



EMI Suppression Capacitors (MKP)

B3202* Series

Series/Type: B32021, B32022, B32023, B32024, B32026

Date: March 2007
Version: 4

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Typical applications

Y2 class for interference suppression
"Line to ground" applications.

Climatic

Maximum operating temperature of 110°C
Climatic category (IEC 60068-1): 40/110/56

Construction

Dielectric: Polypropylene (MKP)
Plastic case (UL 94 V-0)
Epoxy resin sealing (UL 94 V-0)

Features

Very small dimensions
Good self-healing properties
High voltage capability

Terminals

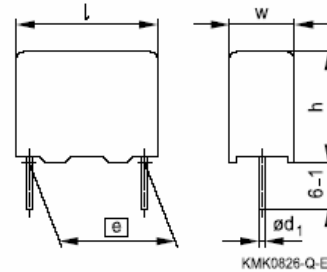
Parallel wire leads, lead-free tinned.
Standard lead lengths: 6-1mm.
Special lead lengths are available on request.

Marking

Manufacturer's logo and lot number,
date code, rated capacitance (coded),
capacitance tolerance (code letter) and
rated ac voltage (IEC)
Series number, sub-class (Y2),
dielectric code (MKP), climatic category,
passive flammability category, approvals.

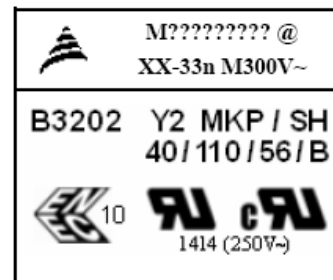
Delivery mode

Bulk (untaped)
Taped (Ammo pack or Reel)

Dimensional drawing


Dimensions in mm

| Lead spacing e ±0.4 (mm) | Lead diameter d_1 (mm) | Type |
|-------------------------------|-----------------------------|---------------|
| 10 | 0.6 | B32021 |
| 15 ... 27.5 | 0.8 | B32022 ... 24 |
| 37.5 | 1.0 | B32026 |

Marking example:

Technical data

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------|
| Rated AC voltage (IEC 60384-14) | 300 V (50/60 Hz) | |
| Maximum continuous DC voltage (V DC) | 1500 V | |
| Maximum continuous AC voltage (V AC) | 480 V (50/60 Hz) | |
| Maximum operating temperature $T_{Op,max}$ | +110 °C | |
| DC test voltage | 4000 V ($C \leq 0.33 \mu F$), 3700 V ($C > 0.33 \mu F$), 2 s | |
| Dissipation factor $\tan \delta$ (in 10^{-3}) at 20 °C, (upper limit values) | At 1 kHz | $C \leq 0.33 \mu F$ 1 |
| | | $C > 0.33 \mu F$ 1 |
| Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 100 V DC, 20 °C, rel. humidity $\leq 65\%$ and for 60 s (minimum "as delivered" values) | $C_R \leq 0.33 \mu F$ | $C_R > 0.33 \mu F$ |
| | 100 000 M Ω | 30 000 s |
| Passive flammability category In accordance with IEC 40 (CO) 752 | B | |
| Capacitance Tolerances (measured at 1 kHz) | $\pm 10\%$ (K), $\pm 20\%$ (M) | |



EMI suppression capacitors (MKP)

B3202* Series
Y2 / 300 V AC

Ordering codes and packing units

| ± 0.4 (mm) | C_R | Max. dimensions w × h × l mm | Ordering code | Ammo pack pcs./unit | Reel pcs./unit | Untaped pcs./unit |
|----------------|----------|------------------------------------|-----------------|---------------------------|-------------------|----------------------|
| 10 | 1.0 nF | 4.0 × 9.0 × 13.0 | B32021A3102+*** | 1000 | 1700 | 1000 |
| | 1.5 nF | 4.0 × 9.0 × 13.0 | B32021A3152+*** | 1000 | 1700 | 1000 |
| | 2.2 nF | 4.0 × 9.0 × 13.0 | B32021A3222+*** | 1000 | 1700 | 1000 |
| | 3.3 nF | 4.0 × 9.0 × 13.0 | B32021A3332+*** | 1000 | 1700 | 1000 |
| | 4.7 nF | 5.0 × 11.0 × 13.0 | B32021A3472+*** | 830 | 1300 | 1000 |
| | 5.6 nF | 5.0 × 11.0 × 13.0 | B32021A3562+*** | 830 | 1300 | 1000 |
| | 6.8 nF | 5.0 × 11.0 × 13.0 | B32021A3682+*** | 830 | 1300 | 1000 |
| | 8.2 nF | 6.0 × 12.0 × 13.0 | B32021A3822+*** | 680 | 1100 | 1000 |
| 15 | 10 nF | 6.0 × 12.0 × 13.0 | B32021A3103M*** | 680 | 1100 | 1000 |
| | 10 nF | 5.0 × 10.5 × 18.0 | B32022A3103+*** | 1170 | 1300 | 1000 |
| | 15 nF | 6.0 × 11.0 × 18.0 | B32022A3153+*** | 960 | 1100 | 1000 |
| | 22 nF | 6.0 × 12.0 × 18.0 | B32022A3223M*** | 960 | 1100 | 1000 |
| | 22 nF | 7.0 × 12.5 × 18.0 | B32022B3223+*** | 830 | 900 | 1000 |
| | 33 nF | 8.0 × 14.0 × 18.0 | B32022A3333+*** | 730 | 750 | 500 |
| | 47 nF | 8.5 × 14.5 × 18.0 | B32022A3473M*** | 680 | 700 | 500 |
| | 47 nF | 13.0 × 14.0 × 18.0 | B32022T3473+*** | - | 500 | 300 |
| | 47 nF | 9.0 × 17.5 × 18.0 | B32022B3473+*** | 640 | 700 | 500 |
| | 56 nF | 9.0 × 17.5 × 18.0 | B32022A3563+*** | 640 | 700 | 500 |
| 22.5 | 68 nF | 9.0 × 17.5 × 18.0 | B32022A3683M*** | 640 | 700 | 500 |
| | 82 nF | 11.0 × 18.5 × 18.0 | B32022A3823M*** | - | 550 | 300 |
| | 0.047 μF | 6.0 × 15.0 × 26.5 | B32023A3473+*** | 680 | 700 | 720 |
| | 0.056 μF | 6.0 × 15.0 × 26.5 | B32023A3563M*** | 680 | 700 | 720 |
| | 0.068 μF | 7.0 × 16.0 × 26.5 | B32023A3683+*** | 580 | 600 | 630 |
| | 0.068 μF | 7.5 × 14.5 × 26.5 | B32023B3683M*** | 550 | 500 | 570 |
| | 0.082 μF | 8.5 × 16.5 × 26.5 | B32023A3823+*** | 480 | 500 | 510 |
| | 0.1 μF | 8.5 × 16.5 × 26.5 | B32023A3104M*** | 480 | 500 | 510 |
| | 0.1 μF | 10.5 × 16.5 × 26.5 | B32023B3104+*** | 390 | 400 | 540 |
| | 0.15 μF | 10.5 × 18.5 × 26.5 | B32023A3154M*** | 390 | 400 | 540 |
| | 0.15 μF | 10.5 × 20.5 × 26.5 | B32023B3154+*** | - | - | 540 |
| | 0.22 μF | 12.0 × 22.0 × 26.5 | B32023A3224M*** | - | - | 450 |
| 27.5 | 0.22 μF | 14.5 × 29.5 × 26.5 | B32023B3224+*** | - | - | 540 |
| | 0.33 μF | 14.5 × 29.5 × 26.5 | B32023A3334+*** | - | - | 540 |
| | 0.39 μF | 14.5 × 29.5 × 26.5 | B32023A3394M*** | - | - | 540 |
| | 0.15 μF | 11.0 × 19.0 × 31.5 | B32024A3154+*** | - | 350 | 320 |
| | 0.22 μF | 11.0 × 19.0 × 31.5 | B32024A3224M*** | - | 350 | 320 |
| | 0.22 μF | 11.0 × 21.0 × 31.5 | B32024B3224+*** | - | 350 | 320 |
| | 0.33 μF | 13.5 × 23.0 × 31.5 | B32024A3334M*** | - | 250 | 260 |
| | 0.33 μF | 14.0 × 24.5 × 31.5 | B32024B3334+*** | - | - | 260 |
| | 0.47 μF | 15.0 × 24.5 × 31.5 | B32024A3474M*** | - | - | 240 |
| | 0.47 μF | 18.0 × 27.5 × 31.5 | B32024B3474+*** | - | - | 200 |
| 27.5 | 0.47 μF | 16.0 × 32.0 × 31.5 | B32024C3474+*** | - | - | 220 |
| | 0.56 μF | 16.0 × 32.0 × 31.5 | B32024A3564+*** | - | - | 220 |
| | 0.68 μF | 19.0 × 30.0 × 31.5 | B32024A3684M*** | - | - | 180 |
| | 0.68 μF | 18.0 × 33.0 × 31.5 | B32024B3684+*** | - | - | 200 |
| | 0.68 μF | 21.0 × 31.0 × 31.5 | B32024C3684+*** | - | - | 180 |
| | 0.82 μF | 22.0 × 36.5 × 31.5 | B32024A3824+*** | - | - | 160 |
| | 1.0 μF | 22.0 × 36.5 × 31.5 | B32024A3105M*** | - | - | 160 |

Further E series and intermediate capacitance values are available on request.

Composition of ordering code

+ = Capacitance tolerance code

M = ±20%

K = ±10%


*** = Packing code

289 = Ammo pack

189 = Reel pack

000 = Untaped (lead length 6-1mm)

Ordering codes and packing units

|  ±0.4 (mm) | C _R | Max. dimensions w × h × l mm | Ordering code | Ammo pack pcs./unit | Reel pcs./unit | Untaped pcs./unit |
|---------------------------------------------------------------------------------------------|----------------|------------------------------------|-----------------|---------------------------|-------------------|----------------------|
| 37.5 | 0.33 μF | 12.0 × 22.0 × 41.5 | B32026A3334+*** | - | - | 135 |
| | 0.47 μF | 14.0 × 25.0 × 41.5 | B32026A3474+*** | - | - | 115 |
| | 0.56 μF | 14.0 × 25.0 × 41.5 | B32026A3564M*** | - | - | 115 |
| | 0.56 μF | 16.0 × 28.5 × 41.5 | B32026B3564+*** | - | - | 100 |
| | 0.68 μF | 16.0 × 28.5 × 41.5 | B32026A3684+*** | - | - | 100 |
| | 0.82 μF | 16.0 × 28.5 × 41.5 | B32026A3824M*** | - | - | 100 |
| | 0.82 μF | 18.0 × 32.5 × 41.5 | B32026B3824+*** | - | - | 90 |
| | 1.0 μF | 18.0 × 32.5 × 41.5 | B32026A3105M*** | - | - | 90 |
| | 1.0 μF | 20.0 × 39.5 × 41.5 | B32026B3105+*** | - | - | 75 |

Further E series and intermediate capacitance values are available on request.

Composition of ordering code

+ = Capacitance tolerance code

M = ±20%

K = ±10%




*** = Packing code

289 = Ammo pack

189 = Reel pack


000 = Untaped (lead length 6-1mm)

Approvals

| Standards | Certificate | Marks of Conformity |
|--------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|
| EN 132400 / IEC 60384-14 (300 V AC) | 40018909 |  |
| UL1414 (250 V AC) UL1283 (400 V AC) | E97863 E301966 |  |
| CSA C22.2 No.1 (250 V AC) CSA C22.2 No.8 (400 V AC) | E97863 E301966 |  |

(1) approved by UL

dV/dt and K₀ values

|  ±0.4 (mm) | 10 | 15 | 22.5 | 27.5 | 37.5 |
|-----------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|
| dV/dt (V/μs) | 800 | 600 | 500 | 400 | 300 |
| K ₀ (V ² /μs) | 677000 | 508000 | 423000 | 338000 | 254000 |

Note: The maximum values of dV/dt and K₀ must not be exceeded in order to avoid overheating of the capacitor.

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