

**MKP stacked-film capacitors
Smallest possible dimensions**
Construction

- Dielectric: polypropylene
- Stacked-film technology
- Plastic case (UL 94 V-0)
- Epoxy resin sealing

Features

- Very high pulse strength
- Very good self-healing properties
- Smallest possible dimensions
- High contact reliability

Typical applications

- Energy-saving lamps
- TV S-correction
- High pulse load applications
- AC applications

Terminals

- Parallel wire leads, tinned
- Also available with $(3,2 \pm 0,3)$ mm lead length

Marking

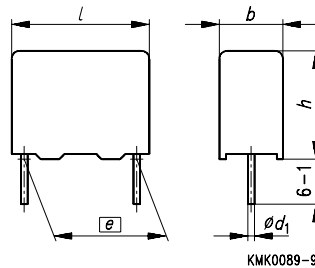
Manufacturer's logo,
lot number, style and type (P621) for lead spacing 10 mm,
style (MKP) for lead spacing 7,5 mm,
rated capacitance (coded),
capacitance tolerance (code letter),
rated dc voltage,
date of manufacture (coded)

Delivery mode

Bulk (untaped)

Taped (Ammo pack or reel)

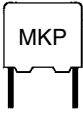
For notes on taping, [refer to chapter "Taping and packing", page 274.](#)



Dimensions in mm

Lead spacing	Diameter d_1	Type
$e \pm 0,4$		
7,5	0,5	B 32 620
10	$0,5^{1)}/0,6$	B 32 621

1) 0,5 mm for capacitor width $b = 4$ mm

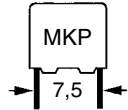


B 32 620

B 32 621

Overview of available types

Lead spacing	7,5 mm					10 mm				
Type	B 32 620					B 32 621				
Page	119					121				
0,47 nF										
0,68 nF										
1,0 nF										
1,5 nF										
2,2 nF										
3,3 nF										
4,7 nF										
6,8 nF										
10 nF										
15 nF										
22 nF										
33 nF										
47 nF										
68 nF										
0,10 µF										
0,15 µF										
0,22 µF										


Ordering codes and packing units, lead spacing 7,5 mm

V_R (V_{rms} $f \leq 1$ kHz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
160 Vdc (90 Vac)	22 nF	3,0 × 8,0 × 10,0	B32620-A5223-+****	2600	2400	2000
	33 nF	4,0 × 8,5 × 10,0	B32620-A5333-+****	2000	1800	1500
	47 nF	4,0 × 8,5 × 10,0	B32620-A5473-+****	2000	1800	1500
	68 nF	5,0 × 10,5 × 10,0	B32620-A5683-+****	1600	1400	1000
	0,10 μF	5,0 × 10,5 × 10,0	B32620-A5104-+****	1600	1400	1000
	0,15 μF	6,0 × 12,0 × 10,3	B32620-A5154-+****	1300	1100	750
250 Vdc (140 Vac)	22 nF	4,0 × 8,5 × 10,0	B32620-A3223-+****	2000	1800	1500
	33 nF	4,0 × 8,5 × 10,0	B32620-A3333-+****	2000	1800	1500
	47 nF	5,0 × 10,5 × 10,0	B32620-A3473-+****	1600	1400	1000
	68 nF	5,0 × 10,5 × 10,0	B32620-A3683-+****	1600	1400	1000
	0,10 μF	6,0 × 12,0 × 10,3	B32620-A3104-+****	1300	1100	750
	400 Vdc (200 Vac)	6,8 nF	4,0 × 8,5 × 10,0	B32620-A4682-+****	2000	1800
10 nF		4,0 × 8,5 × 10,0	B32620-A4103-+****	2000	1800	1500
15 nF		5,0 × 10,5 × 10,0	B32620-A4153-+****	1600	1400	1000
22 nF		5,0 × 10,5 × 10,0	B32620-A4223-+****	1600	1400	1000
33 nF		6,0 × 12,0 × 10,3	B32620-A4333-+****	1300	1100	750
630 Vdc (400 Vac)		1,5 nF	4,0 × 8,5 × 10,0	B32620-A6152-+****	2000	1800
	2,2 nF	4,0 × 8,5 × 10,0	B32620-A6222-+****	2000	1800	1500
	3,3 nF	4,0 × 8,5 × 10,0	B32620-A6332-+****	2000	1800	1500
	4,7 nF	4,0 × 8,5 × 10,0	B32620-A6472-+****	2000	1800	1500
	6,8 nF	5,0 × 10,5 × 10,0	B32620-A6682-+****	1600	1400	1000
	10 nF	5,0 × 10,5 × 10,0	B32620-A6103-+****	1600	1400	1000
	15 nF	6,0 × 12,0 × 10,3	B32620-A6153-+****	1300	1100	750

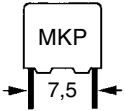
Capacitance tolerance: ±20 % ≙ M, ±10 % ≙ K, ±5 % ≙ J

1) + Code letter for capacitance tolerance

*** Code number for packing: Ammo pack = 289, reel = 189

The ordering code for untaped components ends after the tolerance code letter.

For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32620-A5104-K3


B 32 620
Ordering codes and packing units, lead spacing 7,5 mm

V_R (V_{rms} $f \leq 1$ kHz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
1000 Vdc (500 Vac)	1,5 nF	4,0 × 8,5 × 10,0	B32620-A152-+***	2000	1800	1500
	2,2 nF	4,0 × 8,5 × 10,0	B32620-A222-+***	2000	1800	1500
	3,3 nF	5,0 × 10,5 × 10,0	B32620-A332-+***	1600	1400	1000
	4,7 nF	5,0 × 10,5 × 10,0	B32620-A472-+***	1600	1400	1000
	6,8 nF	6,0 × 12,0 × 10,3	B32620-A682-+***	1300	1100	750
1000 Vdc (600 Vac)	470 pF	4,0 × 8,5 × 10,0	B32620-J471-+***	2000	1800	1500
	680 pF	5,0 × 10,5 × 10,0	B32620-J681-+***	1600	1400	1000
	1,0 nF	5,0 × 10,5 × 10,0	B32620-J102-+***	1600	1400	1000
	1,5 nF	5,0 × 10,5 × 10,0	B32620-J152-+***	1600	1400	1000
	2,2 nF	5,0 × 10,5 × 10,0	B32620-J222-+***	1600	1400	1000
	3,3 nF	5,0 × 10,5 × 10,0	B32620-J332-+***	1600	1400	1000
	4,7 nF	6,0 × 12,0 × 10,3	B32620-J472-+***	1300	1100	750

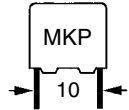
 Capacitance tolerance: $\pm 20\% \hat{=} M, \pm 10\% \hat{=} K, \pm 5\% \hat{=} J$

1) + Code letter for capacitance tolerance

*** Code number for packing: Ammo pack = 289, reel = 189

The ordering code for untaped components ends after the tolerance code letter.

For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32620-A152-K3


Ordering codes and packing units, lead spacing 10 mm

V_R (V_{rms} $f \leq 1$ kHz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
160 Vdc (90 Vac)	47 nF	4,0 × 7,0 × 13,0	B32621-A5473-+***	1000	1700	1000
	68 nF	4,0 × 9,0 × 13,0	B32621-A5683-+***	1000	1700	1000
	0,10 μF	5,0 × 11,0 × 13,0	B32621-A5104-+***	830	1300	1000
	0,15 μF	5,0 × 11,0 × 13,0	B32621-A5154-+***	830	1300	1000
	0,22 μF	6,0 × 12,0 × 13,0	B32621-A5224-+***	680	1100	1000
250 Vdc (140 Vac)	2,2 nF	4,0 × 7,0 × 13,0	B32621-A3222-+***	1000	1700	1000
	3,3 nF	4,0 × 9,0 × 13,0	B32621-A3332-+***	1000	1700	1000
	4,7 nF	4,0 × 9,0 × 13,0	B32621-A3472-+***	1000	1700	1000
	6,8 nF	4,0 × 9,0 × 13,0	B32621-A3682-+***	1000	1700	1000
	10 nF	4,0 × 9,0 × 13,0	B32621-A3103-+***	1000	1700	1000
	15 nF	4,0 × 9,0 × 13,0	B32621-A3153-+***	1000	1700	1000
	22 nF	4,0 × 9,0 × 13,0	B32621-A3223-+***	1000	1700	1000
	33 nF	4,0 × 9,0 × 13,0	B32621-A3333-+***	1000	1700	1000
	47 nF	4,0 × 9,0 × 13,0	B32621-A3473-+***	1000	1700	1000
	68 nF	5,0 × 11,0 × 13,0	B32621-A3683-+***	830	1300	1000
	0,10 μF	6,0 × 12,0 × 13,0	B32621-A3104-+***	680	1100	1000
400 Vdc (200 Vac)	10 nF	4,0 × 9,0 × 13,0	B32621-A4103-+***	1000	1700	1000
	15 nF	4,0 × 9,0 × 13,0	B32621-A4153-+***	1000	1700	1000
	22 nF	5,0 × 11,0 × 13,0	B32621-A4223-+***	830	1300	1000
	33 nF	5,0 × 11,0 × 13,0	B32621-A4333-+***	830	1300	1000
	47 nF	6,0 × 12,0 × 13,0	B32621-A4473-+***	680	1100	1000
630 Vdc (400 Vac)	2,2 nF	4,0 × 7,0 × 13,0	B32621-A6222-+***	1000	1700	1000
	3,3 nF	4,0 × 9,0 × 13,0	B32621-A6332-+***	1000	1700	1000
	4,7 nF	4,0 × 9,0 × 13,0	B32621-A6472-+***	1000	1700	1000
	6,8 nF	4,0 × 9,0 × 13,0	B32621-A6682-+***	1000	1700	1000
	10 nF	4,0 × 9,0 × 13,0	B32621-A6103-+***	1000	1700	1000
	15 nF	5,0 × 11,0 × 13,0	B32621-A6153-+***	830	1300	1000
	22 nF	6,0 × 12,0 × 13,0	B32621-A6223-+***	680	1100	1000
	33 nF	6,0 × 12,0 × 13,0	B32621-A6333-+***	680	1100	1000
1000 Vdc (500 Vac)	2,2 nF	4,0 × 7,0 × 13,0	B32621-A222-+***	1000	1700	1000
	3,3 nF	4,0 × 9,0 × 13,0	B32621-A332-+***	1000	1700	1000
	4,7 nF	4,0 × 9,0 × 13,0	B32621-A472-+***	1000	1700	1000
	6,8 nF	5,0 × 11,0 × 13,0	B32621-A682-+***	830	1300	1000
	10 nF	6,0 × 12,0 × 13,0	B32621-A103-+***	680	1100	1000

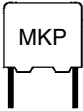
 Capacitance tolerance: $\pm 20\% \hat{= M}, \pm 10\% \hat{= K}, \pm 5\% \hat{= J}$

1) + Code letter for capacitance tolerance

*** Code number for packing: Ammo pack = 289, reel = 189

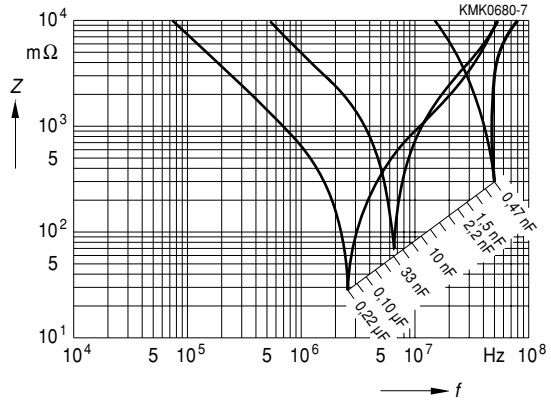
The ordering code for untaped components ends after the tolerance code letter.

For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32621-A5473-K3


B 32 620
B 32 621
Technical data

Climatic category in accordance with IEC 60068-1	55/100/56		
Lower category temperature T_{\min}	– 55 °C		
Upper category temperature T_{\max}	+ 100 °C		
Damp heat test	56 days/40 °C/93 % relative humidity		
Limit values after damp heat test	Capacitance change $ \Delta C/C $	≤ 3 %	
	Dissipation factor change $\Delta \tan \delta$	≤ 0,5 · 10 ⁻³ (at 1 kHz) ≤ 1,0 · 10 ⁻³ (at 10 kHz)	
	Insulation resistance R_{is}	≥ 50 % of minimum as-delivered values	
Reliability:			
Reference conditions	0,5 · V_R ; 40 °C		
Failure rate	1 · 10 ⁻⁹ /h = 1 fit		
	For a conversion table for other operating conditions and temperatures, refer to chapter “Quality assurance”, page 327.		
Service life	200 000 h		
Failure criteria:			
Total failure	Short circuit or open circuit		
Failure due to variation of parameters	Capacitance change $ \Delta C/C $	> ±10 %	
	Dissipation factor $\tan \delta$	4 · upper limit values	
	Insulation resistance R_{is}	< 1500 MΩ	
DC test voltage	1,6 · V_R , 2 s		
Category voltage V_C	$T \leq 85$ °C: $V_C = 1,0 \cdot V_R$ or $1,0 \cdot V_{rms}$		
Operation with dc voltage or ac voltage V_{rms} up to 1 kHz	$T = 100$ °C: $V_C = 0,7 \cdot V_R$ or $0,7 \cdot V_{rms}$		
Dissipation factor $\tan \delta$ (in 10 ⁻³) at 20 °C (upper limit values)		$C_R \leq 0,1 \mu F$	$0,1 \mu F < C_R \leq 0,22 \mu F$
	at 1 kHz	–	1,0
	10 kHz	–	1,5
	100 kHz	4,0	–
Insulation resistance R_{is} or time constant $\tau = C_R \cdot R_{is}$ at 20 °C, rel. humidity ≤ 65 % (minimum as-delivered values)	100 GΩ		

Impedance Z
versus
frequency f
(typical values)



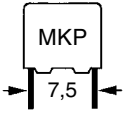
Pulse handling capability

Maximum permissible voltage change per unit of time for non-sinusoidal voltages (pulse, sawtooth)

V_R	Max. rate of voltage rise V_{pp}/τ in $V/\mu s$ (for $V_{pp} = V_R$)	
	Lead spacing	
	7,5 mm	10 mm
160 Vdc	750	600
250 Vdc	1200	900
400 Vdc	1500	1050
630 Vdc	2700	1800
1000 Vdc (500 Vac)	3200	2400
1000 Vdc (600 Vac)	4000	—

For $V_{pp} < V_R$, the permissible voltage rise rate value V_{pp}/τ may be multiplied by the factor V_R/V_{pp} . Also refer to the calculation example in chapter "General technical information", page 302.

V_R	Pulse characteristic k_0 in $V^2/\mu s$ (for $V_{pp} \leq V_R$)	
	Lead spacing	
	7,5 mm	10 mm
160 Vdc	240 000	190 000
250 Vdc	600 000	450 000
400 Vdc	1 200 000	840 000
630 Vdc	3 400 000	2 250 000
1000 Vdc (500 Vac)	6 400 000	4 800 000
1000 Vdc (600 Vac)	8 000 000	—

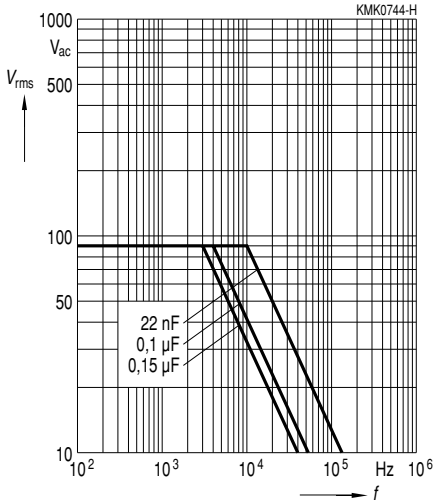


B 32 620

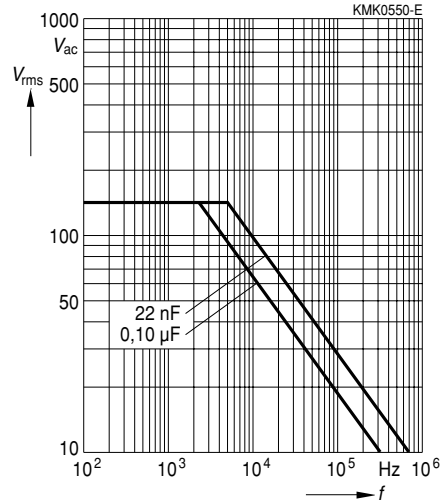
Permissible ac voltage V_{rms} versus frequency f

Lead spacing 7,5 mm

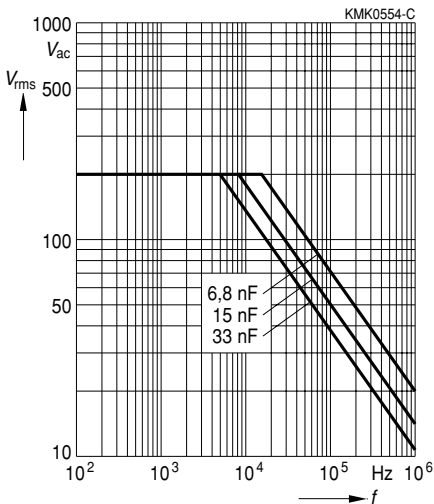
160 Vdc / 90 Vac



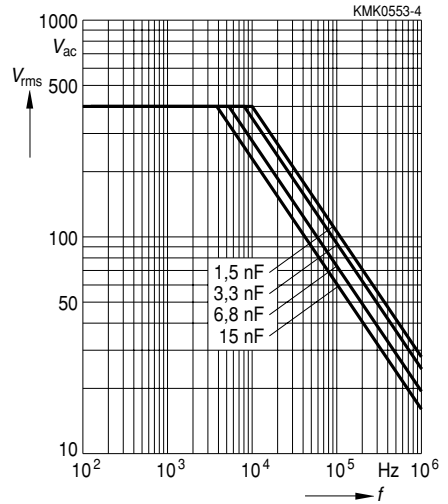
250 Vdc / 140 Vac

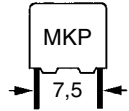


400 Vdc / 200 Vac



630 Vdc / 400 Vac

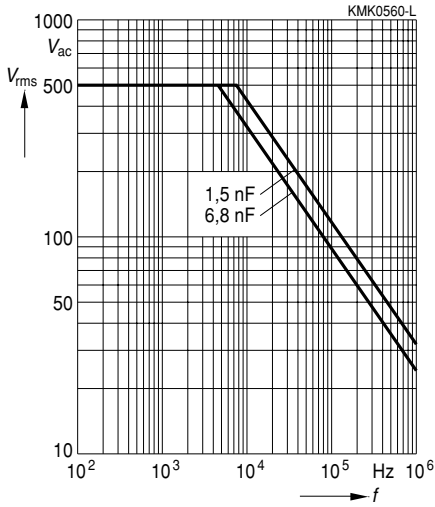




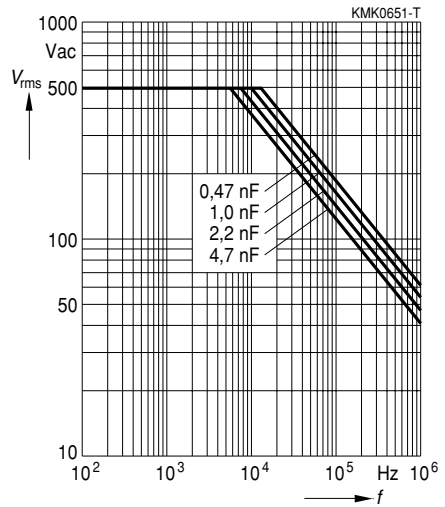
Permissible ac voltage V_{rms} versus frequency f

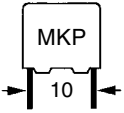
Lead spacing 7,5 mm

1000 Vdc/ 500 Vac



1000 Vdc/ 600 Vac



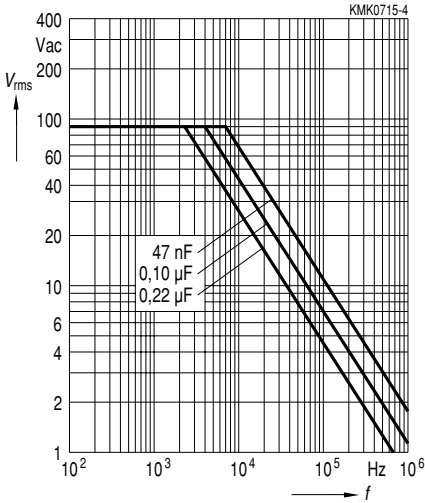


B 32 621

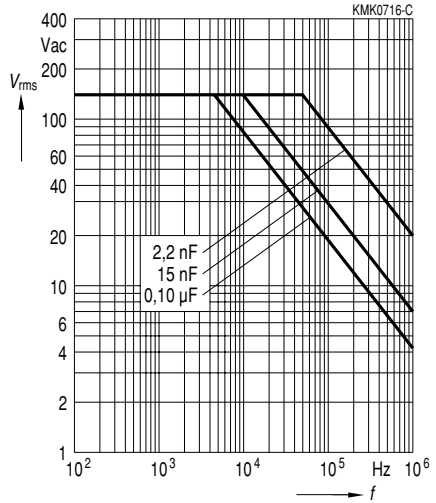
Permissible ac voltage V_{rms} versus frequency f

Lead spacing 10 mm

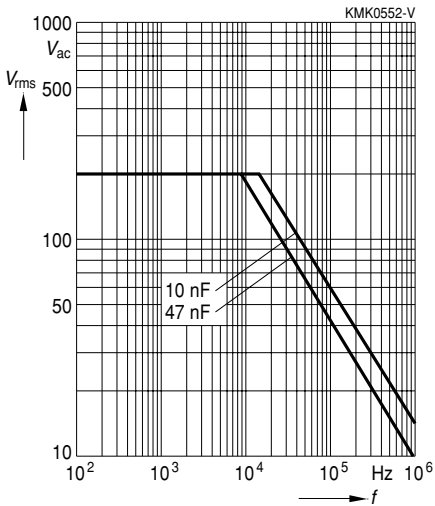
160 Vdc / 90 Vac



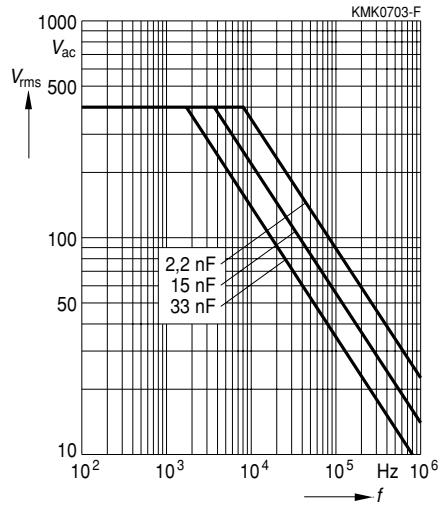
250 Vdc / 140 Vac

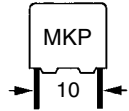


400 Vdc / 200 Vac



630 Vdc / 400 Vac

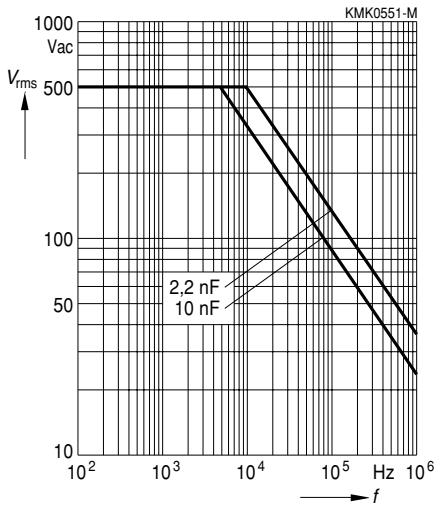


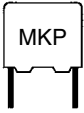


Permissible ac voltage V_{rms} versus frequency f

Lead spacing 10 mm

1000 Vdc / 500 Vac

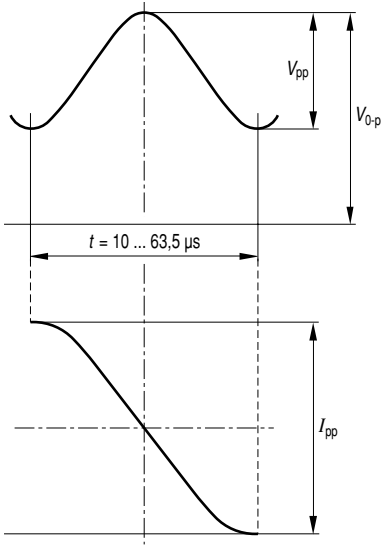




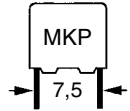
B 32 620

B 32 621

Sinus-wave application, lighting
Permissible voltage and current / waveform



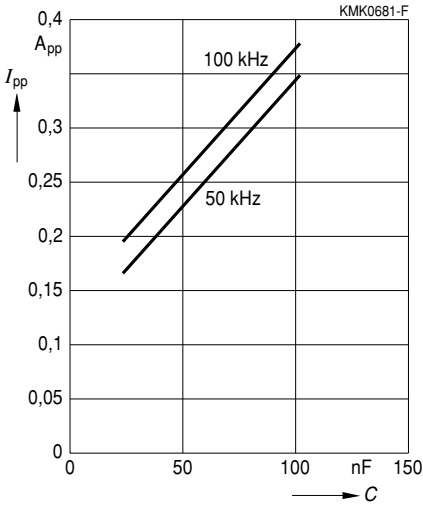
KMK0721-D



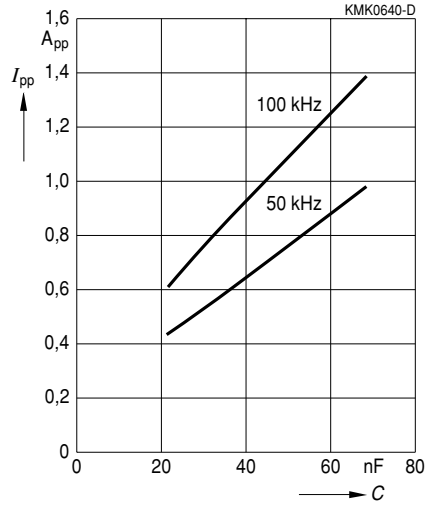
Sinus-wave application, lighting
Permissible current I_{pp} versus rated capacitance C_R

Lead spacing 7,5 mm

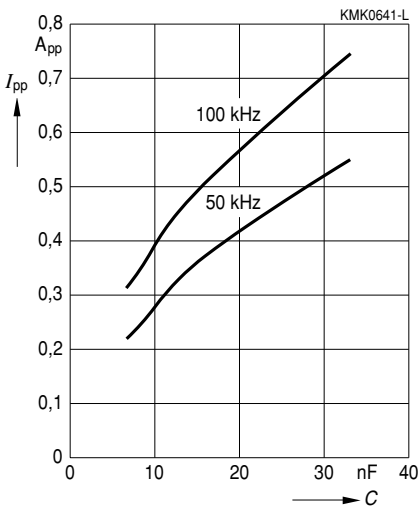
160 Vdc/90 Vac



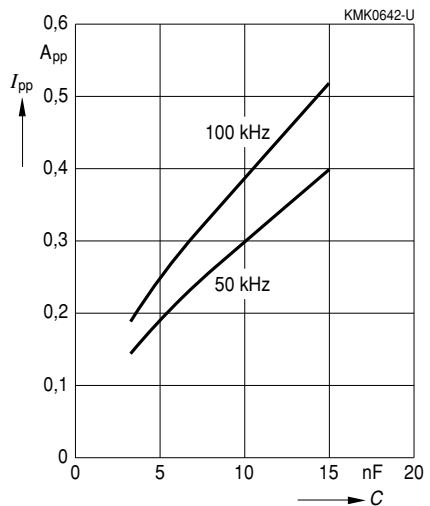
250 Vdc/140 Vac

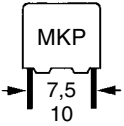


400 Vdc/200 Vac



630 Vdc/400 Vac





B 32 620

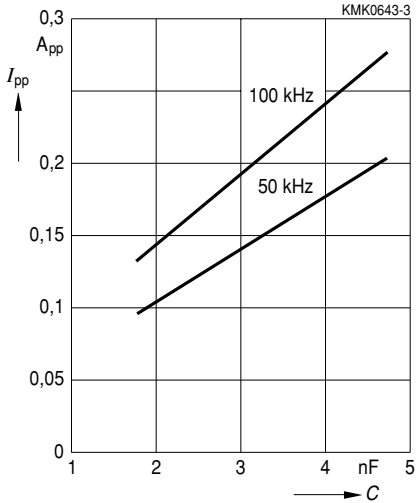
B 32 621

Sinus-wave application, lighting

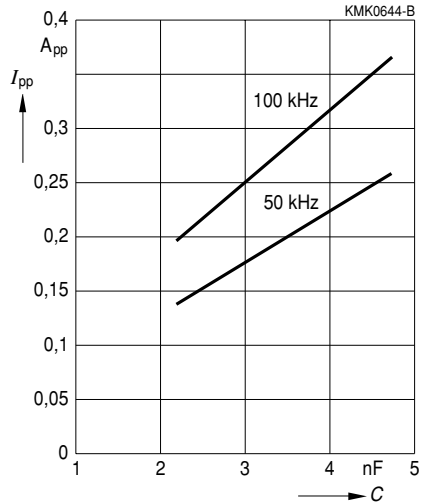
Permissible current I_{pp} versus rated capacitance C_R

Lead spacing 7,5 mm

1000 Vdc/500 Vac

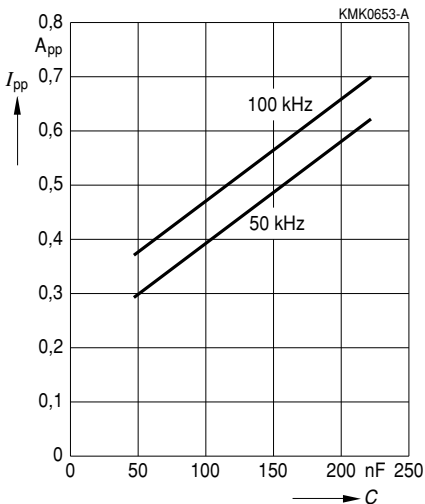


1000 Vdc/600 Vac

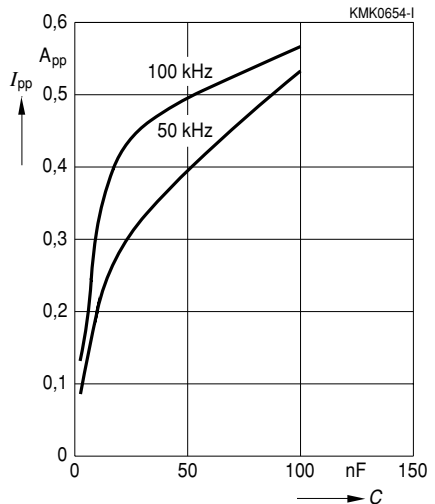


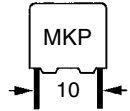
Lead spacing 10 mm

160 Vdc/90 Vac



250 Vdc/140 Vac

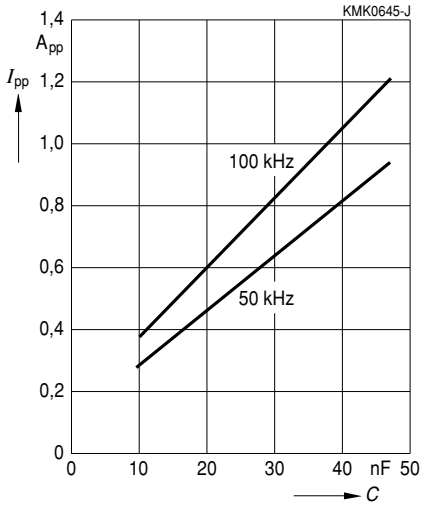




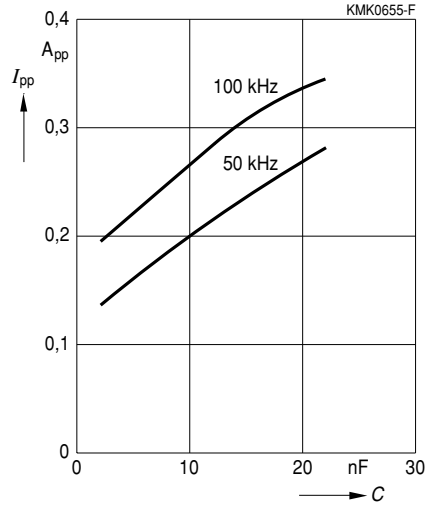
Sinus-wave application, lighting
Permissible current I_{pp} versus rated capacitance C_R

Lead spacing 10 mm

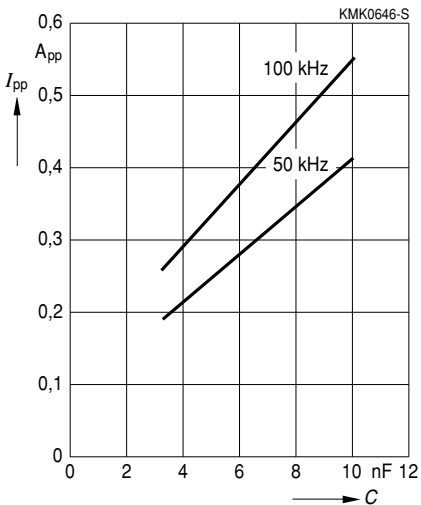
400 Vdc/200 Vac



630 Vdc/400 Vac



1000 Vdc/500 Vac



Herausgegeben von EPCOS AG

Marketing Kommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND

© EPCOS AG 2000. Alle Rechte vorbehalten. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Mit den Angaben in dieser Broschüre werden die Bauelemente spezifiziert, keine Eigenschaften zugesichert. Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland.

Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

Published by EPCOS AG

Marketing Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY

© EPCOS AG 2000. All Rights Reserved. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

The information contained in this brochure describes the type of component and shall not be considered as guaranteed characteristics. Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.