagrams**



Feed- through filters



Feed- through capacitors

Feed-through capacitors  $\varnothing$  30 mm

| $I_R$ | $C_R$<br>$\mu\text{F}$ | $V_R$ |     | $V_P$<br>Vdc | Terminal | Dimensions<br>(mm)         |       | Ordering code       |
|-------|------------------------|-------|-----|--------------|----------|----------------------------|-------|---------------------|
|       |                        | Vac   | Vdc |              |          | $\varnothing \times l$     | $l_1$ |                     |
| A     | 0,1                    | 250   | 600 | 3000         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2104- A250 |
|       | 0,5                    | 250   | 600 | 2500         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2504- A250 |
|       | 1,0                    | 250   | 600 | 2000         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2105- A250 |
| 75    | 0,1                    | 250   | 600 | 3000         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2104- A750 |
|       | 0,5                    | 250   | 600 | 2500         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2504- A750 |
|       | 1,0                    | 250   | 600 | 2000         | M6       | $\varnothing 30 \times 55$ | 110   | B85121- A2105- A750 |

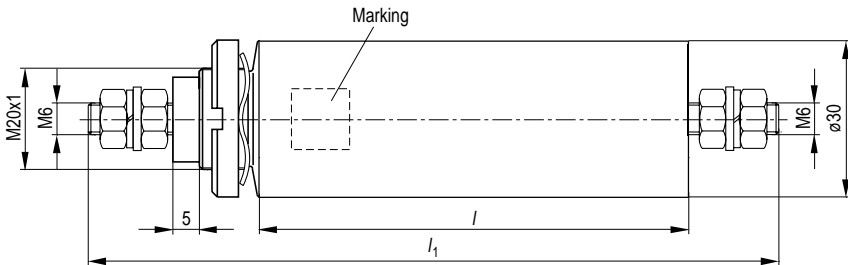
Insertion loss (dB); typical values at 50  $\Omega$

| Capacitance $C_R$ | 10 kHz | 100 kHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz |
|-------------------|--------|---------|-------|--------|---------|-------|
| 0,1 $\mu\text{F}$ | 0      | 5       | 20    | 40     | 60      | 70    |
| 0,5 $\mu\text{F}$ | 2      | 15      | 35    | 40     | 80      | > 90  |
| 1,0 $\mu\text{F}$ | 5      | 25      | 45    | 50     | 85      | > 90  |

General technical data

Capacitance tolerance:  $\pm 20\%$   
 IEC climatic category: 40/085/56 ( $-40\text{ }^\circ\text{C}/+85\text{ }^\circ\text{C}$ , 56 days damp heat test)  
 Screw cap fixing: standard M20  $\times$  1

Dimensional drawing



SSB1271-L

Feed-through capacitors  $\varnothing$  55 mm

| $I_R$ | $C_R$<br>$\mu\text{F}$ | $V_R$ |     | $V_P$<br>Vdc | Terminal<br>M | Dimensions<br>(mm)     |       | Ordering code       |
|-------|------------------------|-------|-----|--------------|---------------|------------------------|-------|---------------------|
|       |                        | Vac   | Vdc |              |               | $\varnothing \times l$ | $l_1$ |                     |
| 63    | 0,5                    | 250   | 600 | 3000         | M6            | 55 × 30                | 100   | B85121- A2504- A630 |
|       | 1,0                    | 250   | 600 | 2500         | M6            | 55 × 30                | 100   | B85121- A2105- A630 |
|       | 2,0                    | 250   | 600 | 2500         | M6            | 55 × 60                | 130   | B85121- A2205- A630 |
|       | 4,7                    | 250   | 600 | 2000         | M6            | 55 × 60                | 130   | B85121- A2475- A630 |
| 100   | 0,5                    | 250   | 600 | 3000         | M8            | 55 × 30                | 110   | B85121- A2504- A101 |
|       | 1,0                    | 250   | 600 | 2500         | M8            | 55 × 30                | 110   | B85121- A2105- A101 |
|       | 2,0                    | 250   | 600 | 2500         | M8            | 55 × 60                | 140   | B85121- A2205- A101 |
|       | 4,7                    | 250   | 600 | 2000         | M8            | 55 × 60                | 140   | B85121- A2475- A101 |
| 200   | 0,5                    | 250   | 600 | 3000         | M10           | 55 × 30                | 120   | B85121- A2504- A201 |
|       | 1,0                    | 250   | 600 | 2500         | M10           | 55 × 30                | 120   | B85121- A2105- A201 |
|       | 2,0                    | 250   | 600 | 2500         | M10           | 55 × 60                | 150   | B85121- A2205- A201 |
|       | 4,7                    | 250   | 600 | 2000         | M10           | 55 × 60                | 150   | B85121- A2475- A201 |

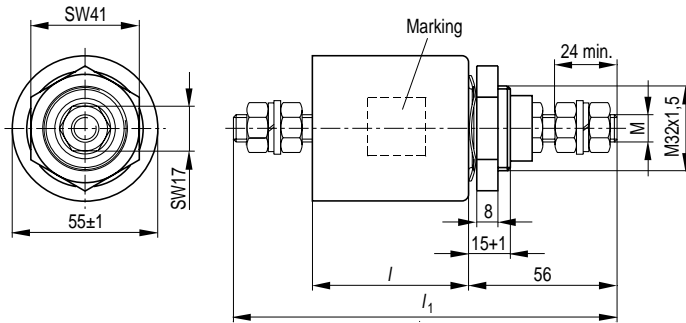
Insertion loss (dB); typical values at 50  $\Omega$

| Capacitance $C_R$ | 10 kHz | 100 kHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz |
|-------------------|--------|---------|-------|--------|---------|-------|
| 0,5 $\mu\text{F}$ | 2      | 15      | 35    | 40     | 80      | > 90  |
| 1,0 $\mu\text{F}$ | 5      | 25      | 45    | 50     | 85      | > 90  |
| 2,0 $\mu\text{F}$ | 10     | 30      | 50    | 55     | > 90    | > 90  |
| 4,7 $\mu\text{F}$ | 15     | 35      | 55    | 65     | > 90    | > 90  |

**General technical data**

Capacitance tolerance:  $\pm 20\%$   
 IEC climatic category: 40/085/56 (- 40 °C/ + 85 °C, 56 days damp heat test)  
 Screw cap fixing standard M32  $\times$  1,5;  
 special fixing M27  $\times$  1,5 possible.

**Dimensional drawing**



SSB1272-U



Feed-through filters  $\varnothing$  30 mm

| $I_R$ | $C_R$                  | $V_R$ |     | $V_P$ | Terminal | Dimensions (mm) |                        | Ordering code       |
|-------|------------------------|-------|-----|-------|----------|-----------------|------------------------|---------------------|
|       |                        | Vac   | Vdc |       |          | Vdc             | $\varnothing \times l$ |                     |
| A     | $2 \times 0,1$ $\mu F$ | 250   | 600 | 3000  | M6       | $30 \times 81$  | 130                    | B85321- A2204- A250 |
|       | $2 \times 0,5$ $\mu F$ | 250   | 600 | 2000  | M6       | $30 \times 81$  | 130                    | B85321- A2105- A250 |
|       | $2 \times 1,0$ $\mu F$ | 250   | 500 | 1700  | M6       | $30 \times 81$  | 130                    | B85321- A2205- A250 |
| 75    | $2 \times 0,1$ $\mu F$ | 250   | 600 | 3000  | M6       | $30 \times 81$  | 130                    | B85321- A2204- A750 |
|       | $2 \times 0,5$ $\mu F$ | 250   | 600 | 2000  | M6       | $30 \times 81$  | 130                    | B85321- A2105- A750 |
|       | $2 \times 1,0$ $\mu F$ | 250   | 500 | 1700  | M6       | $30 \times 81$  | 130                    | B85321- A2205- A750 |

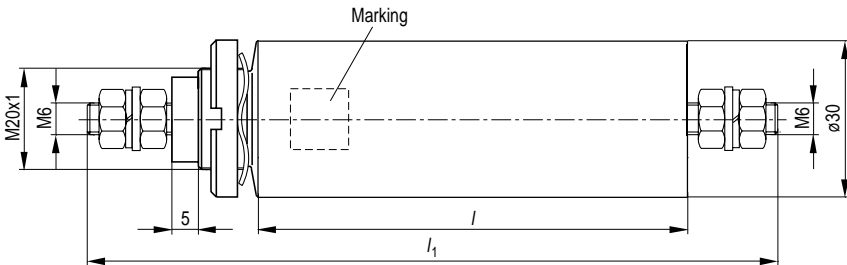
Insertion loss (dB); typical values at 50  $\Omega$ , load- independed

| Capacitance $C_R$      | 10 kHz | 100 kHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz |
|------------------------|--------|---------|-------|--------|---------|-------|
| $2 \times 0,1$ $\mu F$ | 2      | 10      | 25    | 70     | > 100   | > 100 |
| $2 \times 0,5$ $\mu F$ | 5      | 25      | 45    | 80     | > 100   | > 100 |
| $2 \times 1,0$ $\mu F$ | 10     | 30      | 60    | 90     | > 100   | > 100 |

General technical data

Capacitance tolerance:  $\pm 20\%$   
 IEC climatic category: 40/085/56 (– 40 °C/ + 85 °C, 56 days damp heat test)  
 screw cap fixing: standard M20  $\times$  1

Dimensional drawing



SSB1271-L

Feed-through filters  $\varnothing$  55 mm

| $I_R$ | $C_R$<br>$\mu F$     | $V_R$ |     | $V_P$<br>Vdc | Terminal<br>M | Dimensions<br>(mm)     |       | Ordering code       |
|-------|----------------------|-------|-----|--------------|---------------|------------------------|-------|---------------------|
|       |                      | Vac   | Vdc |              |               | $\varnothing \times l$ | $l_1$ |                     |
| 63 A  | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M6            | $55 \times 100$        | 166   | B85321- A2105- A630 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M6            | $55 \times 100$        | 166   | B85321- A2205- A630 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M6            | $55 \times 100$        | 166   | B85321- A2405- A630 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M6            | $55 \times 100$        | 166   | B85321- A2945- A630 |
| 100 A | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M8            | $55 \times 100$        | 180   | B85321- A2105- A101 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M8            | $55 \times 100$        | 180   | B85321- A2205- A101 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M8            | $55 \times 100$        | 180   | B85321- A2405- A101 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M8            | $55 \times 100$        | 180   | B85321- A2945- A101 |
| 200 A | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M10           | $55 \times 100$        | 185   | B85321- A2105- A201 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M10           | $55 \times 100$        | 185   | B85321- A2205- A201 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M10           | $55 \times 100$        | 185   | B85321- A2405- A201 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M10           | $55 \times 100$        | 185   | B85321- A2945- A201 |
| 300 A | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M12           | $55 \times 100$        | 195   | B85321- A2105- A301 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M12           | $55 \times 100$        | 195   | B85321- A2205- A301 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M12           | $55 \times 100$        | 195   | B85321- A2405- A301 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M12           | $55 \times 100$        | 195   | B85321- A2945- A301 |
| 400 A | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M16           | $55 \times 130$        | 245   | B85321- A2105- A401 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M16           | $55 \times 130$        | 245   | B85321- A2205- A401 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M16           | $55 \times 130$        | 245   | B85321- A2405- A401 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M16           | $55 \times 130$        | 245   | B85321- A2945- A401 |
| 500 A | $2 \times 0,5 \mu F$ | 250   | 600 | 3000         | M18           | $55 \times 130$        | 250   | B85321- A2105- A501 |
|       | $2 \times 1,0 \mu F$ | 250   | 600 | 2500         | M18           | $55 \times 130$        | 250   | B85321- A2205- A501 |
|       | $2 \times 2,0 \mu F$ | 250   | 600 | 2500         | M18           | $55 \times 130$        | 250   | B85321- A2405- A501 |
|       | $2 \times 4,7 \mu F$ | 250   | 600 | 1650         | M18           | $55 \times 130$        | 250   | B85321- A2945- A501 |

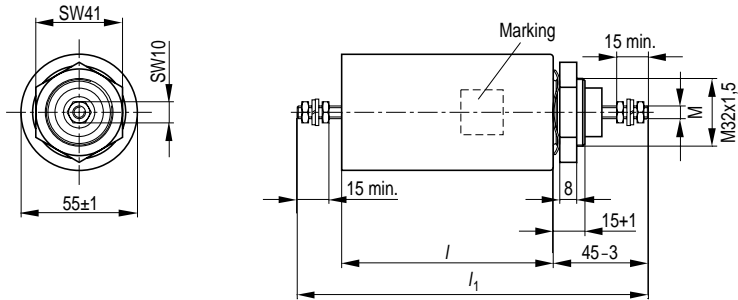
Insertion loss (dB); typical values at 50  $\Omega$ , load- independed

| Capacitance $C_R$    | 10 kHz | 100 kHz | 1 MHz | 10 MHz | 100 MHz | 1 GHz |
|----------------------|--------|---------|-------|--------|---------|-------|
| $2 \times 0,5 \mu F$ | 5      | 25      | 45    | 80     | > 100   | > 100 |
| $2 \times 1,0 \mu F$ | 10     | 30      | 60    | > 100  | > 100   | > 100 |
| $2 \times 2,0 \mu F$ | 15     | 35      | 70    | > 100  | > 100   | > 100 |
| $2 \times 4,7 \mu F$ | 25     | 40      | 90    | > 100  | > 100   | > 100 |

## General technical data

Capacitance tolerance:  $\pm 20\%$   
 IEC climatic category: 40/085/56 ( $-40\text{ }^{\circ}\text{C}/+85\text{ }^{\circ}\text{C}$ , 56 days damp heat test)  
 Screw cap fixing: standard  $M32 \times 1,5$   
 special fixing  $M27 \times 1,5$  possible for filters up to 300 A.

## Dimensional drawing



SSB1273-3

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**Published by Siemens Matsushita Components GmbH & Co. KG  
Marketing Kommunikation, Postfach 80 17 09, D- 81617 München**

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