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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Film Capacitors

Metallized Polyester Film Capacitors (MKT)

Series/Type: B32560 ... B32564

Date: May 2009

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Typical applications

- SMPS, converter
- Electronic ballasts
- Compact fluorescent lamps (CFL)
- Ignition

Climatic

- Max. operating temperature: 125 °C
- Climatic category (IEC 60068-1): 55/125/56

Features

- Special dimensions available on request
- High pulse strength
- Small dimensions

Construction

- Dielectric: polyethylene terephthalate (polyester, PET)
- Stacked-film technology
- Uncoated

Terminals

- Parallel wire leads, lead-free tinned
- Special lead lengths available on request

Marking

Rated capacitance (coded),
rated DC voltage

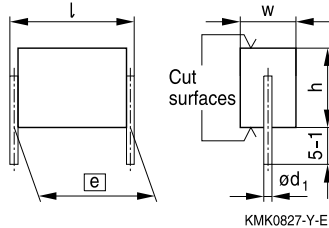
Delivery mode

Bulk (untaped)
Taped (Ammo pack or reel) for lead spacing ≤ 15.0 mm.
For notes on taping, refer to chapter "Taping and packing".

Notes on mounting

When mounting these capacitors, take into account creepage distances and clearances to adjacent live parts. The insulating strength of the cut surfaces to other live parts of the circuit is 1.5 times the capacitors rated DC voltage, but is always at least 300 V DC.

Capacitors with 7.5 mm lead spacing are only suitable for use with single-clad printed circuit boards.

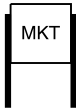
Dimensional drawing


Dimensions in mm

| Lead spacing | Lead diameter | Type |
|--------------|---------------|---------|
| $e \pm 0.4$ | d_1 | |
| 7.5 | 0.5 | B32560 |
| 10.0 | 0.5 | B32561 |
| 15.0 | 0.6 | B32562J |
| | 0.8 | B32562H |
| 22.5 | 0.8 | B32563 |
| 27.5 | 0.8 | B32564 |

Overview of available types

| Lead spacing | 7.5 mm | | | | | | 10.0 mm | | | | | 15.0 mm | | | |
|------------------|--------|-----|-----|-----|-----|------|---------|-----|-----|-----|-----|---------|-----|-----|-----|
| Type | B32560 | | | | | | B32561 | | | | | B32562 | | | |
| Page | 5 | | | | | | 7 | | | | | 9 | | | |
| V_R (V DC) | 63 | 100 | 250 | 400 | 630 | 1000 | 63 | 100 | 250 | 400 | 630 | 100 | 250 | 400 | 630 |
| V_{RMS} (V AC) | 40 | 63 | 160 | 200 | 400 | 500 | 40 | 63 | 160 | 200 | 350 | 63 | 160 | 200 | 350 |
| C_R (μF) | | | | | | | | | | | | | | | |
| 0.0010 | | | | | | | | | | | | | | | |
| 0.0015 | | | | | | | | | | | | | | | |
| 0.0022 | | | | | | | | | | | | | | | |
| 0.0033 | | | | | | | | | | | | | | | |
| 0.0047 | | | | | | | | | | | | | | | |
| 0.0068 | | | | | | | | | | | | | | | |
| 0.010 | | | | | | | | | | | | | | | |
| 0.015 | | | | | | | | | | | | | | | |
| 0.022 | | | | | | | | | | | | | | | |
| 0.033 | | | | | | | | | | | | | | | |
| 0.047 | | | | | | | | | | | | | | | |
| 0.068 | | | | | | | | | | | | | | | |
| 0.10 | | | | | | | | | | | | | | | |
| 0.15 | | | | | | | | | | | | | | | |
| 0.22 | | | | | | | | | | | | | | | |
| 0.33 | | | | | | | | | | | | | | | |
| 0.47 | | | | | | | | | | | | | | | |
| 0.68 | | | | | | | | | | | | | | | |
| 1.0 | | | | | | | | | | | | | | | |
| 1.5 | | | | | | | | | | | | | | | |
| 2.2 | | | | | | | | | | | | | | | |
| 3.3 | | | | | | | | | | | | | | | |
| 4.7 | | | | | | | | | | | | | | | |
| 6.8 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |



B32560 ... B32564

General purpose (stacked) SilverCap™

Overview of available types

| Lead spacing | 22.5 mm | | | 27.5 mm | | | |
|------------------|---------|-----|-----|---------|-----|-----|-----|
| Type | B32563 | | | B32564 | | | |
| Page | 10 | | | 11 | | | |
| V_R (V DC) | 100 | 250 | 400 | 100 | 250 | 400 | 420 |
| V_{RMS} (V AC) | 63 | 160 | 200 | 63 | 160 | 200 | 200 |
| C_R (μ F) | | | | | | | |
| 1.0 | | | | | | | |
| 1.5 | | | | | | | |
| 2.2 | | | | | | | |
| 3.3 | | | | | | | |
| 4.7 | | | | | | | |
| 6.8 | | | | | | | |
| 10 | | | | | | | |
| 15 | | | | | | | |
| 22 | | | | | | | |
| 33 | | | | | | | |

Ordering codes and packing units (lead spacing 7.5 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ | Ordering code (composition see below) | Ammo pack | Reel pcs./ MOQ | Untaped pcs./ MOQ |
|-------|-----------------------------|---------|--|---|--------------|----------------------|-------------------------|
| V DC | V AC | μF | mm | | pcs./MOQ | MOQ | MOQ |
| 63 | 40 | 1.0 | 4.0 × 6.8 × 9.0 | B32560J0105+*** | 8800 | 7200 | 4000 |
| | | 1.5 | 5.1 × 7.6 × 9.0 | B32560J0155+*** | 6800 | 5600 | 2000 |
| | | 2.2 | 6.5 × 8.2 × 9.0 | B32560J0225+*** | 6000 | 4800 | 2000 |
| | | 3.3 | 8.5 × 9.1 × 9.0 | B32560J0335+000 | — | — | 1400 |
| | | 4.7 | 9.8 × 11.0 × 9.0 | B32560J0475+000 | — | — | 1000 |
| 100 | 63 | 0.22 | 2.5 × 5.1 × 9.0 | B32560J1224+*** | 12400 | 10000 | 7600 |
| | | 0.33 | 2.7 × 5.7 × 9.0 | B32560J1334+*** | 12000 | 9600 | 6000 |
| | | 0.47 | 3.4 × 6.1 × 9.0 | B32560J1474+*** | 9600 | 8000 | 4800 |
| | | 0.68 | 4.2 × 6.5 × 9.0 | B32560J1684+*** | 8000 | 6400 | 3600 |
| | | 1.0 | 5.5 × 7.0 × 9.0 | B32560J1105+*** | 6000 | 4800 | 2000 |
| | | 1.5 | 6.7 × 8.2 × 9.0 | B32560J1155+*** | 5000 | 4000 | 1600 |
| | | 2.2 | 8.5 × 9.2 × 9.0 | B32560J1225+000 | — | — | 1200 |
| | | 3.3 | 9.5 × 11.0 × 9.0 | B32560J1335+000 | — | — | 800 |
| 250 | 160 | 0.047 | 2.5 × 5.2 × 9.0 | B32560J3473+*** | 13000 | 10400 | 7600 |
| | | 0.068 | 2.6 × 5.7 × 9.0 | B32560J3683+*** | 12400 | 10000 | 6800 |
| | | 0.10 | 3.2 × 6.1 × 9.0 | B32560J3104+*** | 12400 | 8000 | 4800 |
| | | 0.15 | 3.9 × 7.0 × 9.0 | B32560J3154+*** | 8200 | 6800 | 3600 |
| | | 0.22 | 4.9 × 7.5 × 9.0 | B32560J3224+*** | 6800 | 5200 | 2600 |
| | | 0.33 | 6.4 × 8.2 × 9.0 | B32560J3334+*** | 5200 | 4400 | 1800 |
| | | 0.47 | 7.4 × 9.8 × 9.0 | B32560J3474+000 | — | — | 1200 |
| | | 0.68 | 9.5 × 11.0 × 9.0 | B32560J3684+000 | — | — | 800 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.
Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

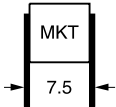
J = ±5%

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 5 – 1 mm)


B32560
General purpose (stacked) SilverCap™
Ordering codes and packing units (lead spacing 7.5 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ mm | Ordering code (composition see below) | Ammo pack pcs./MOQ | Reel pcs./ MOQ | Untaped pcs./ MOQ |
|-------|-----------------------------|---------|--|---|--------------------------|----------------------|-------------------------|
| V DC | V AC | μF | | | | | |
| 400 | 200 | 0.0010 | 2.5 × 5.5 × 9.0 | B32560J6102+*** | 14000 | 11200 | 9200 |
| | | 0.0015 | 2.5 × 5.5 × 9.0 | B32560J6152+*** | 13000 | 10400 | 7200 |
| | | 0.0022 | 2.5 × 5.5 × 9.0 | B32560J6222+*** | 13400 | 10800 | 7200 |
| | | 0.0033 | 2.5 × 5.5 × 9.0 | B32560J6332+*** | 12400 | 10000 | 6800 |
| | | 0.0047 | 2.5 × 5.5 × 9.0 | B32560J6472+*** | 13600 | 10800 | 7600 |
| | | 0.0068 | 2.5 × 5.5 × 9.0 | B32560J6682+*** | 14000 | 11200 | 7600 |
| | | 0.010 | 2.5 × 5.5 × 9.0 | B32560J6103+*** | 12800 | 10400 | 7200 |
| | | 0.015 | 2.5 × 5.5 × 9.0 | B32560J6153+*** | 13000 | 10400 | 7200 |
| | | 0.022 | 2.5 × 5.5 × 9.0 | B32560J6223+*** | 12400 | 10000 | 6800 |
| | | 0.033 | 2.6 × 6.0 × 9.0 | B32560J6333+*** | 12400 | 10000 | 6400 |
| | | 0.047 | 3.2 × 6.5 × 9.0 | B32560J6473+*** | 10400 | 8400 | 4800 |
| | | 0.068 | 3.8 × 7.3 × 9.0 | B32560J6683+*** | 8600 | 7200 | 3600 |
| | | 0.10 | 4.9 × 7.7 × 9.0 | B32560J6104+*** | 6800 | 5600 | 2000 |
| | | 0.15 | 6.5 × 8.2 × 9.0 | B32560J6154+*** | 5400 | 4000 | 1800 |
| | | 0.22 | 7.7 × 9.8 × 9.0 | B32560J6224+000 | — | — | 1200 |
| 630 | 400 | 0.0010 | 2.5 × 5.5 × 9.0 | B32560J8102+*** | 14800 | 12000 | 9200 |
| | | 0.0015 | 2.5 × 5.5 × 9.0 | B32560J8152+*** | 13000 | 2600 | 7200 |
| | | 0.0022 | 2.5 × 5.5 × 9.0 | B32560J8222+*** | 13400 | 10800 | 7200 |
| | | 0.0033 | 2.5 × 5.5 × 9.0 | B32560J8332+*** | 14000 | 11200 | 7600 |
| | | 0.0047 | 2.5 × 5.5 × 9.0 | B32560J8472+*** | 13600 | 10800 | 7200 |
| | | 0.0068 | 3.2 × 6.5 × 9.0 | B32560J8682+*** | 15000 | 9200 | 5200 |
| | | 0.010 | 3.8 × 7.5 × 9.0 | B32560J8103+*** | 9000 | 9200 | 4000 |
| | | 0.015 | 4.6 × 8.3 × 9.0 | B32560J8153+000 | — | — | 2400 |
| | | 0.022 | 5.7 × 8.6 × 9.0 | B32560J8223+000 | — | — | 1600 |
| 1000 | 500 | 0.0022 | 2.5 × 6.0 × 9.0 | B32560J9222+*** | 13000 | 10400 | 6800 |
| | | 0.0033 | 3.3 × 6.5 × 9.0 | B32560J9332+*** | 10000 | 8000 | 4800 |
| | | 0.0047 | 3.6 × 7.4 × 9.0 | B32560J9472+*** | 9000 | 7600 | 3600 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.
Further E series and intermediate capacitance values on request.

Special dimensions available on request.
For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

J = ±5%

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 5 – 1 mm)

Ordering codes and packing units (lead spacing 10 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ | Ordering code (composition see below) | Ammo pack | Reel pcs./ MOQ | Untaped pcs./ MOQ |
|-------|-----------------------------|---------|--|---|--------------|----------------------|-------------------------|
| V DC | V AC | μF | mm | | pcs./MOQ | MOQ | MOQ |
| 63 | 40 | 1.0 | $3.5 \times 6.2 \times 11.0$ | B32561J0105+*** | 4960 | 7600 | 4000 |
| | | 1.5 | $4.3 \times 6.9 \times 11.0$ | B32561J0155+*** | 4200 | 6000 | 2800 |
| | | 2.2 | $5.1 \times 7.9 \times 11.0$ | B32561J0225+*** | 3400 | 5000 | 2000 |
| | | 3.3 | $6.4 \times 9.1 \times 11.0$ | B32561J0335+000 | — | — | 1200 |
| | | 4.7 | $7.3 \times 11.0 \times 11.0$ | B32561J0475+000 | — | — | 800 |
| | | 6.8 | $8.8 \times 12.7 \times 11.0$ | B32561J0685+000 | — | — | 600 |
| 100 | 63 | 0.68 | $3.6 \times 6.3 \times 11.5$ | B32561J1684+*** | 5040 | 8000 | 4000 |
| | | 1.0 | $4.5 \times 6.9 \times 11.5$ | B32561J1105+*** | 4200 | 6000 | 2000 |
| | | 1.5 | $5.6 \times 7.8 \times 11.5$ | B32561J1155+*** | 3240 | 4800 | 2000 |
| | | 2.2 | $6.9 \times 9.0 \times 11.5$ | B32561J1225+000 | — | — | 1400 |
| | | 3.3 | $7.8 \times 10.5 \times 11.5$ | B32561J1335+000 | — | — | 800 |
| 250 | 160 | 0.10 | $2.8 \times 5.3 \times 11.5$ | B32561J3104+*** | 6160 | 9200 | 5200 |
| | | 0.15 | $3.3 \times 6.0 \times 11.5$ | B32561J3154+*** | 5040 | 8000 | 4000 |
| | | 0.22 | $4.2 \times 6.6 \times 11.5$ | B32561J3224+*** | 4160 | 6000 | 2800 |
| | | 0.33 | $5.2 \times 7.5 \times 11.5$ | B32561J3334+*** | 3360 | 5200 | 2000 |
| | | 0.47 | $6.3 \times 8.5 \times 11.5$ | B32561J3474+*** | 2720 | 4400 | 1400 |
| | | 0.68 | $7.5 \times 9.7 \times 11.5$ | B32561J3684+000 | — | — | 800 |
| | | 1.0 | $9.5 \times 11.0 \times 11.5$ | B32561J3105+000 | — | — | 600 |
| 400 | 200 | 0.033 | $2.5 \times 5.1 \times 11.5$ | B32561J6333+*** | 6480 | 9200 | 6000 |
| | | 0.047 | $2.6 \times 6.0 \times 11.5$ | B32561J6473+*** | 6240 | 9200 | 5200 |
| | | 0.068 | $3.2 \times 6.6 \times 11.5$ | B32561J6683+*** | 5560 | 8400 | 4000 |
| | | 0.10 | $4.0 \times 6.9 \times 11.5$ | B32561J6104+*** | 4360 | 6800 | 2800 |
| | | 0.15 | $5.2 \times 7.7 \times 11.5$ | B32561J6154+*** | 3400 | 5200 | 2000 |
| | | 0.22 | $6.6 \times 8.5 \times 11.5$ | B32561J6224+*** | 2720 | 4000 | 1400 |
| | | 0.33 | $8.0 \times 9.5 \times 11.5$ | B32561J6334+000 | — | — | 800 |
| | | 0.47 | $9.8 \times 11.0 \times 11.5$ | B32561J6474+000 | — | — | 600 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.
Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

M = $\pm 20\%$

K = $\pm 10\%$

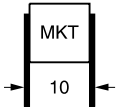
J = $\pm 5\%$

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 5 – 1 mm)


B32561
General purpose (stacked) SilverCap™
Ordering codes and packing units (lead spacing 10 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ mm | Ordering code (composition see below) | Ammo pack pcs./MOQ | Reel pcs./ MOQ | Untaped pcs./ MOQ |
|-------|-----------------------------|---------|--|---|--------------------------|----------------------|-------------------------|
| V DC | V AC | μF | | | | | |
| 630 | 350 | 0.015 | $2.8 \times 6.3 \times 11.0$ | B32561J8153+*** | 6320 | 9200 | 4800 |
| | | 0.022 | $3.4 \times 6.9 \times 11.0$ | B32561J8223+*** | 5200 | 8000 | 3600 |
| | | 0.033 | $4.2 \times 7.6 \times 11.0$ | B32561J8333+*** | 4080 | 6400 | 2400 |
| | | 0.047 | $5.3 \times 8.0 \times 11.0$ | B32561J8473+*** | 3360 | 5000 | 1800 |
| | | 0.068 | $6.3 \times 9.0 \times 11.0$ | B32561J8683+000 | – | – | 1400 |
| | | 0.10 | $7.3 \times 11.4 \times 11.0$ | B32561J8104+000 | – | – | 800 |
| | | 0.15 | $8.8 \times 13.3 \times 11.0$ | B32561J8154+000 | – | – | 600 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.

Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

 M = $\pm 20\%$

 K = $\pm 10\%$

 J = $\pm 5\%$

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 5 –1 mm)

Ordering codes and packing units (lead spacing 15 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ mm | Ordering code (composition see below) | Ammo pack pcs./MOQ | Reel pcs./ MOQ | Untaped pcs./ MOQ |
|-------|-----------------------------|---------|--|---|--------------------------|----------------------|-------------------------|
| V DC | V AC | μF | | | | | |
| 100 | 63 | 2.2 | 4.9 × 8.0 × 16.5 | B32562J1225+*** | 4760 | 5200 | 3200 |
| | | 3.3 | 6.0 × 9.3 × 16.5 | B32562J1335+*** | 3840 | 4000 | 2000 |
| | | 4.7 | 7.3 × 10.6 × 16.5 | B32562H1475+*** | 3160 | 3600 | 1600 |
| | | 6.8 | 9.0 × 11.8 × 16.5 | B32562H1685+*** | 2560 | 2800 | 1160 |
| | | 10 | 11.8 × 13.0 × 16.5 | B32562H1106+000 | – | – | 800 |
| 250 | 160 | 0.47 | 5.0 × 6.7 × 16.5 | B32562J3474+*** | 4760 | 5200 | 3800 |
| | | 0.68 | 6.0 × 7.8 × 16.5 | B32562J3684+*** | 3840 | 4000 | 2000 |
| | | 1.0 | 7.0 × 9.3 × 16.5 | B32562J3105+*** | 3320 | 3600 | 2000 |
| | | 1.5 | 8.7 × 11.0 × 16.5 | B32562H3155+*** | 2640 | 2800 | 1200 |
| | | 2.2 | 10.7 × 12.8 × 16.5 | B32562H3225+000 | – | – | 800 |
| | | 3.3 | 13.9 × 14.5 × 16.5 | B32562H3335+000 | – | – | 600 |
| 400 | 200 | 0.22 | 4.7 × 7.5 × 16.5 | B32562J6224+*** | 4960 | 5200 | 3400 |
| | | 0.33 | 6.0 × 8.3 × 16.5 | B32562J6334+*** | 3840 | 4000 | 2000 |
| | | 0.47 | 7.3 × 9.3 × 16.5 | B32562J6474+*** | 3160 | 3600 | 1800 |
| | | 0.68 | 8.9 × 10.8 × 16.5 | B32562H6684+*** | 2560 | 2800 | 1200 |
| | | 1.0 | 10.9 × 12.5 × 16.5 | B32562H6105+000 | – | – | 800 |
| | | 1.5 | 13.7 × 15.2 × 16.5 | B32562H6155+000 | – | – | 400 |
| 630 | 350 | 0.22 | 9.2 × 12.2 × 16.5 | B32562H8224+000 | – | – | 1400 |
| | | 0.33 | 11.2 × 14.2 × 16.5 | B32562H8334+000 | – | – | 1000 |
| | | 0.47 | 13.5 × 16.3 × 16.5 | B32562H8474+000 | – | – | 720 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.
Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

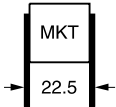
J = ±5%

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 5 –1 mm)


B32563
General purpose (stacked) SilverCap™
Ordering codes and packing units (lead spacing 22.5 mm)

| V_R | V_{RMS} f ≤ 60 Hz | C_R | Max. dimensions w × h × l mm | Ordering code (composition see below) | Untaped pcs./MOQ |
|-------|------------------------|-------|------------------------------------|---|---------------------|
| V DC | V AC | μF | | | |
| 100 | 63 | 6.8 | 7.0 × 10.5 × 24.0 | B32563J1685+000 | 3680 |
| | | 10 | 8.6 × 12.2 × 24.0 | B32563J1106+000 | 3840 |
| | | 15 | 10.9 × 14.0 × 24.0 | B32563J1156+000 | 2480 |
| | | 22 | 12.8 × 17.2 × 24.0 | B32563J1226+000 | 1440 |
| 250 | 160 | 2.2 | 8.3 × 11.2 × 24.0 | B32563J3225+000 | 2960 |
| | | 3.3 | 10.1 × 13.5 × 24.0 | B32563J3335+000 | 2800 |
| | | 4.7 | 12.2 × 15.5 × 24.0 | B32563J3475+000 | 1560 |
| 400 | 200 | 1.0 | 8.3 × 11.2 × 24.0 | B32563J6105+000 | 3400 |
| | | 1.5 | 10.3 × 13.2 × 24.0 | B32563J6155+000 | 2640 |
| | | 2.2 | 12.6 × 15.5 × 24.0 | B32563J6225+000 | 1440 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.

Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

Composition of ordering code

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

J = ±5%

Packaging code:

000 = Untaped (lead length 5 – 1 mm)

Ordering codes and packing units (lead spacing 27.5 mm)

| V_R | V_{RMS} $f \leq 60$ Hz | C_R | Max. dimensions $w \times h \times l$ mm | Ordering code (composition see below) | Untaped pcs./MOQ |
|-------|-----------------------------|---------|--|---|---------------------|
| V DC | V AC | μF | | | |
| 100 | 63 | 10 | 7.6 × 11.0 × 29.0 | B32564J1106+000 | 2720 |
| | | 15 | 9.1 × 13.5 × 29.0 | B32564J1156+000 | 1720 |
| | | 22 | 11.0 × 16.0 × 29.0 | B32564J1226+000 | 1280 |
| | | 33 | 13.0 × 19.8 × 29.0 | B32564J1336+000 | 1440 |
| 250 | 160 | 3.3 | 7.9 × 14.0 × 29.0 | B32564J3335+000 | 3000 |
| | | 4.7 | 9.6 × 15.8 × 29.0 | B32564J3475+000 | 1600 |
| | | 6.8 | 11.9 × 18.0 × 29.0 | B32564J3685+000 | 1200 |
| | | 10 | 13.8 × 22.5 × 29.0 | B32564J3106+000 | 1120 |
| 400 | 200 | 1.5 | 7.8 × 14.2 × 29.0 | B32564J6155+000 | 3000 |
| | | 2.2 | 9.6 × 16.4 × 29.0 | B32564J6225+000 | 1600 |
| | | 3.3 | 12.2 × 18.8 × 29.0 | B32564J6335+000 | 1320 |
| | | 4.7 | 14.2 × 22.8 × 29.0 | B32564J6475+000 | 1040 |
| 420 | 200 | 4.7 | 16.0 × 20.0 × 29.0 | B32564T6475K000 | 1160 |
| | | 6.8 | 16.0 × 20.0 × 29.0 | B32564T6685K000 | 1160 |

MOQ = Minimum Order Quantity, consisting of 4 packing units.

Further E series and intermediate capacitance values on request.

Special dimensions available on request.

For corresponding design rules, refer to chapter "General technical information", page .

The technical data given on the next pages do not apply to 420 V series. Please contact your nearest EPCOS representative if you need further information.

Composition of ordering code

+ = Capacitance tolerance code:

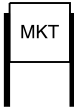
M = ±20%

K = ±10%

J = ±5%

Packaging code:

000 = Untaped (lead length 5 – 1 mm)


B32560 ... B32564
General purpose (stacked) SilverCap™
Technical data

| | | | | |
|--|---|--|---|--|
| Operating temperature range | Max. operating temperature $T_{op,max}$ | | 125 °C | |
| | Upper category temperature T_{max} | | +125 °C | |
| | Lower category temperature T_{min} | | -55 °C | |
| | Rated temperature T_R | | +85 °C | |
| Dissipation factor $\tan \delta$ (in 10^{-3}) at 20 °C (upper limit values) | at | $C_R \leq 0.1 \mu F$ | $0.1 \mu F < C_R \leq 1 \mu F$ | $C_R > 1 \mu F$ |
| | 1 kHz | 8 | 8 | 10 |
| | 10 kHz | 15 | 15 | — |
| | 100 kHz | 30 | — | — |
| Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values) | V_R | $C_R \leq 0.33 \mu F$ | | $C_R > 0.33 \mu F$ |
| | ≤ 100 V DC | 3750 M Ω | | 1250 s |
| | ≥ 250 V DC | 7500 M Ω | | 2500 s |
| DC test voltage | 1.4 · V_R , 2 s | | | |
| Category voltage V_C (continuous operation with V_{DC} or V_{AC} at $f \leq 60$ Hz) | T_A (°C) | DC voltage derating | | AC voltage derating |
| | $T_A \leq 85$ $85 < T_A \leq 125$ | $V_C = V_R$ $V_C = V_R \cdot (165 - T_A)/80$ | | $V_{C,RMS} = V_{RMS}$ $V_{C,RMS} = V_{RMS} \cdot (165 - T_A)/80$ |
| Operating voltage V_{op} for short operating periods (V_{DC} or V_{AC} at $f \leq 60$ Hz) | T_A (°C) | DC voltage (max. hours) | | AC voltage (max. hours) |
| | $T_A \leq 100$ $100 < T_A \leq 125$ | $V_{op} = 1.25 \cdot V_C$ (2000 h) $V_{op} = 1.25 \cdot V_C$ (1000 h) | | $V_{op} = 1.0 \cdot V_{C,RMS}$ (2000 h) $V_{op} = 1.0 \cdot V_{C,RMS}$ (1000 h) |
| Damp heat test Limit values after damp heat test | 56 days ¹⁾ /40 °C/93% relative humidity | | | |
| | Capacitance change $ \Delta C/C $ | | $\leq 5\%$ | |
| | Dissipation factor change $\Delta \tan \delta$ | | $\leq 3 \cdot 10^{-3}$ (at 1 kHz) $\leq 5 \cdot 10^{-3}$ (at 10 kHz) | |
| | Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ | | $\geq 50\%$ of minimum as-delivered values | |
| Reliability: Failure rate λ Service life t_{SL} | 1 fit ($\leq 1 \cdot 10^{-9}$ /h) at 0.5 · V_R , 40 °C 200 000 h at 1.0 · V_R , 85 °C For conversion to other operating conditions and temperatures, refer to chapter "Quality, 2 Reliability". | | | |
| Failure criteria: Total failure Failure due to variation of parameters | Short circuit or open circuit | | | |
| | Capacitance change $ \Delta C/C $ | | $> 10\%$ | |
| | Dissipation factor $\tan \delta$ | | $> 2 \cdot$ upper limit value | |
| | Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ | | < 150 M Ω ($C_R \leq 0.33 \mu F$) < 50 s ($C_R > 0.33 \mu F$) | |

1) Test criteria must be met after exposure to damp heat for 21 days

Pulse handling capability

"dV/dt" represents the maximum permissible voltage change per unit of time for non-sinusoidal voltages, expressed in V/ μ s.

"k₀" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V²/ μ s.

Note:

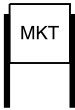
The values of dV/dt and k₀ provided below must not be exceeded in order to avoid damaging the capacitor.

dV/dt values

| Lead spacing | | 7.5 mm | 10 mm | 15 mm | 22.5 mm | 27.5 mm |
|------------------------|--------------------------|---------------------|-------|-------|---------|---------|
| V _R V DC | V _{RMS} V AC | dV/dt in V/ μ s | | | | |
| 63 | 40 | 120 | 60 | – | – | – |
| 100 | 63 | 150 | 75 | 50 | 50 | 25 |
| 250 | 160 | 200 | 150 | 100 | 100 | 50 |
| 400 | 200 | 275 | 175 | 125 | 125 | 60 |
| 420 | 200 | – | – | – | – | 60 |
| 630 | 350 | – | 320 | 150 | – | – |
| 630 | 400 | 320 | – | – | – | – |
| 1000 | 500 | 360 | – | – | – | – |

k₀ values

| Lead spacing | | 7.5 mm | 10 mm | 15 mm | 22.5 mm | 27.5 mm |
|------------------------|--------------------------|--|---------|---------|---------|---------|
| V _R V DC | V _{RMS} V AC | k ₀ in V ² / μ s | | | | |
| 63 | 40 | 15 000 | 7500 | – | – | – |
| 100 | 63 | 30 000 | 15 000 | 10 000 | 10 000 | 5 000 |
| 250 | 160 | 100 000 | 75 000 | 50 000 | 50 000 | 25 000 |
| 400 | 200 | 220 000 | 140 000 | 100 000 | 100 000 | 50 000 |
| 420 | 200 | – | – | – | – | 50 000 |
| 630 | 350 | – | 400 000 | 190 000 | – | – |
| 630 | 400 | 400 000 | – | – | – | – |
| 1000 | 500 | 720 000 | – | – | – | – |

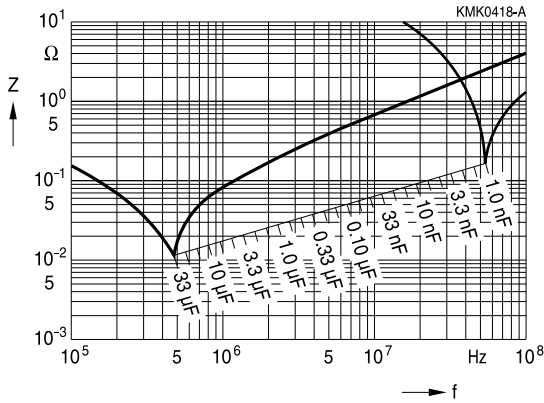


B32560 ... B32564

General purpose (stacked) SilverCap™

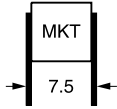
Impedance Z versus frequency f

(typical values)



B32560

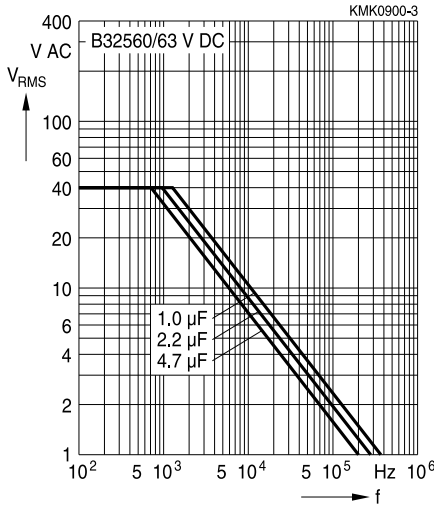
General purpose (stacked) SilverCap™



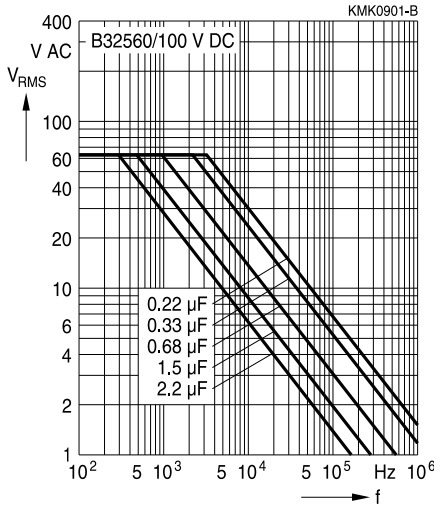
Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ C$)
 For $T_A > 55^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 7.5 mm

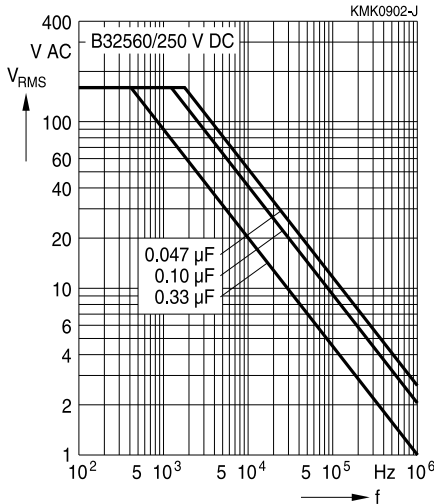
63 V DC/40 V AC



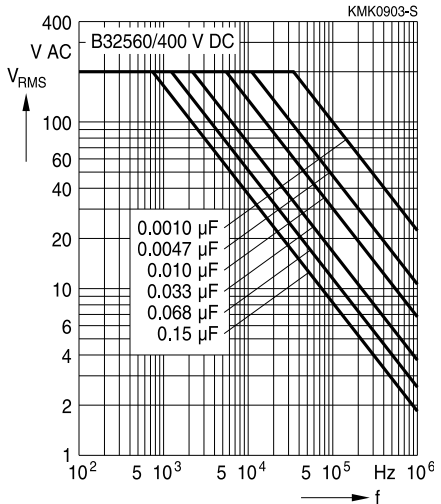
100 V DC/63 V AC

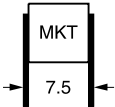


250 V DC/160 V AC



400 V DC/200 V AC





B32560

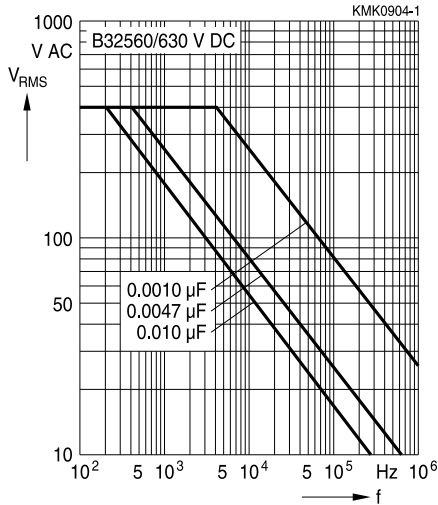
General purpose (stacked) SilverCap™

Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ C$)

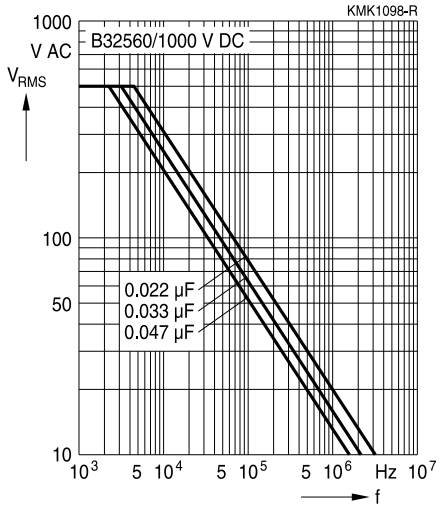
For $T_A > 55^\circ C$, please refer to "General technical information", section 3.2.3.

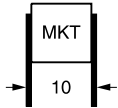
Lead spacing 7.5 mm

630 V DC/400 V AC



1000 V DC/500 V AC

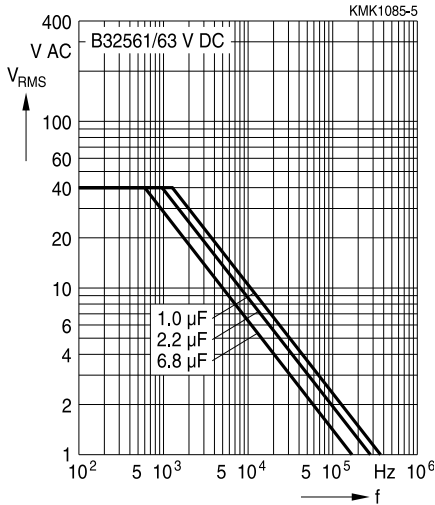




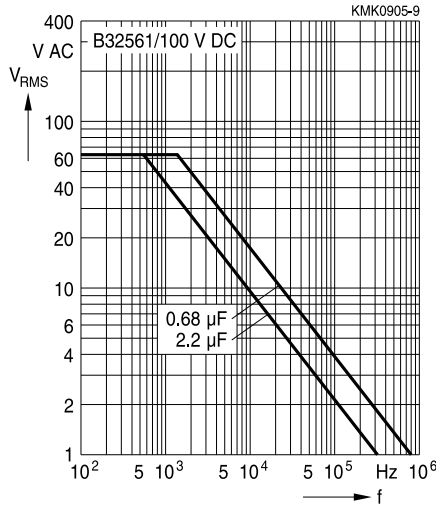
Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ\text{C}$)
 For $T_A > 55^\circ\text{C}$, please refer to "General technical information", section 3.2.3.

Lead spacing 10 mm

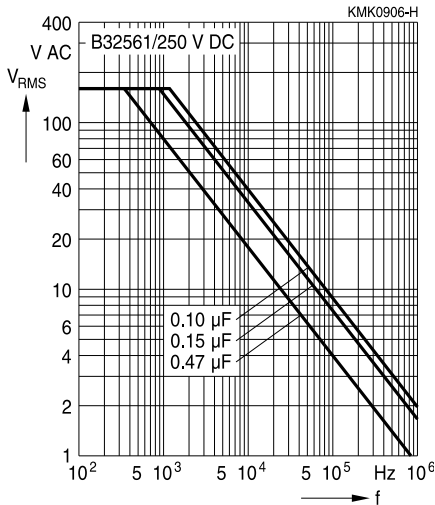
63 V DC/40 V AC



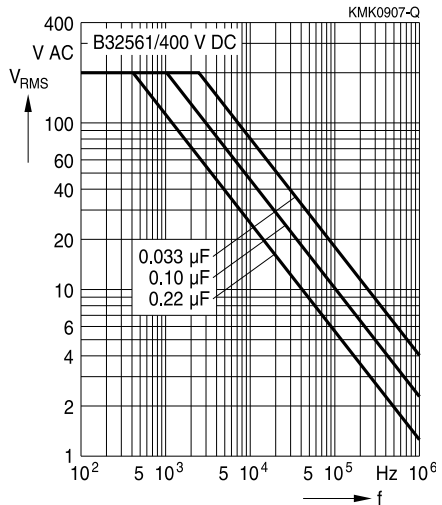
100 V DC/63 V AC

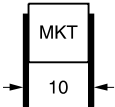


250 V DC/160 V AC



400 V DC/200 V AC





B32561

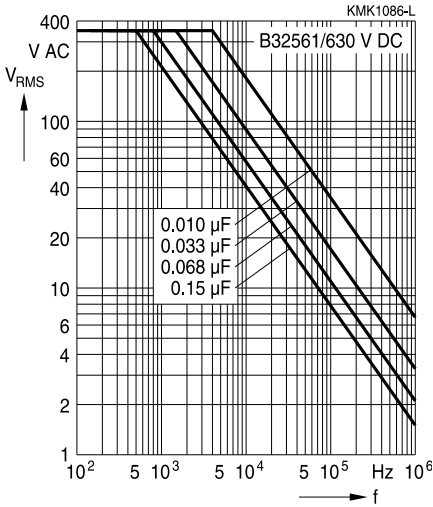
General purpose (stacked) SilverCap™

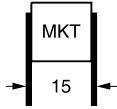
Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55\text{ °C}$)

For $T_A > 55\text{ °C}$, please refer to "General technical information", section 3.2.3.

Lead spacing 10 mm

630 V DC/350 V AC

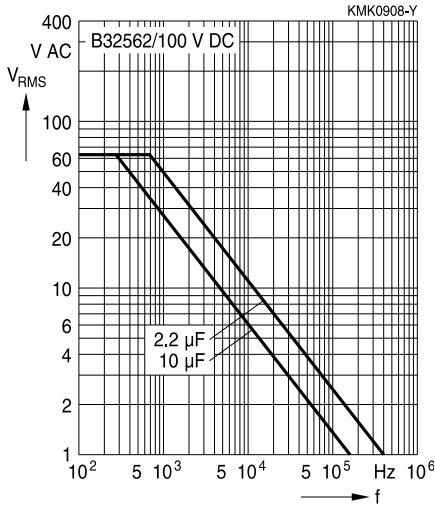




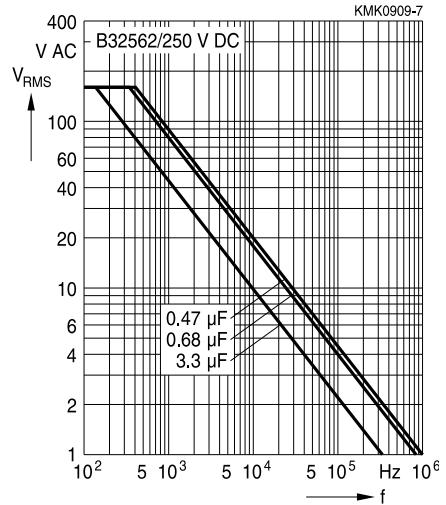
Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ C$)
 For $T_A > 55^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 15 mm

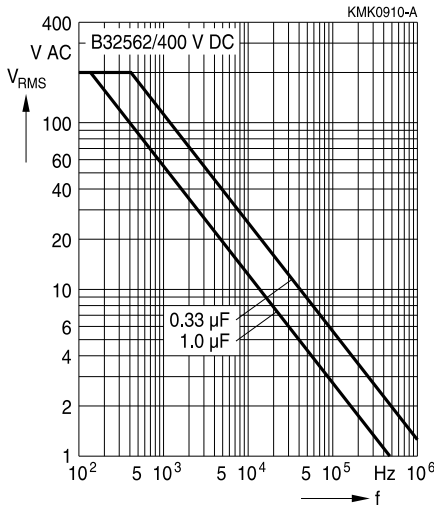
100 V DC/63 V AC



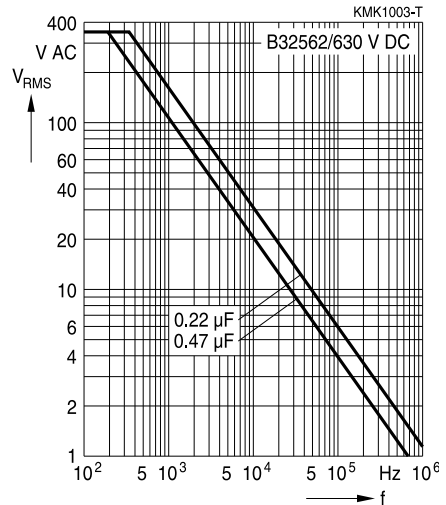
250 V DC/160 V AC

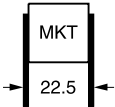


400 V DC/200 V AC



630 V DC/350 V AC





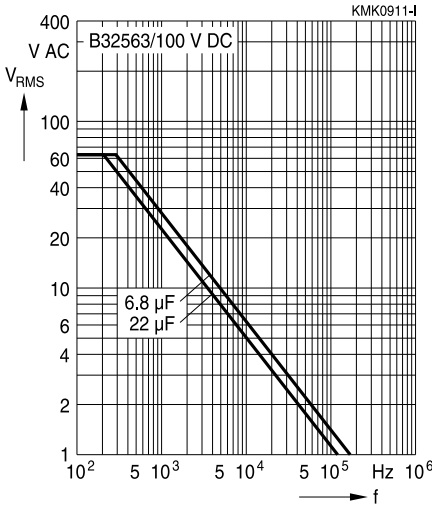
B32563

General purpose (stacked) SilverCap™

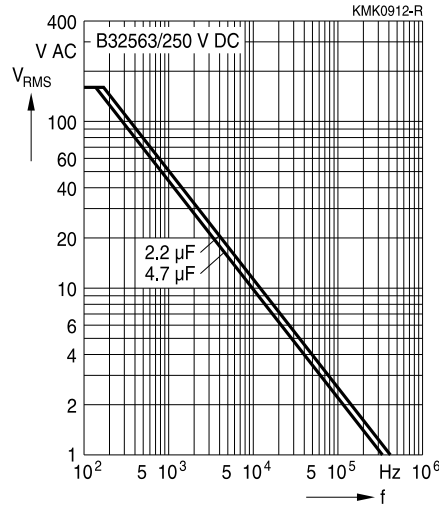
Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ C$)
 For $T_A > 55^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 22.5 mm

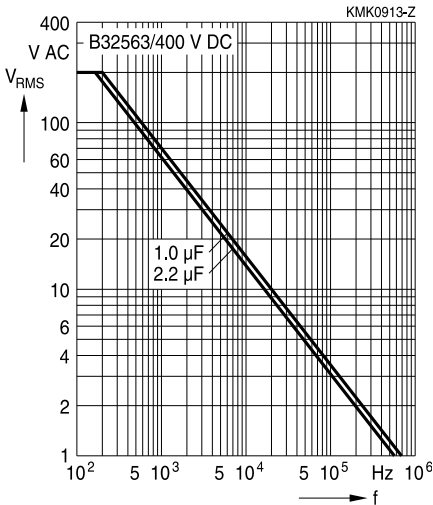
100 V DC/63 V AC



250 V DC/160 V AC



400 V DC/200 V AC

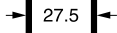


B32564

General purpose (stacked) SilverCap™

MKT

27.5

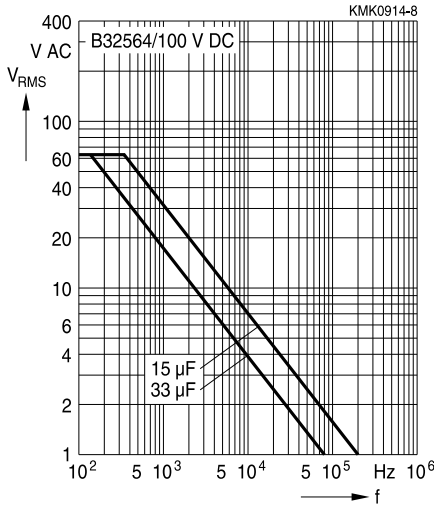


Permissible AC voltage V_{RMS} versus frequency f (for sinusoidal waveforms, $T_A \leq 55^\circ C$)

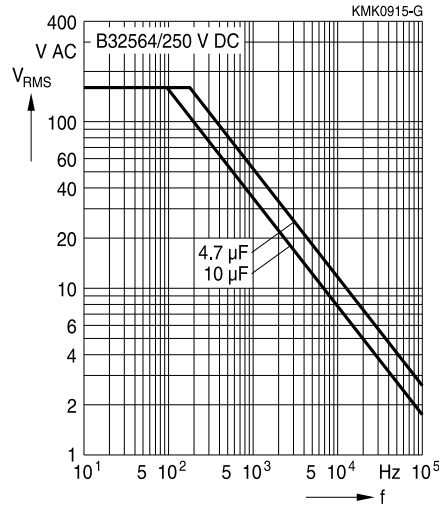
For $T_A > 55^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 27.5 mm

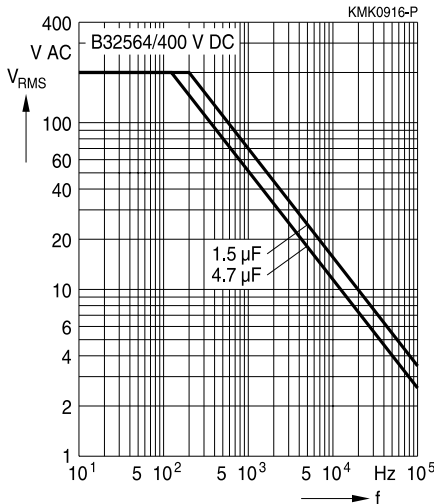
100 V DC/63 V AC



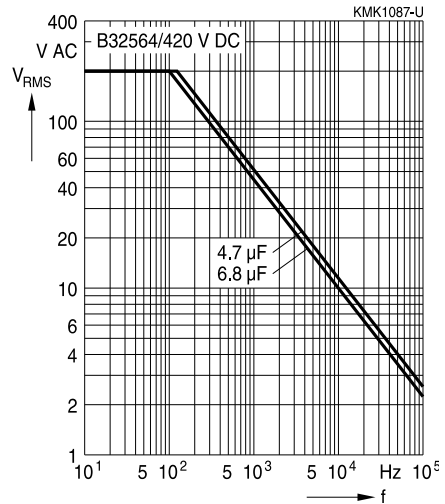
250 V DC/160 V AC

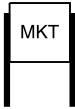


400 V DC/200 V AC



420 V DC/200 V AC





B32560 ... B32564

General purpose (stacked) SilverCap™

Mounting guidelines

1 Soldering

1.1 Solderability of leads

The solderability of terminal leads is tested to IEC 60068-2-20, test Ta, method 1.

Before a solderability test is carried out, terminals are subjected to accelerated ageing (to IEC 60068-2-2, test Ba: 4 h exposure to dry heat at 155 °C). Since the ageing temperature is far higher than the upper category temperature of the capacitors, the terminal wires should be cut off from the capacitor before the ageing procedure to prevent the solderability being impaired by the products of any capacitor decomposition that might occur.

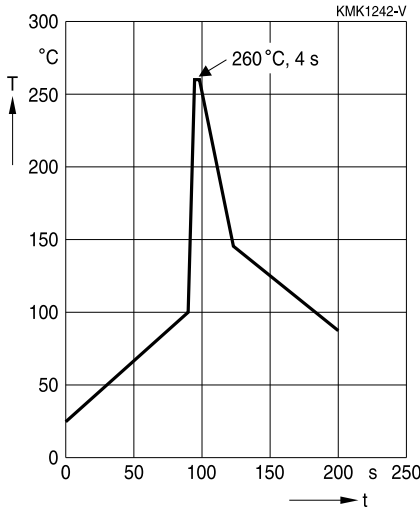
| | |
|-------------------------|---|
| Solder bath temperature | 235 ±5 °C |
| Soldering time | 2.0 ±0.5 s |
| Immersion depth | 2.0 +0/-0.5 mm from capacitor body or seating plane |
| Evaluation criteria: | |
| Visual inspection | Wetting of wire surface by new solder ≥90%, free-flowing solder |

1.2 Resistance to soldering heat

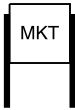
Resistance to soldering heat is tested to IEC 60068-2-20, test Tb, method 1A.

Conditions:

| Series | Solder bath temperature | Soldering time |
|--|-------------------------|--|
| MKT boxed (except 2.5 × 6.5 × 7.2 mm) coated uncoated (lead spacing > 10 mm) | 260 ±5 °C | 10 ±1 s |
| MFP MKP (lead spacing > 7.5 mm) | | |
| MKT boxed (case 2.5 × 6.5 × 7.2 mm) | | 5 ±1 s |
| MKP (lead spacing ≤ 7.5 mm) | | < 4 s |
| MKT uncoated (lead spacing ≤ 10 mm) insulated (B32559) | | recommended soldering profile for MKT uncoated (lead spacing ≤ 10 mm) and insulated (B32559) |



| | |
|----------------------|---|
| Immersion depth | 2.0 +0/−0.5 mm from capacitor body or seating plane |
| Shield | Heat-absorbing board, (1.5 ±0.5) mm thick, between capacitor body and liquid solder |
| Evaluation criteria: | |
| Visual inspection | No visible damage |
| $\Delta C/C_0$ | 2% for MKT/MKP/MFP 5% for EMI suppression capacitors |
| tan δ | As specified in sectional specification |



B32560 ... B32564

General purpose (stacked) SilverCap™

1.3 General notes on soldering

Permissible heat exposure loads on film capacitors are primarily characterized by the upper category temperature T_{max} . Long exposure to temperatures above this type-related temperature limit can lead to changes in the plastic dielectric and thus change irreversibly a capacitor's electrical characteristics. For short exposures (as in practical soldering processes) the heat load (and thus the possible effects on a capacitor) will also depend on other factors like:

- Pre-heating temperature and time
- Forced cooling immediately after soldering
- Terminal characteristics:
 - diameter, length, thermal resistance, special configurations (e.g. crimping)
- Height of capacitor above solder bath
- Shadowing by neighboring components
- Additional heating due to heat dissipation by neighboring components
- Use of solder-resist coatings

The overheating associated with some of these factors can usually be reduced by suitable countermeasures. For example, if a pre-heating step cannot be avoided, an additional or reinforced cooling process may possibly have to be included.

EPCOS recommends the following conditions:

- Pre-heating with a maximum temperature of 110 °C
- Temperature inside the capacitor should not exceed the following limits:
 - MKP/MFP 110 °C
 - MKT 160 °C
- When SMD components are used together with leaded ones, the leaded film capacitors should not pass into the SMD adhesive curing oven. The leaded components should be assembled after the SMD curing step.
- Leaded film capacitors are not suitable for reflow soldering.

Uncoated capacitors

For uncoated MKT capacitors with lead spacings ≤ 10 mm (B32560/B32561) the following measures are recommended:

- pre-heating to not more than 110 °C in the preheater phase
- rapid cooling after soldering

2 Cleaning

To determine whether the following solvents, often used to remove flux residues and other substances, are suitable for the capacitors described, refer to the table below:

| Type | Ethanol, isopropanol, n-propanol | n-propanol-water mixtures, water with surface tension-reducing tensides (neutral) | Solvent from table A (see next page) | Solvent from table B (see next page) |
|------------------------------|----------------------------------|---|--------------------------------------|--------------------------------------|
| MKT (uncoated) | Suitable | Unsuitable | In part suitable | Unsuitable |
| MKT, MKP, MFP (coated/boxed) | | Suitable | Suitable | |

Even when suitable solvents are used, a reversible change of the electrical characteristics may occur in uncoated capacitors immediately after they are washed. Thus it is always recommended to dry the components (e.g. 4 h at 70 °C) before they are subjected to subsequent electrical testing.

Table A

Manufacturers' designations for trifluoro-trichloro-ethane-based cleaning solvents (selection)

| Trifluoro-trichloro-ethane | Mixtures of trifluoro-trichloro-ethane with ethanol and isopropanol | Manufacturer |
|----------------------------|---|--------------|
| Freon TF | Freon TE 35; Freon TP 35; Freon TES | Du Pont |
| Frigen 113 TR | Frigen 113 TR-E; Frigen 113 TR-P; Frigen TR-E 35 | Hoechst |
| Arklone P | Arklone A; Arklone L; Arklone K | ICI |
| Kaltron 113 MDR | Kaltron 113 MDA; Kaltron 113 MDI; Kaltron 113 MDI 35 | Kali-Chemie |
| Flugene 113 | Flugene 113 E; Flugene 113 IPA | Rhone-Progil |

Table B (worldwide banned substances)

Manufacturers' designations for unsuitable cleaning solvents (selection)

| Mixtures of chlorinated hydrocarbons and ketones with fluorated hydrocarbons | Manufacturer |
|--|--------------|
| Freon TMC; Freon TA; Freon TC | Du Pont |
| Arklone E | ICI |
| Kaltron 113 MDD; Kaltron 113 MDK | Kali-Chemie |
| Flugene 113 CM | Rhone-Progil |