



Film Capacitors

Metallized Polypropylene Film Capacitors (MKP)

Series/Type: B32651 ... B32656

Date: August 2004

© EPCOS AG 2004. Reproduction, publication and dissemination of this data sheet, enclosures hereto and the information contained therein without EPCOS' prior express consent is prohibited.

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.

Metallized polypropylene film capacitors (MKP)

B32651 ... B32656

High pulse (wound)
Typical applications

- TV (S-correction/flyback)
- Electronic ballasts

Climatic

- Max. operating temperature: 105 °C
- Climatic category (IEC 60068-1): 55/100/56

Construction

- Dielectric: polypropylene (PP)
- Wound capacitor technology with internal series connection for $V_R \geq 1250$ VDC
- Plastic case (UL 94 V-0)
- Epoxy resin sealing

Features

- High pulse strength
- High contact reliability
- Small dimensions

Terminals

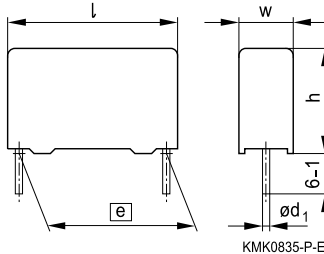
- Parallel wire leads, lead-free tinned
- Special lead lengths available on request

Marking

Manufacturer's logo,
 lot number (\boxed{e} ≤ 27.5 mm), series number
 (e.g. 651),
 rated capacitance (coded), cap. tolerance (code letter),
 rated DC voltage
 (AC voltage for 1600 VDC/700 VAC and
 2000 VDC/1000 VAC),
 date of manufacture (coded)

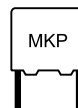
Delivery mode

Bulk (untaped)
 Taped (Ammo pack or reel)
 For notes on taping, refer to chapter "Taping and packing".

Dimensional drawing


Dimensions in mm

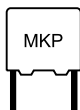
Lead spacing \boxed{e} ± 0.4	Lead diameter d_1	Type
10	0.6	B32651
15	0.8	B32652
22.5	0.8	B32653
27.5	0.8	B32654
37.5	1.0	B32656



B32651 ... B32656
High pulse (wound)

Overview of available types

Lead spacing	10 mm	15 mm							
Type	B32651	B32652							
Page	6	7							
V_R (VDC)	1250	250	400	630	1000	1250	1600	1600	2000
V_{rms} (VAC)	450	160	200	250	250	500	500	700	700
C_R (nF)									
1.0									
1.5									
2.2									
3.3									
4.7									
6.8									
10									
15									
22									
33									
47									
68									
100									
150									
220									
330									
470									
680									



B32651 ... B32656

High pulse (wound)

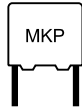
Overview of available types

Lead spacing	22.5 mm								27.5 mm							
Type	B32653								B32654							
Page	9								11							
V_R (VDC)	250	400	630	1000	1250	1600	2000	2000	250	400	630	1000	1250	1600	2000	
V_{rms} (VAC)	160	200	250	250	500	500	700	1000	160	200	250	250	500	500	700	
C_R (nF)																
2.2																
3.3																
4.7																
6.8																
10																
15																
22																
33																
47																
68																
100																
150																
220																
330																
470																
680																
1000																
1500																
2200																
3300																
4700																

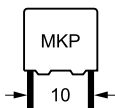
B32651 ... B32656

MKP

High pulse (wound)

**Overview of available types**

Lead spacing	37.5 mm				
Type	B32656				
Page	12				
V_R (VDC)	850	1000	1250	1600	2000
V_{rms} (VAC)	450	500	500	600	700
C_R (nF)					
100					
150					
220					
330					
470					
680					
1000					

**B32651****High pulse (wound)****Ordering codes and packing units (lead spacing 10 mm)**

V_R	V_{rms} $f \leq 1$ kHz	C_R	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
VDC ¹⁾	VAC	nF					
1250	450	2.2	4.0 × 9.0 × 13.0	B32651A7222+***	1000	1700	1000
		3.3	5.0 × 11.0 × 13.0	B32651A7332+***	830	1300	1000
		4.7	5.0 × 11.0 × 13.0	B32651A7472+***	830	1300	1000
		6.8	6.0 × 12.0 × 13.0	B32651A7682+***	680	1100	1000

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

K = ±10%

J = ±5%

on request = ±3.5%

*** = Packaging code:

289 = Ammo pack

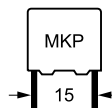
189 = Reel

000 = Untaped (lead length 6 – 1 mm)

1) For pulse loads (pulse width ≤ 1000 μs), a peak voltage of 1400 V_p can be permitted.

B32652

High pulse (wound)



Ordering codes and packing units (lead spacing 15 mm)

V_R	V_{rms} $f \leq 1$ kHz VAC	C_R nF	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
250	160	150	$5.0 \times 10.5 \times 18.0$	B32652A3154+***	1170	1300	1000
		220	$6.0 \times 11.0 \times 18.0$	B32652A3224+***	960	1100	1000
		330	$7.0 \times 12.5 \times 18.0$	B32652A3334+***	830	900	1000
		470	$8.5 \times 14.5 \times 18.0$	B32652A3474+***	680	700	500
		680	$9.0 \times 17.5 \times 18.0$	B32652A3684+***	640	700	500
400	200	68	$5.0 \times 10.5 \times 18.0$	B32652A4683+***	1170	1300	1000
		100	$5.0 \times 10.5 \times 18.0$	B32652A4104+***	1170	1300	1000
		150	$6.0 \times 11.0 \times 18.0$	B32652A4154+***	960	1100	1000
		220	$7.0 \times 12.5 \times 18.0$	B32652A4224+***	830	900	1000
		330	$8.5 \times 14.5 \times 18.0$	B32652A4334+***	680	700	500
630	250	470	$9.0 \times 17.5 \times 18.0$	B32652A4474+***	640	700	500
		33	$5.0 \times 10.5 \times 18.0$	B32652A6333+***	1170	1300	1000
		47	$5.0 \times 10.5 \times 18.0$	B32652A6473+***	1170	1300	1000
		68	$6.0 \times 11.0 \times 18.0$	B32652A6683+***	960	1100	1000
		100	$7.0 \times 12.5 \times 18.0$	B32652A6104+***	830	900	1000
1000	250	150	$8.5 \times 14.5 \times 18.0$	B32652A6154+***	680	700	500
		220	$9.0 \times 17.5 \times 18.0$	B32652A6224+***	640	700	500
		10	$5.0 \times 10.5 \times 18.0$	B32652A0103+***	1170	1300	1000
		15	$5.0 \times 10.5 \times 18.0$	B32652A0153+***	1170	1300	1000
		22	$5.0 \times 10.5 \times 18.0$	B32652A0223+***	1170	1300	1000
1250	500	33	$6.0 \times 11.0 \times 18.0$	B32652A0333+***	960	1100	1000
		47	$7.0 \times 12.5 \times 18.0$	B32652A0473+***	830	900	1000
		68	$8.5 \times 14.5 \times 18.0$	B32652A0683+***	680	700	500
		100	$9.0 \times 17.5 \times 18.0$	B32652A0104+***	640	700	500
		6.8	$5.0 \times 10.5 \times 18.0$	B32652A7682+***	1170	1300	1000
1250	500	10	$6.0 \times 11.0 \times 18.0$	B32652A7103+***	960	1100	1000
		15	$7.0 \times 12.5 \times 18.0$	B32652A7153+***	830	900	1000
		22	$8.5 \times 14.5 \times 18.0$	B32652A7223+***	680	700	500
		33	$9.0 \times 17.5 \times 18.0$	B32652A7333+***	640	700	500

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

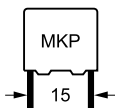
K = $\pm 10\%$ J = $\pm 5\%$ on request = $\pm 3.5\%$

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

**B32652****High pulse (wound)****Ordering codes and packing units (lead spacing 15 mm)**

V_R	V_{rms} $f \leq 1$ kHz	C_R	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
VDC	VAC	nF					
1600	500	3.3	$5.0 \times 10.5 \times 18.0$	B32652A1332+***	1170	1300	1000
		4.7	$6.0 \times 11.0 \times 18.0$	B32652A1472+***	960	1100	1000
		6.8	$7.0 \times 12.5 \times 18.0$	B32652A1682+***	830	900	1000
		10	$8.5 \times 14.5 \times 18.0$	B32652A1103+***	680	700	500
		15	$9.0 \times 17.5 \times 18.0$	B32652A1153+***	640	700	500
1600	700	2.2	$5.0 \times 10.5 \times 18.0$	B32652J1222+***	1170	1300	1000
		3.3	$6.0 \times 11.0 \times 18.0$	B32652J1332+***	960	1100	1000
		4.7	$7.0 \times 12.5 \times 18.0$	B32652J1472+***	830	900	1000
		6.8	$8.5 \times 14.5 \times 18.0$	B32652J1682+***	680	700	500
		10	$9.0 \times 17.5 \times 18.0$	B32652J1103+***	640	700	500
2000	700	1.0	$5.0 \times 10.5 \times 18.0$	B32652A2102+***	1170	1300	1000
		1.5	$6.0 \times 11.0 \times 18.0$	B32652A2152+***	960	1100	1000
		2.2	$7.0 \times 12.5 \times 18.0$	B32652A2222+***	830	900	1000
		3.3	$8.5 \times 14.5 \times 18.0$	B32652A2332+***	680	700	500
		4.7	$9.0 \times 17.5 \times 18.0$	B32652A2472+***	640	700	500

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

K = $\pm 10\%$ J = $\pm 5\%$ on request = $\pm 3.5\%$

*** = Packaging code:

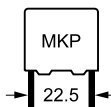
289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

B32653

High pulse (wound)



Ordering codes and packing units (lead spacing 22.5 mm)

V_R	V_{rms} $f \leq 1$ kHz	C_R	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
VDC	VAC	nF					
250	160	220	$6.0 \times 15.0 \times 26.5$	B32653A3224+***	680	700	720
		330	$6.0 \times 15.0 \times 26.5$	B32653A3334+***	680	700	720
		470	$7.0 \times 16.0 \times 26.5$	B32653A3474+***	580	600	630
		680	$8.5 \times 16.5 \times 26.5$	B32653A3684+***	480	500	510
		1000	$10.5 \times 16.5 \times 26.5$	B32653A3105+***	390	400	540
400	200	150	$6.0 \times 15.0 \times 26.5$	B32653A4154+***	680	700	720
		220	$6.0 \times 15.0 \times 26.5$	B32653A4224+***	680	700	720
		330	$7.0 \times 16.0 \times 26.5$	B32653A4334+***	580	600	630
		470	$8.5 \times 16.5 \times 26.5$	B32653A4474+***	480	500	510
		680	$10.5 \times 16.5 \times 26.5$	B32653A4684+***	390	400	540
		1000	$11.0 \times 20.5 \times 26.5$	B32653A4105+***	370	350	510
630	250	100	$6.0 \times 15.0 \times 26.5$	B32653A6104+***	680	700	720
		150	$6.0 \times 15.0 \times 26.5$	B32653A6154+***	680	700	720
		220	$8.5 \times 16.5 \times 26.5$	B32653A6224+***	480	500	510
		330	$10.5 \times 16.5 \times 26.5$	B32653A6334+***	390	400	540
		470	$11.0 \times 20.5 \times 26.5$	B32653A6474+***	370	350	510
1000	250	33	$6.0 \times 15.0 \times 26.5$	B32653A0333+***	680	700	720
		47	$6.0 \times 15.0 \times 26.5$	B32653A0473+***	680	700	720
		68	$6.0 \times 15.0 \times 26.5$	B32653A0683+***	680	700	720
		100	$8.5 \times 16.5 \times 26.5$	B32653A0104+***	480	500	510
		150	$10.5 \times 16.5 \times 26.5$	B32653A0154+***	390	400	540
		220	$11.0 \times 20.5 \times 26.5$	B32653A0224+***	370	350	510
1250	500	22	$6.0 \times 15.0 \times 26.5$	B32653A7223+***	680	700	720
		33	$6.0 \times 15.0 \times 26.5$	B32653A7333+***	680	700	720
		47	$8.5 \times 16.5 \times 26.5$	B32653A7473+***	480	500	510
		68	$10.5 \times 16.5 \times 26.5$	B32653A7683+***	390	400	540
		100	$11.0 \times 20.5 \times 26.5$	B32653A7104+***	370	350	510

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

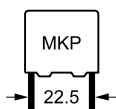
K = $\pm 10\%$ J = $\pm 5\%$ on request = $\pm 3.5\%$

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

**B32653****High pulse (wound)****Ordering codes and packing units (lead spacing 22.5 mm)**

V_R VDC	V_{rms} $f \leq 1$ kHz VAC	C_R nF	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
1600	500	6.8	$6.0 \times 15.0 \times 26.5$	B32653A1682+***	680	700	720
		10	$6.0 \times 15.0 \times 26.5$	B32653A1103+***	680	700	720
		15	$7.0 \times 16.0 \times 26.5$	B32653A1153+***	580	600	630
		22	$8.5 \times 16.5 \times 26.5$	B32653A1223+***	480	500	510
		33	$10.5 \times 16.5 \times 26.5$	B32653A1333+***	390	400	540
		47	$11.0 \times 20.5 \times 26.5$	B32653A1473+***	370	350	510
2000	700	3.3	$6.0 \times 15.0 \times 26.5$	B32653A2332+***	680	700	720
		4.7	$6.0 \times 15.0 \times 26.5$	B32653A2472+***	680	700	720
		6.8	$8.5 \times 16.5 \times 26.5$	B32653A2682+***	480	500	510
		10	$10.5 \times 16.5 \times 26.5$	B32653A2103+***	390	400	540
		15	$11.0 \times 20.5 \times 26.5$	B32653A2153+***	370	350	510
2000	1000	2.2	$6.0 \times 15.0 \times 26.5$	B32653A8222+***	680	700	720
		3.3	$6.0 \times 15.0 \times 26.5$	B32653A8332+***	680	700	720
		4.7	$8.5 \times 16.5 \times 26.5$	B32653A8472+***	480	500	510
		6.8	$10.5 \times 16.5 \times 26.5$	B32653A8682+***	390	400	540
		10	$10.5 \times 20.5 \times 26.5$	B32653A8103+***	390	400	540

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

K = $\pm 10\%$ J = $\pm 5\%$ on request = $\pm 3.5\%$

*** = Packaging code:

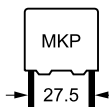
289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

B32654

High pulse (wound)



Ordering codes and packing units (lead spacing 27.5 mm)

V_R	V_{rms} $f \leq 1$ kHz VAC	C_R nF	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
250	160	1500	$11.0 \times 21.0 \times 31.5$	B32654A3155+***	–	350	320
		2200	$12.5 \times 21.5 \times 31.5$	B32654A3225+***	–	300	280
		3300	$15.0 \times 24.5 \times 31.5$	B32654A3335+000	–	–	240
		4700	$18.0 \times 27.5 \times 31.5$	B32654A3475+000	–	–	200
400	200	1000	$11.0 \times 21.0 \times 31.5$	B32654A4105+***	–	350	320
		1500	$12.5 \times 21.5 \times 31.5$	B32654A4155+***	–	300	280
		2200	$14.0 \times 24.5 \times 31.5$	B32654A4225+000	–	–	260
		3300	$19.0 \times 30.0 \times 31.5$	B32654A4335+000	–	–	180
630	250	680	$11.0 \times 21.0 \times 31.5$	B32654A6684+***	–	350	320
		1000	$13.5 \times 23.0 \times 31.5$	B32654A6105+***	–	250	260
		1500	$18.0 \times 27.5 \times 31.5$	B32654A6155+000	–	–	200
1000	250	220	$11.0 \times 21.0 \times 31.5$	B32654A0224+***	–	350	320
		330	$11.0 \times 21.0 \times 31.5$	B32654A0334+***	–	350	320
		470	$14.0 \times 24.5 \times 31.5$	B32654A0474+000	–	–	260
		680	$18.0 \times 27.5 \times 31.5$	B32654A0684+000	–	–	200
1250	500	100	$11.0 \times 21.0 \times 31.5$	B32654A7104+***	–	350	320
		150	$11.0 \times 21.0 \times 31.5$	B32654A7154+***	–	350	320
		220	$14.0 \times 24.5 \times 31.5$	B32654A7224+000	–	–	260
		330	$18.0 \times 27.5 \times 31.5$	B32654A7334+000	–	–	200
1600	500	47	$11.0 \times 21.0 \times 31.5$	B32654A1473+***	–	350	320
		68	$11.0 \times 21.0 \times 31.5$	B32654A1683+***	–	350	320
		100	$14.0 \times 24.5 \times 31.5$	B32654A1104+000	–	–	260
		150	$18.0 \times 27.5 \times 31.5$	B32654A1154+000	–	–	200
2000	700	22	$11.0 \times 21.0 \times 31.5$	B32654A2223+***	–	350	320
		33	$13.5 \times 23.0 \times 31.5$	B32654A2333+***	–	250	260
		47	$18.0 \times 27.5 \times 31.5$	B32654A2473+000	–	–	200
		68	$19.0 \times 30.0 \times 31.5$	B32654A2683+000	–	–	180

Further E series and intermediate capacitance values on request.

Composition of ordering code

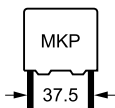
+ = Capacitance tolerance code:

K = $\pm 10\%$ J = $\pm 5\%$ on request = $\pm 3.5\%$

*** = Packaging code:

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

**B32656****High pulse (wound)****Ordering codes and packing units (lead spacing 37.5 mm)**

V_R	V_{rms} $f \leq 1$ kHz	C_R	Max. dimensions $w \times h \times l$ mm	Ordering code (composition see below)	Untaped pcs./unit
VDC	VAC	nF			
850	450	220	12.0 × 22.0 × 42.0	B32656A8224+000	72
		330	12.0 × 22.0 × 42.0	B32656A8334+000	72
		470	12.0 × 22.0 × 42.0	B32656A8474+000	72
		680	16.0 × 28.5 × 42.0	B32656A8684+000	48
		1000	18.0 × 32.5 × 42.0	B32656A8105+000	32
1000	500	470	14.0 × 25.0 × 42.0	B32656A0474+000	56
		680	16.0 × 28.5 × 42.0	B32656A0684+000	48
		1000	20.0 × 39.5 × 42.0	B32656A0105+000	32
1250	500	220	14.0 × 25.0 × 42.0	B32656A7224+000	56
		330	16.0 × 28.5 × 42.0	B32656A7334+000	48
		470	18.0 × 32.5 × 42.0	B32656A7474+000	48
		680	20.0 × 39.5 × 42.0	B32656A7684+000	32
1600	600	100	12.0 × 22.0 × 42.0	B32656J1104+000	72
		150	14.0 × 25.0 × 42.0	B32656J1154+000	56
		220	16.0 × 28.5 × 42.0	B32656J1224+000	48
2000	700	100	14.0 × 25.0 × 42.0	B32656J2104+000	56
		150	18.0 × 32.5 × 42.0	B32656J2154+000	48
		220	20.0 × 39.5 × 42.0	B32656J2224+000	32

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

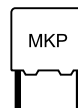
K = ±10%

J = ±5%

on request = ±3.5%

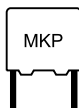
Packaging code:

000 = Untaped (lead length 6 – 1 mm)



Technical data

Operating temperature range	Max. operating temperature $T_{op,max}$		+105 °C		
	Upper category temperature T_{max}		+100 °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	≤ 27 nF	27 nF $< C_R \leq 0.1$ μ F	0.1 μ F $< C_R \leq 1$ μ F	> 1 μ F
	1 kHz	0.8	0.8	0.8	0.8
	10 kHz	1.0	1.0	1.0	—
	100 kHz	2.0	3.0	—	—
Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values)	$C_R \leq 0.33$ μ F		$C_R > 0.33$ μ F		
	100 G Ω		30000 s		
DC test voltage	$1.6 \cdot V_R, 2$ s				
Category voltage V_C (continuous operation with V_{DC} or V_{AC} at $f \leq 1$ kHz)	T_A (°C)	DC voltage derating		AC voltage derating	
	$T_A \leq 85$ $85 < T_A \leq 100$	$V_C = V_R$ $V_C = V_R \cdot (165 - T_A)/80$		$V_{C,rms} = V_{rms}$ $V_{C,rms} = V_{rms} \cdot (165 - T_A)/80$	
Operating voltage V_{op} for short operating periods (V_{DC} or V_{AC} at $f \leq 1$ kHz)	T_A (°C)	DC voltage (max. hours)		AC voltage (max. hours)	
	$T_A \leq 85$ $85 < T_A \leq 100$	$V_{op} = 1.25 \cdot V_C$ (2000 h) $V_{op} = 1.25 \cdot V_C$ (2000 h)		$V_{op} = 1.0 \cdot V_{C,rms}$ (2000 h) $V_{op} = 1.0 \cdot V_{C,rms}$ (2000 h)	
Damp heat test Limit values after damp heat test	56 days/40 °C/93% relative humidity				
	Capacitance change $ \Delta C/C $		$\leq 3\%$		
	Dissipation factor change $\Delta \tan \delta$		$\leq 0.5 \cdot 10^{-3}$ (at 1 kHz) $\leq 1.0 \cdot 10^{-3}$ (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 $0.5 \cdot V_R, 40$ °C 200 000 h at $1.0 \cdot V_R, 40$ °C For conversion to other operating conditions and temperatures, refer to chapter "Quality assurance", page .				
Failure criteria: Total failure Failure due to variation of parameters	Short circuit or open circuit				
	Capacitance change $ \Delta C/C $		$> 10\%$		
	Dissipation factor $\tan \delta$		$> 4 \cdot$ upper limit value		
	Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$		< 1500 M Ω ($C_R \leq 0.33$ μ F) < 500 s ($C_R > 0.33$ μ F)		



B32651 ... B32656

High pulse (wound)

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

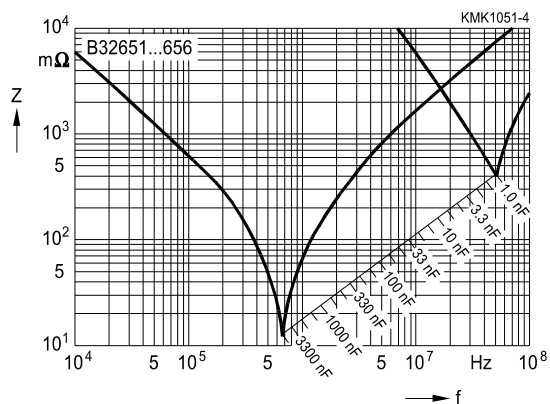
Lead spacing		10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
V _R VDC	V _{rms} VAC	dV/dt in V/ μ s				
250	160	–	200	120	50	–
400	200	–	300	180	100	–
630	250	–	400	300	150	–
850	450	–	–	–	–	90
1000	250	–	975	600	300	–
	500	–	–	–	–	100
1250	450	4000	–	–	–	–
	500	–	1850	1150	600	140
1600	500	–	4500	2400	1000	–
	600	–	–	–	–	210
	700	–	5200	–	–	–
2000	700	–	8000	7000	2300	200
	1000	–	–	7500	–	–

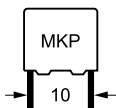
k_0 values

Lead spacing		10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
V_R VDC	V_{rms} VAC	k_0 in $V^2/\mu s$				
250	160	–	10 000	60 000	25 000	–
400	200	–	250 000	200 000	110 000	–
630	250	–	500 000	350 000	250 000	–
850	450	–	–	–	–	153 000
1000	250	–	3 000 000	1 500 000	1 000 000	–
	500	–	–	–	–	180 000
1250	450	25 000 000	–	–	–	–
	500	–	9 000 000	3 750 000	2 000 000	350 000
1600	500	–	20 000 000	10 000 000	4 000 000	–
	600	–	–	–	–	672 000
	700	–	28 000 000	–	–	–
2000	700	–	60 000 000	40 000 000	15 000 000	800 000
	1000	–	–	50 000 000	–	–

Impedance Z versus frequency f

(typical values)





B32651

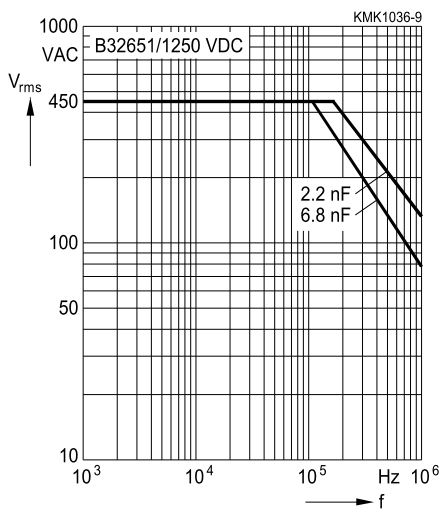
High pulse (wound)

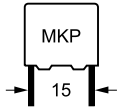
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ\text{C}$)

For $T_A > 90^\circ\text{C}$, please refer to "General technical information", section 3.2.3.

Lead spacing 10 mm

1250 VDC/450 VAC



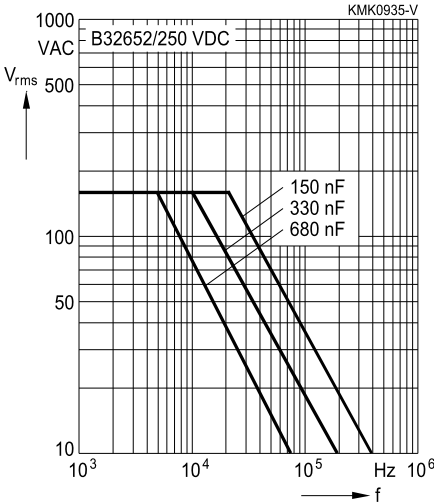


Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)

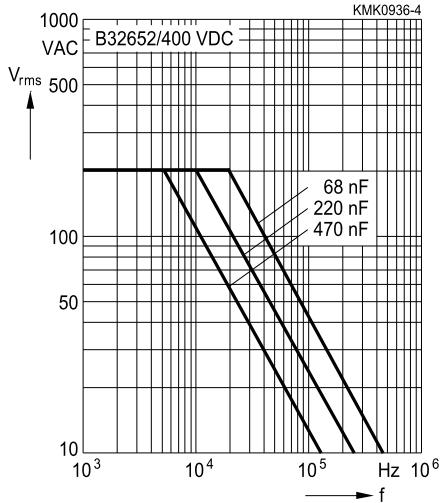
For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 15 mm

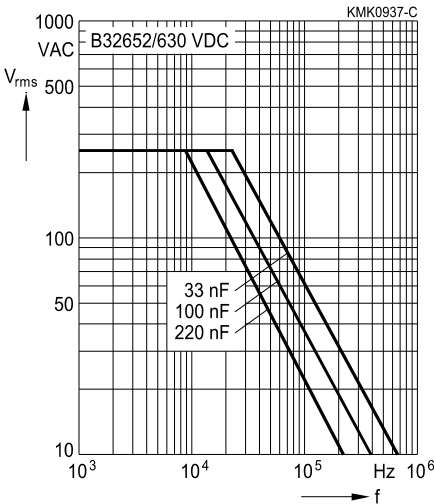
250 VDC/160 VAC



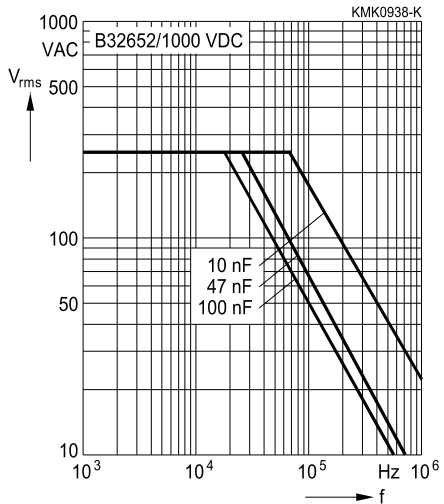
400 VDC/200 VAC

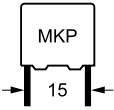


630 VDC/250 VAC



1000 VDC/250 VAC





B32652

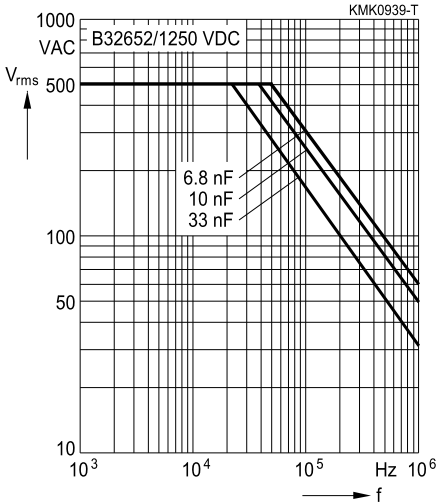
High pulse (wound)

Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)

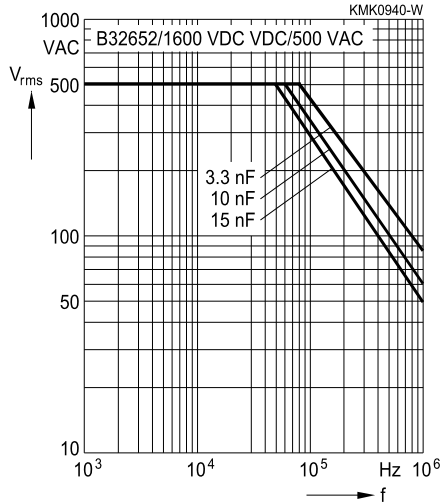
For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 15 mm

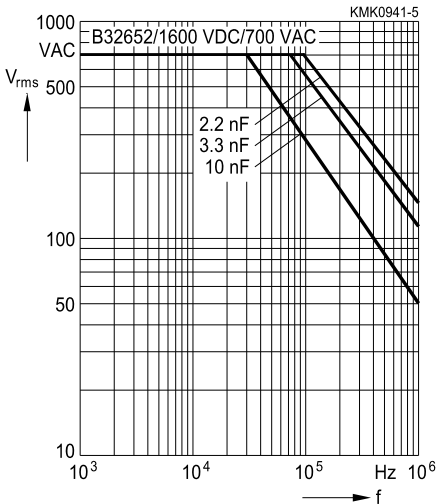
1250 VDC/500 VAC



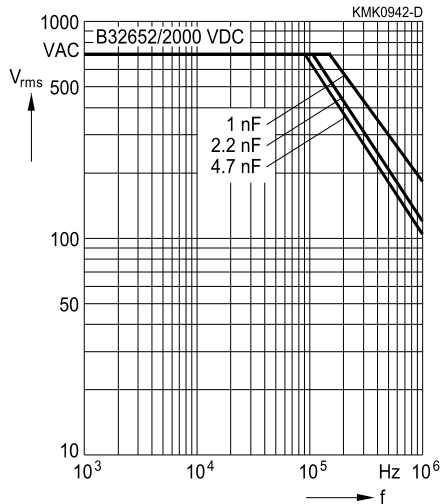
1600 VDC/500 VAC

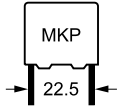


1600 VDC/700 VAC



2000 VDC/700 VAC



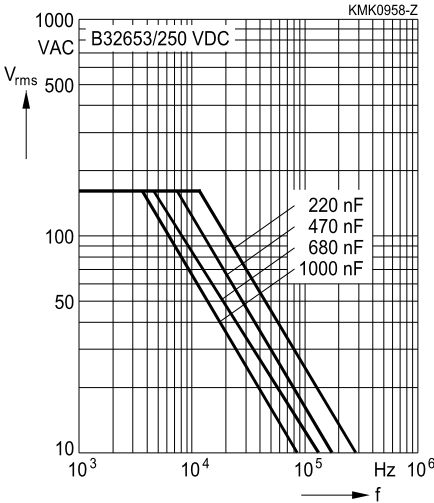


Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)

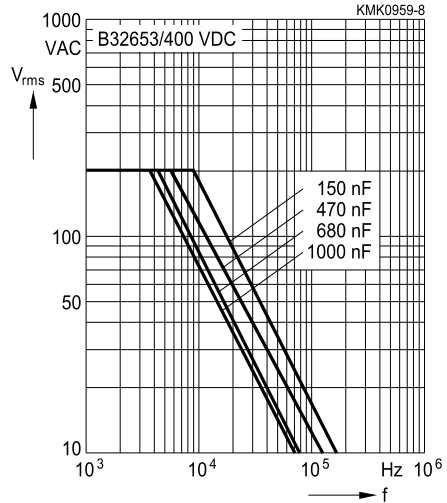
For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 22.5 mm

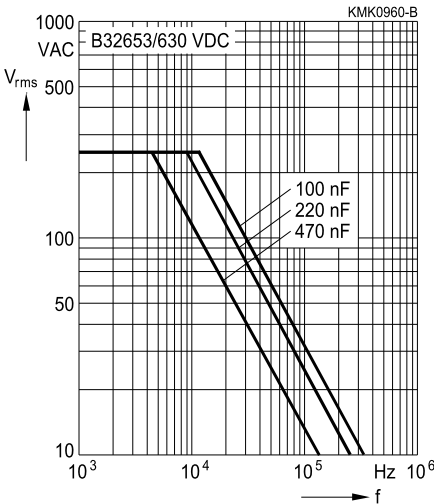
250 VDC/160 VAC



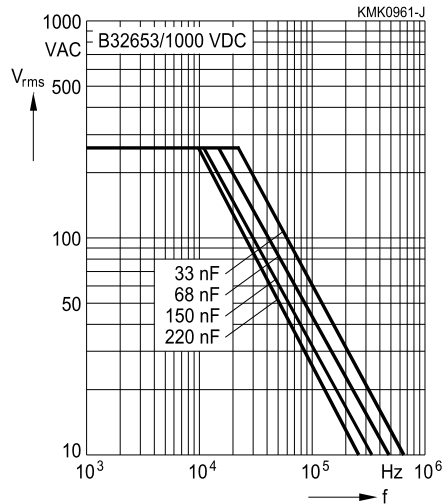
400 VDC/200 VAC

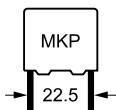


630 VDC/250 VAC



1000 VDC/250 VAC





B32653

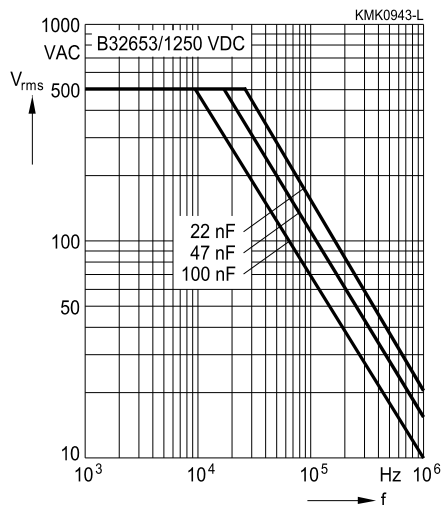
High pulse (wound)

Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)

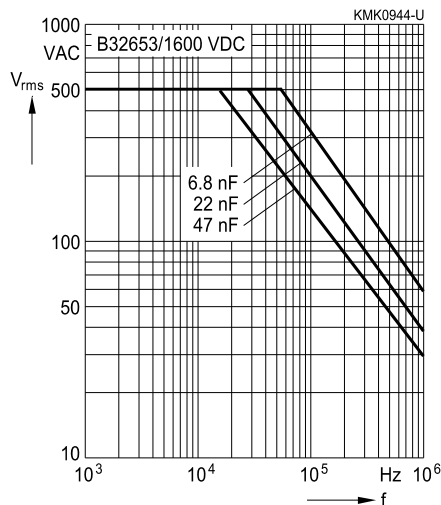
For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 22.5 mm

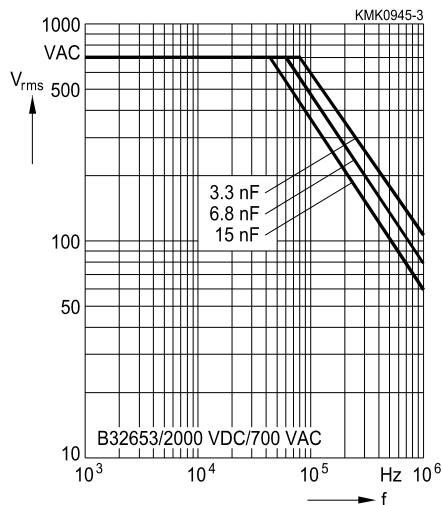
1250 VDC/500 VAC



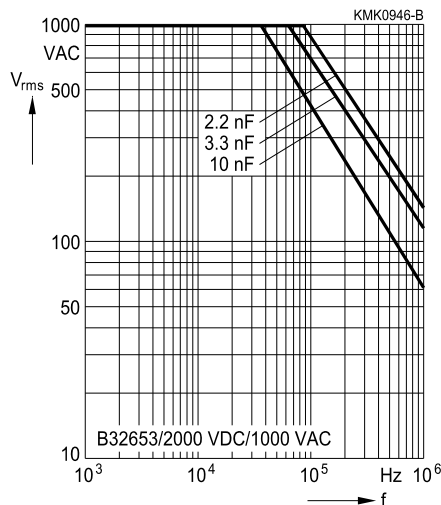
1600 VDC/500 VAC



2000 VDC/700 VAC

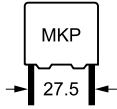


2000 VDC/1000 VAC



B32654

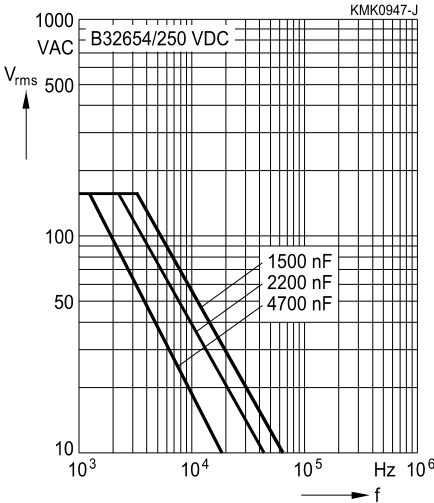
High pulse (wound)



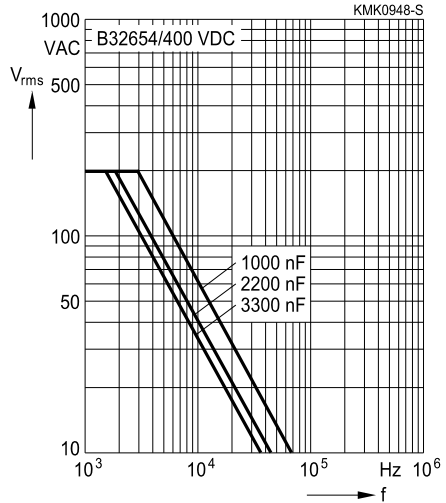
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)
 For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 27.5 mm

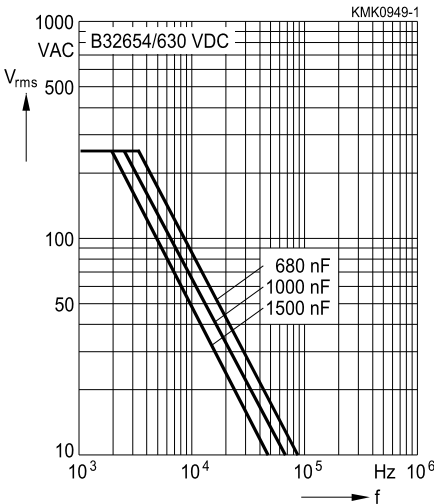
250 VDC/160 VAC



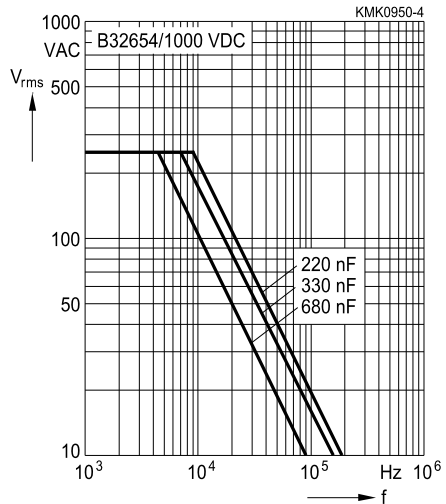
400 VDC/200 VAC

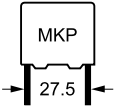


630 VDC/250 VAC



1000 VDC/250 VAC





B32654

High pulse (wound)

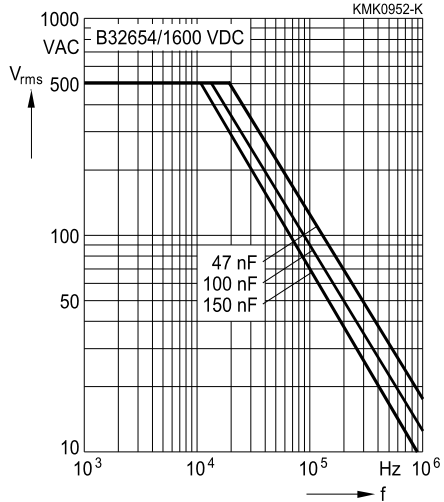
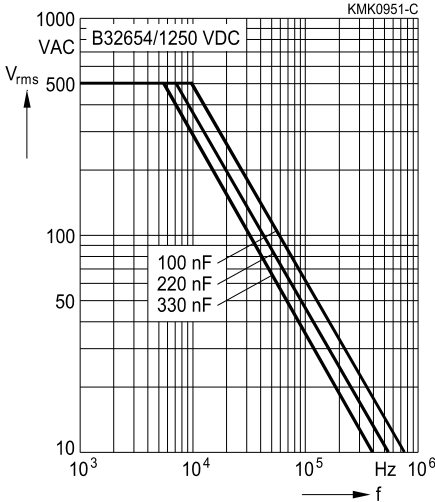
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)

For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

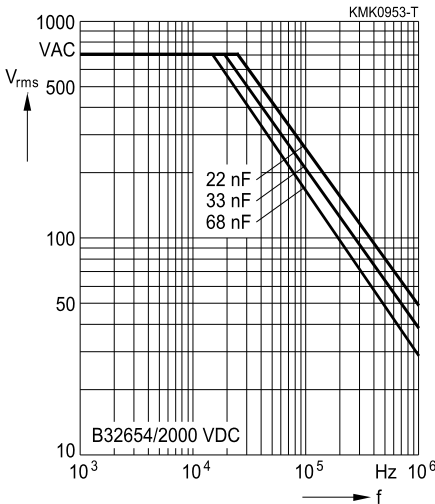
Lead spacing 27.5 mm

1250 VDC/500 VAC

1600 VDC/500 VAC

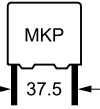


2000 VDC/700 VAC



B32656

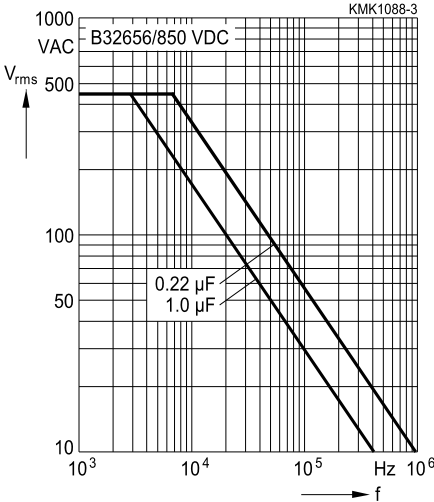
High pulse (wound)



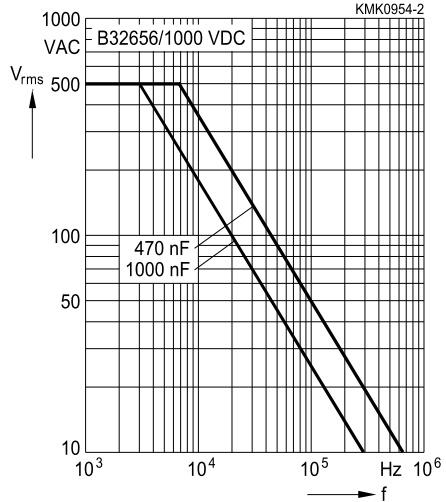
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ C$)
 For $T_A > 90^\circ C$, please refer to "General technical information", section 3.2.3.

Lead spacing 37.5 mm

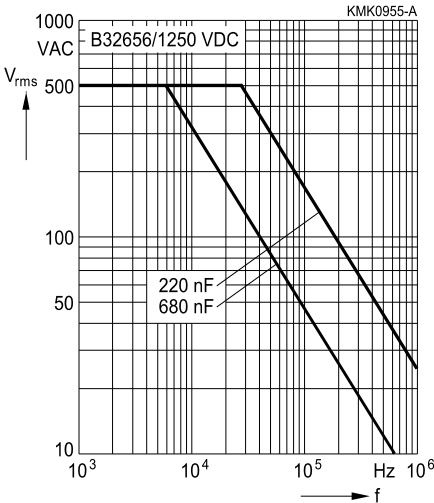
850 VDC/450 VAC



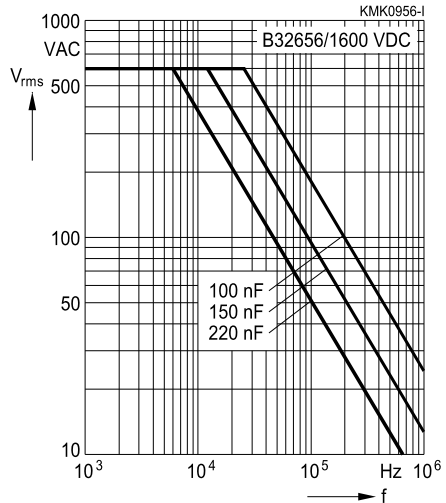
1000 VDC/500 VAC

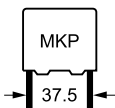


1250 VDC/500 VAC



1600 VDC/600 VAC





B32656

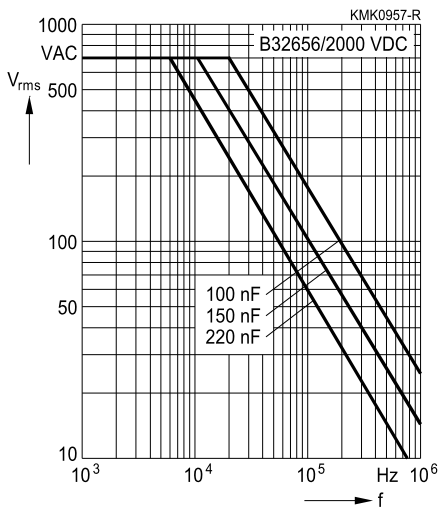
High pulse (wound)

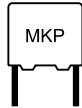
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90^\circ\text{C}$)

For $T_A > 90^\circ\text{C}$, please refer to "General technical information", section 3.2.3.

Lead spacing 37.5 mm

2000 VDC/700 VAC

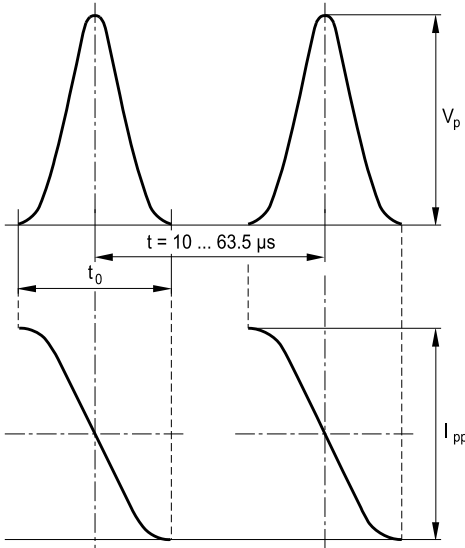




Flyback application

Permissible voltage and current / waveform

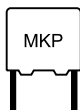
Permissible current I_{pp} versus frequency f for a duty cycle of 20% ($t_0/t = 0.2$):



KMK0720-5

Approximation formular for duty cycle higher than 20%:

$$I'_{pp} = I_{pp} \cdot \sqrt{\frac{t_0^3}{t_0'^3}}$$



B32651 ... B32656

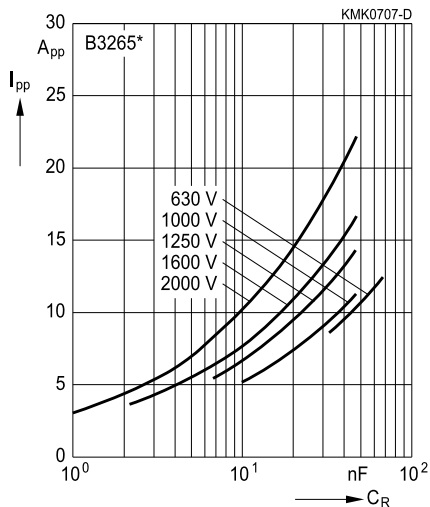
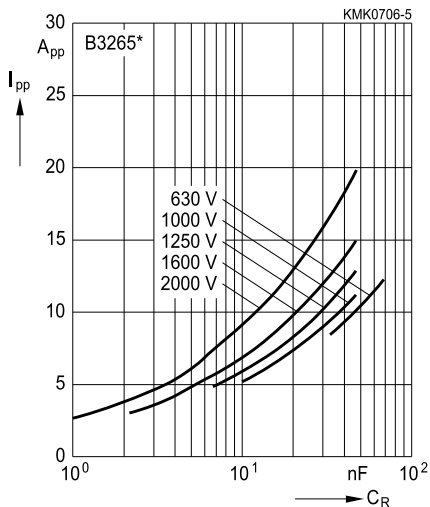
High pulse (wound)

Flyback application

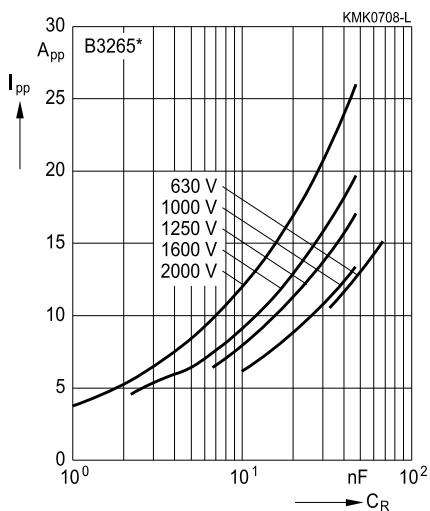
Permissible current I_{pp} versus rated capacitance C_R

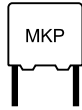
Frequency = 15.75 kHz

Frequency = 31.5 kHz



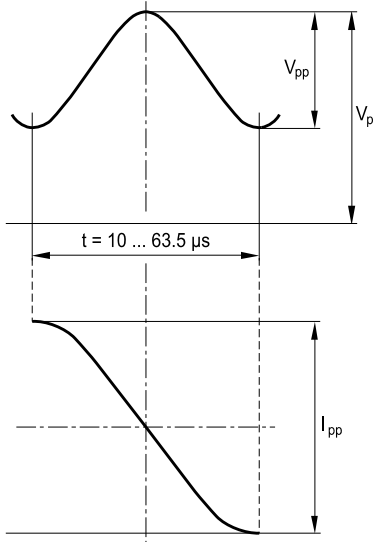
Frequency = 95 kHz



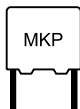


S-correction application

Permissible voltage and current / waveform



KMK0721-D



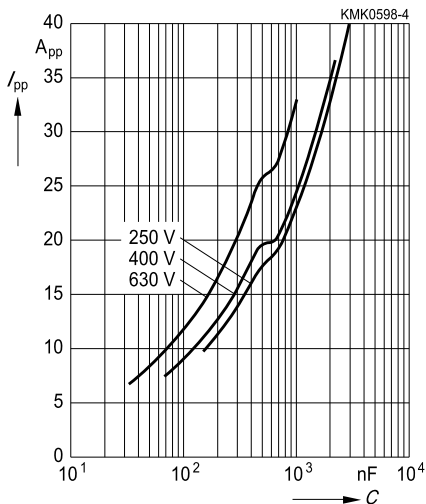
B32651 ... B32656

High pulse (wound)

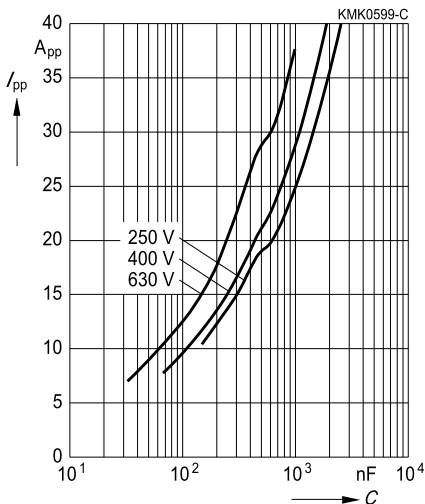
S-correction application

Permissible current I_{pp} versus rated capacitance C_R

Frequency = 15.75 kHz



Frequency = 31.75 kHz



Frequency = 95 kHz

