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.

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

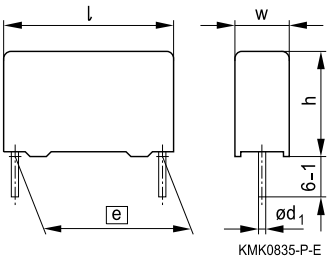
Features

- High pulse strength
- High contact reliability
- Small dimensions

Terminals

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

Dimensional drawing



Dimensions in mm

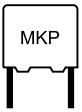
Lead spacing e ±0.4	Lead diameter d_1	Type
10	0.6	B32651
15	0.8	B32652
22.5	0.8	B32653
27.5	0.8	B32654
37.5	1.0	B32656

Marking

Manufacturer's logo,
lot number (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)

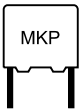
Delivery mode

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



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									

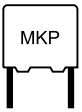


B32651 ... B32656

High pulse (wound)

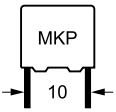
Overview of available types

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									■						



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 ≤1 kHz	C_R	Max. dimensions w × h × l	Ordering code (composition see	Ammo pack	Reel	Untaped
VDC[1)]	VAC	nF	mm	below)	pcs./unit	pcs./unit	pcs./unit
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

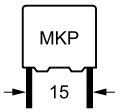
Further E series and intermediate capacitance values on request.

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.



Ordering codes and packing units (lead spacing 15 mm)

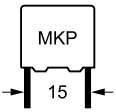
V_R VDC	V_{rms} f ≤1 kHz VAC	C_R nF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
250	160	150	5.0 × 10.5 × 18.0	B32652A3154+***	1170	1300	1000
		220	6.0 × 11.0 × 18.0	B32652A3224+***	960	1100	1000
		330	7.0 × 12.5 × 18.0	B32652A3334+***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

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)



B32652

High pulse (wound)

Ordering codes and packing units (lead spacing 15 mm)

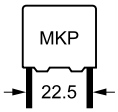
V_R	V_{rms} f ≤1 kHz	C_R	Max. dimensions w × h × l	Ordering code (composition see	Ammo pack	Reel	Untaped
VDC	VAC	nF	mm	below)	pcs./unit	pcs./unit	pcs./unit
1600	500	3.3	5.0 × 10.5 × 18.0	B32652A1332+***	1170	1300	1000
		4.7	6.0 × 11.0 × 18.0	B32652A1472+***	960	1100	1000
		6.8	7.0 × 12.5 × 18.0	B32652A1682+***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

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)



Ordering codes and packing units (lead spacing 22.5 mm)

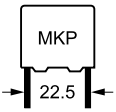
V_R VDC	V_{rms} f ≤1 kHz VAC	C_R nF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
250	160	220	6.0 × 15.0 × 26.5	B32653A3224+***	680	700	720
		330	6.0 × 15.0 × 26.5	B32653A3334+***	680	700	720
		470	7.0 × 16.0 × 26.5	B32653A3474+***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

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)



B32653

High pulse (wound)

Ordering codes and packing units (lead spacing 22.5 mm)

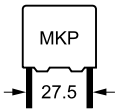
V_R	V_{rms} f ≤1 kHz	C_R	Max. dimensions w × h × l	Ordering code (composition see	Ammo pack	Reel	Untaped
VDC	VAC	nF	mm	below)	pcs./unit	pcs./unit	pcs./unit
1600	500	6.8	6.0 × 15.0 × 26.5	B32653A1682+***	680	700	720
		10	6.0 × 15.0 × 26.5	B32653A1103+***	680	700	720
		15	7.0 × 16.0 × 26.5	B32653A1153+***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

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)



Ordering codes and packing units (lead spacing 27.5 mm)

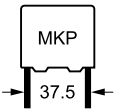
V_R VDC	V_{rms} f ≤1 kHz VAC	C_R nF	Max. dimensions w × h × l mm	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
250	160	1500	11.0 × 21.0 × 31.5	B32654A3155+***	–	350	320
		2200	12.5 × 21.5 × 31.5	B32654A3225+***	–	300	280
		3300	15.0 × 24.5 × 31.5	B32654A3335+000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

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:
- 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 ≤1 kHz	C_R	Max. dimensions w × h × l	Ordering code (composition see	Untaped
VDC	VAC	nF	mm	below)	pcs./unit
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.

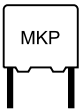
Composition of ordering code

+ = 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 δ (in 10^{-3})	at	≤27 nF	27 nF<C_R≤0.1 µF	0.1 µF<C_R≤1 µF	>1 µF
at 20 °C	1 kHz	0.8	0.8	0.8	0.8
(upper limit values)	10 kHz	1.0	1.0	1.0	–
	100 kHz	2.0	3.0	–	
Insulation resistance R_{ins}	C_R ≤ 0.33 µF		C_R > 0.33 µF		
or time constant $\tau = C_R \cdot R_{ins}$	100 GΩ		30000 s		
at 20 °C, rel. humidity ≤ 65%					
(minimum as-delivered values)					
DC test voltage	1.6 · V_R, 2 s				
Category voltage V_C	T_A (°C)		DC voltage derating	AC voltage derating	
(continuous operation with V_{DC}	T_A ≤ 85		$V_C = V_R$	$V_{C,rms} = V_{rms}$	
or V_{AC} at f ≤ 1 kHz)	85<T_A≤100		$V_C = V_R \cdot (165-T_A)/80$	$V_{C,rms}=V_{rms} \cdot (165-T_A)/80$	
Operating voltage V_{op} for	T_A (°C)		DC voltage (max. hours)	AC voltage (max. hours)	
short operating periods	T_A ≤ 85		$V_{op} = 1.25 \cdot V_C$ (2000 h)	$V_{op} = 1.0 \cdot V_{C,rms}$ (2000 h)	
(V_{DC} or V_{AC} at f ≤ 1 kHz)	85<T_A≤100		$V_{op} = 1.25 \cdot V_C$ (2000 h)	$V_{op} = 1.0 \cdot V_{C,rms}$ (2000 h)	
Damp heat test	56 days/40 °C/93% relative humidity				
Limit values after damp	Capacitance change |ΔC/C|		≤ 3%		
heat test	Dissipation factor change Δ tan δ		≤ 0.5 · 10^{-3} (at 1 kHz)		
			≤ 1.0 · 10^{-3} (at 10 kHz)		
	Insulation resistance R_{ins}		≥ 50% of minimum		
	or time constant $\tau = C_R \cdot R_{ins}$		as-delivered values		
Reliability:					
Failure rate λ	1 fit (≤ 1 · 10^{-9}/h) at 0.5 · V_R, 40 °C				
Service life t_{SL}	200 000 h at 1.0 · V_R, 40 °C				
	For conversion to other operating conditions and temperatures, refer to chapter "Quality assurance", page .				
Failure criteria:					
Total failure	Short circuit or open circuit				
Failure due to variation	Capacitance change |ΔC/C|		> 10%		
of parameters	Dissipation factor tan δ		> 4 · upper limit value		
	Insulation resistance R_{ins}		< 1500 MΩ (C_R≤0.33 µF)		
	or time constant $\tau = C_R \cdot R_{ins}$		< 500 s (C_R>0.33 µF)		



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/µs.

"k_0" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V^2/µs.

Note:
The values of dV/dt and k_0 provided below must not be exceeded in order to avoid damaging the capacitor.

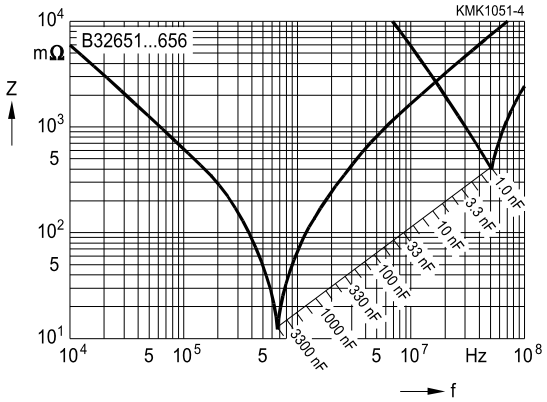
dV/dt values

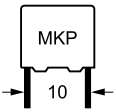
Lead spacing		10 mm	15 mm	22.5 mm	27.5 mm	37.5 mm
V_R VDC	V_{rms} VAC	dV/dt in V/µs				
250	160	–	200	120	50	–
400	200	–	300	180	100	–
630	250	–	400	300	150	–
850	450	–	–	–	–	90
1000	250	–	975	600	300	–
	500	–	–	–	–	100
1250	450	4000	–	–	–	–
	500	–	1850	1150	600	140
1600	500	–	4500	2400	1000	–
	600	–	–	–	–	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 V²/µs				
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)





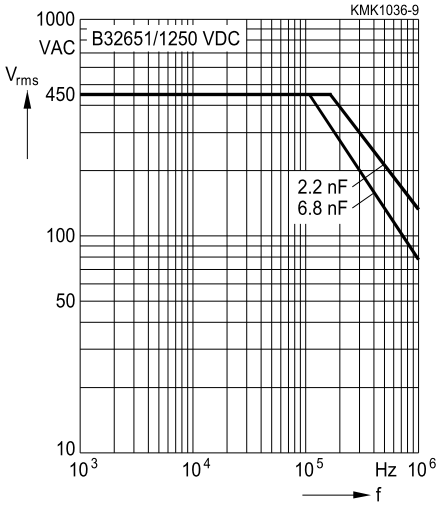
B32651

High pulse (wound)

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

Lead spacing 10 mm

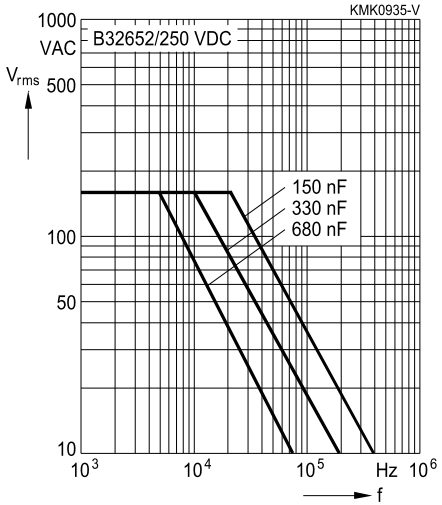
1250 VDC/450 VAC



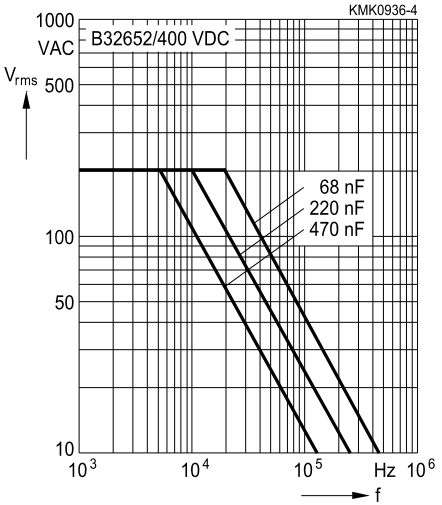
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 15 mm

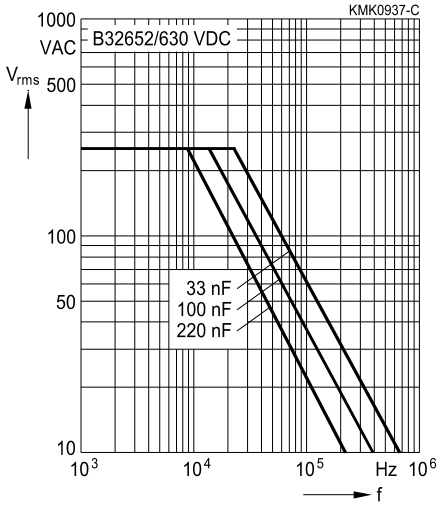
250 VDC/160 VAC



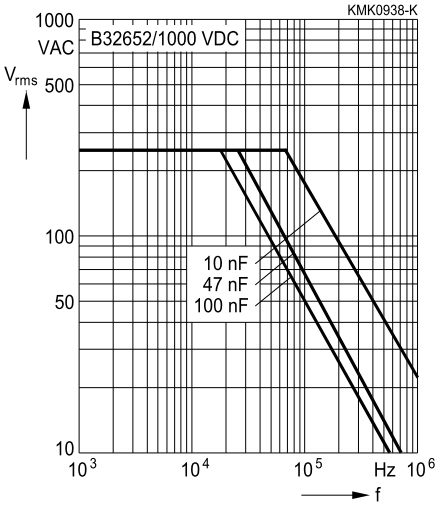
400 VDC/200 VAC

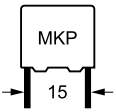


630 VDC/250 VAC



1000 VDC/250 VAC

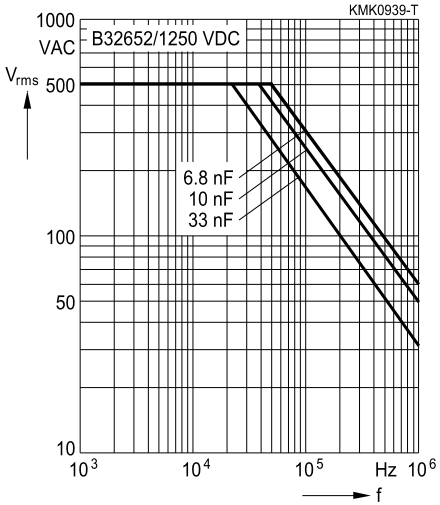




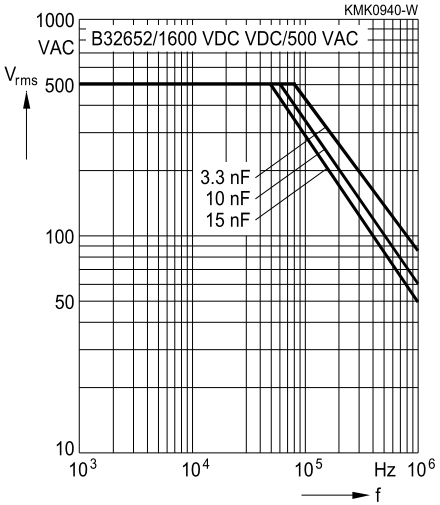
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 15 mm

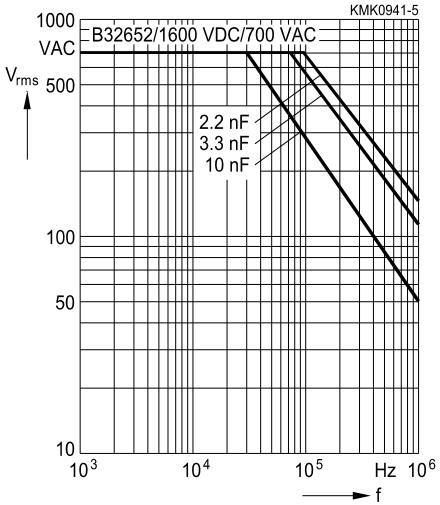
1250 VDC/500 VAC



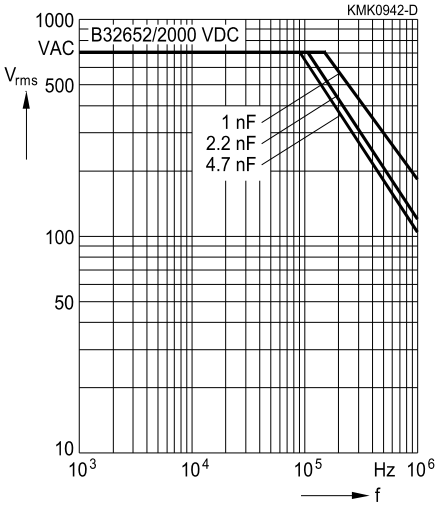
1600 VDC/500 VAC



1600 VDC/700 VAC



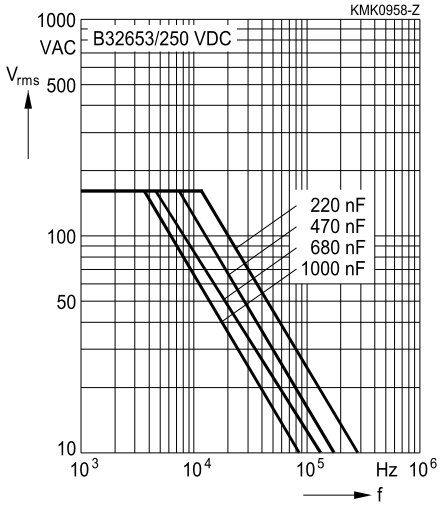
2000 VDC/700 VAC



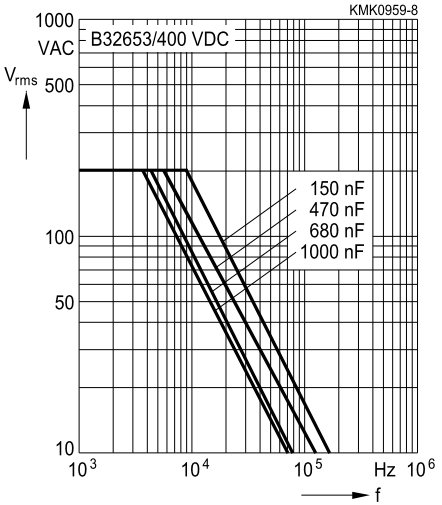
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 22.5 mm

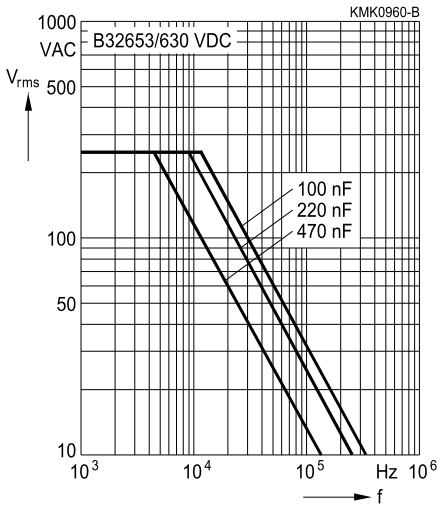
250 VDC/160 VAC



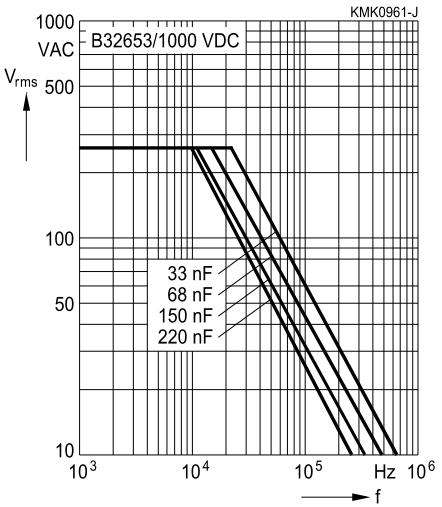
400 VDC/200 VAC

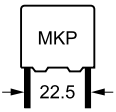


630 VDC/250 VAC



1000 VDC/250 VAC





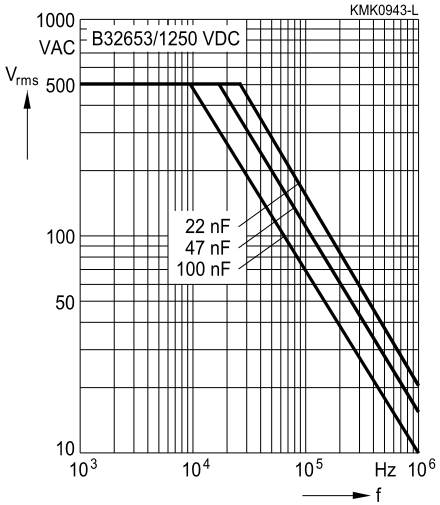
B32653

High pulse (wound)

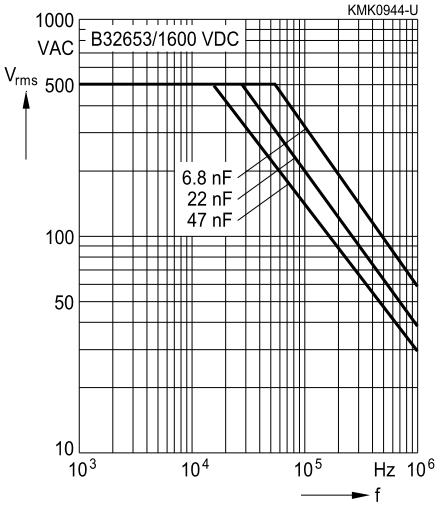
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 22.5 mm

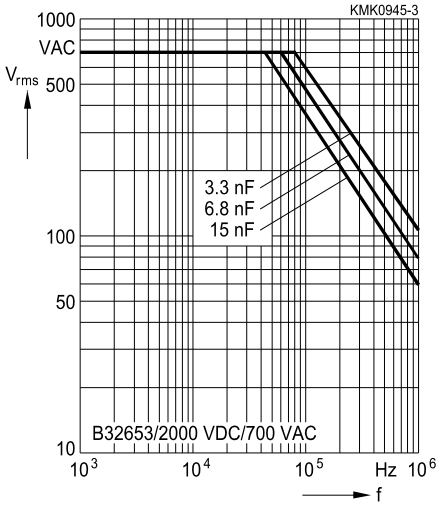
1250 VDC/500 VAC



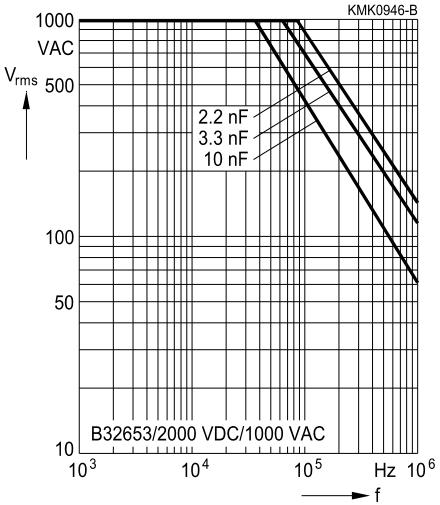
1600 VDC/500 VAC



2000 VDC/700 VAC



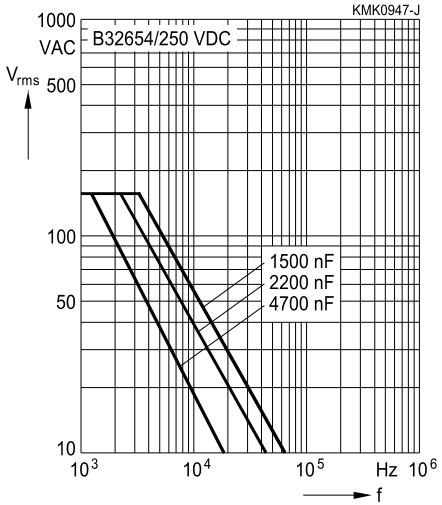
2000 VDC/1000 VAC



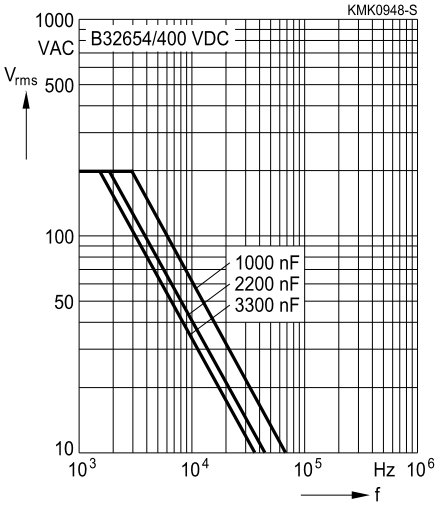
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 27.5 mm

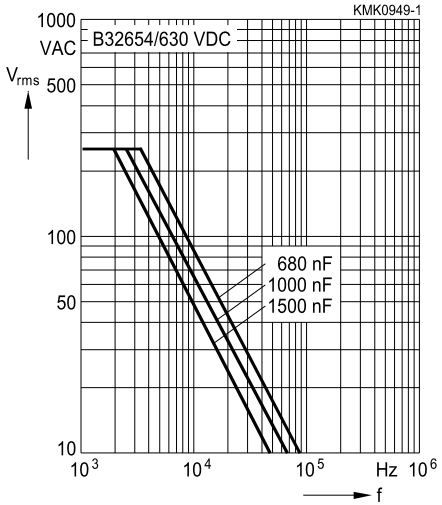
250 VDC/160 VAC



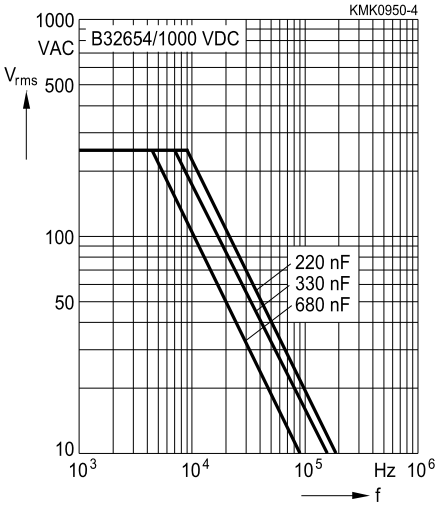
400 VDC/200 VAC

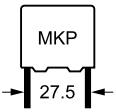


630 VDC/250 VAC



1000 VDC/250 VAC





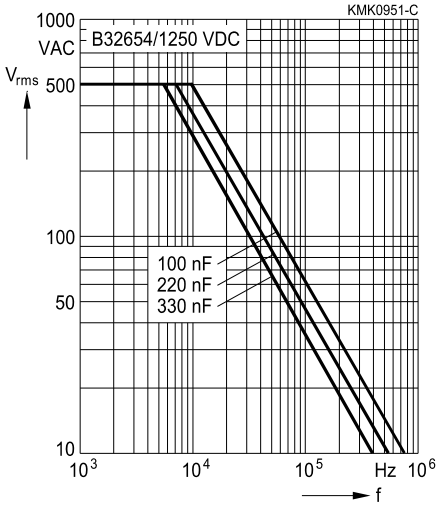
B32654

High pulse (wound)

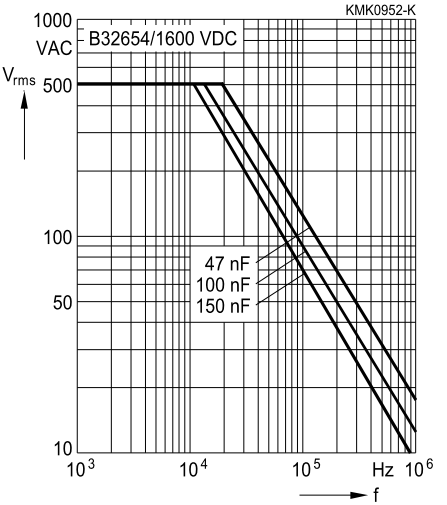
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 27.5 mm

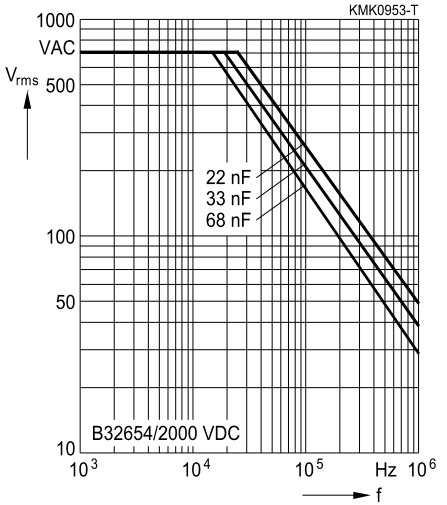
1250 VDC/500 VAC



1600 VDC/500 VAC



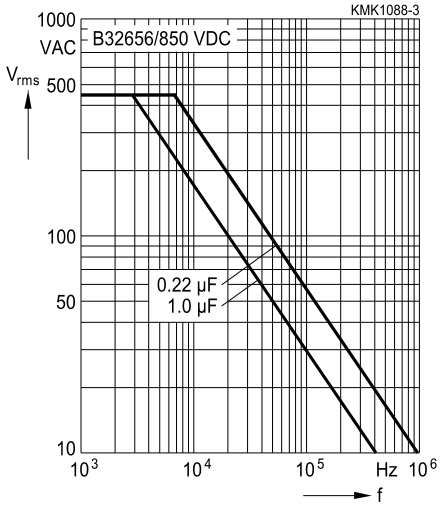
2000 VDC/700 VAC



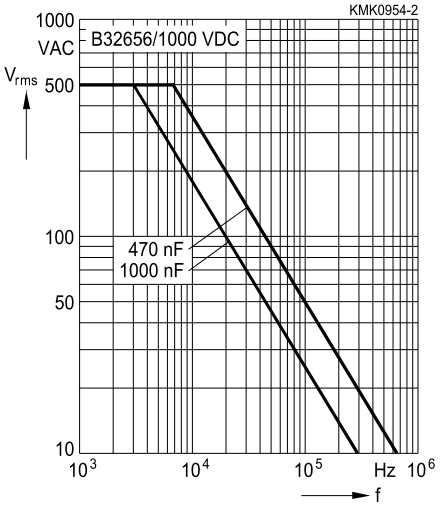
Permissible AC voltage V_{rms} versus frequency f (for sinusoidal waveforms, $T_A \leq 90$ °C)
For T_A >90 °C, please refer to "General technical information", section 3.2.3.

Lead spacing 37.5 mm

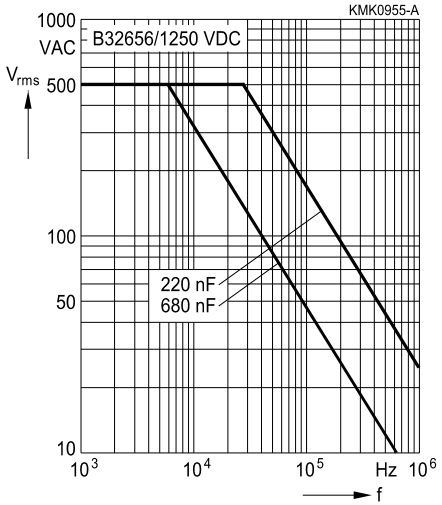
850 VDC/450 VAC



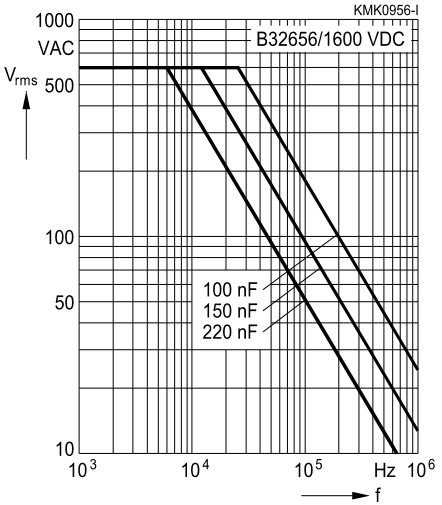
1000 VDC/500 VAC

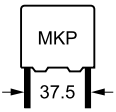


1250 VDC/500 VAC



1600 VDC/600 VAC





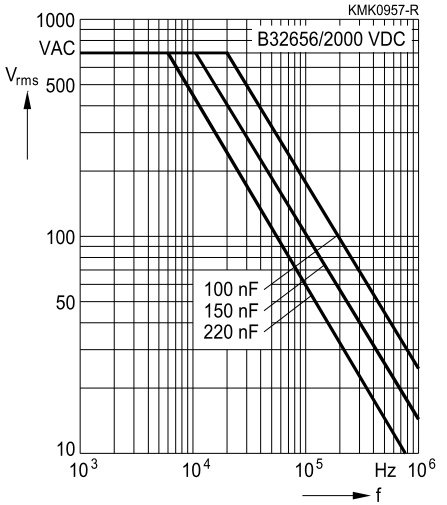
B32656

High pulse (wound)

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

Lead spacing 37.5 mm

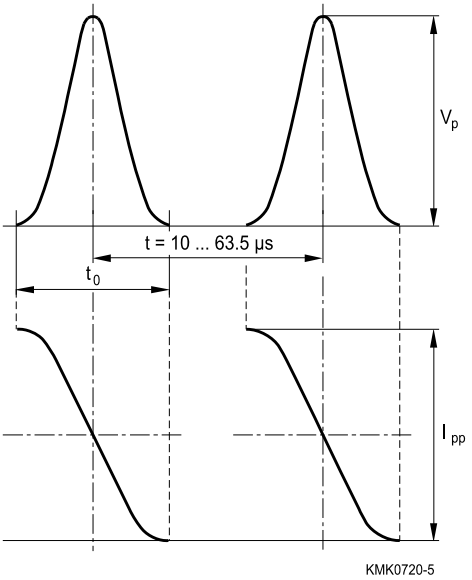
2000 VDC/700 VAC



Flyback application

Permissible voltage and current / waveform

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



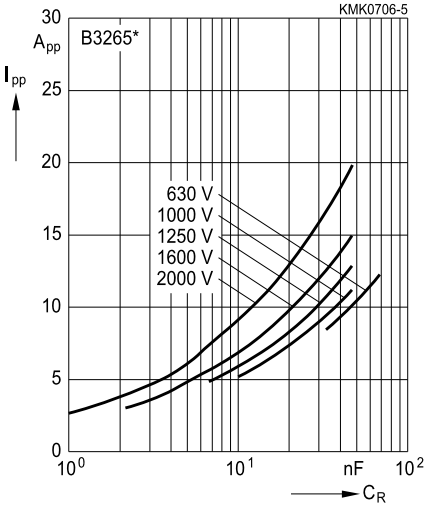
Approximation formular for duty cycle higher than 20%:

$$I'_{pp} = I_{pp} \cdot \sqrt{\frac{t_0^3}{t'^3_0}}$$

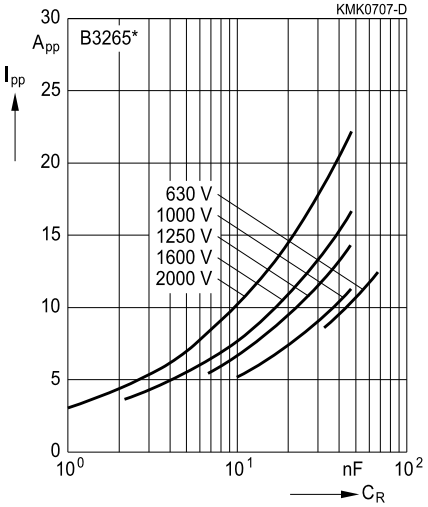
Flyback application

Permissible current I_{pp} versus rated capacitance C_R

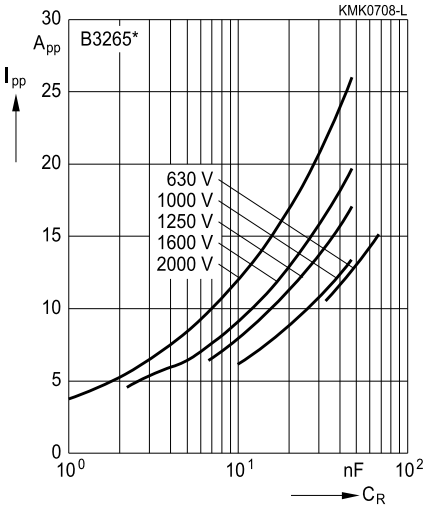
Frequency = 15.75 kHz



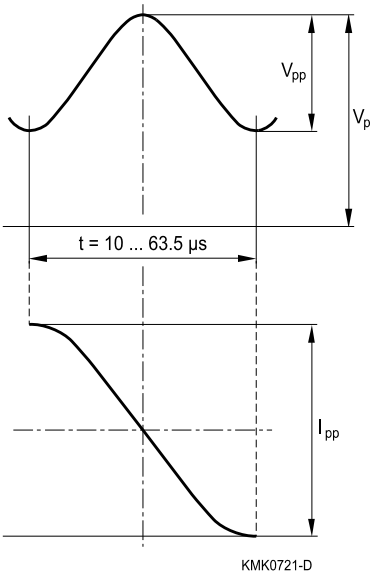
Frequency = 31.5 kHz



Frequency = 95 kHz



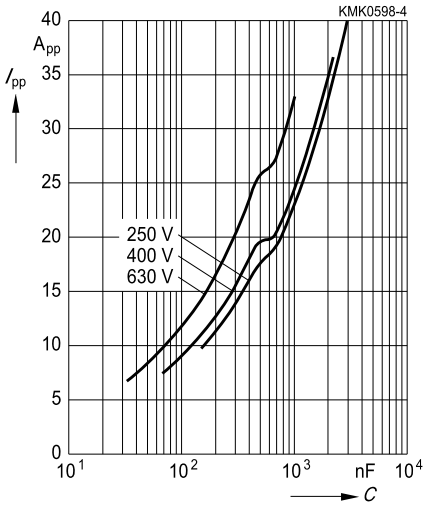
S-correction application
Permissible voltage and current / waveform



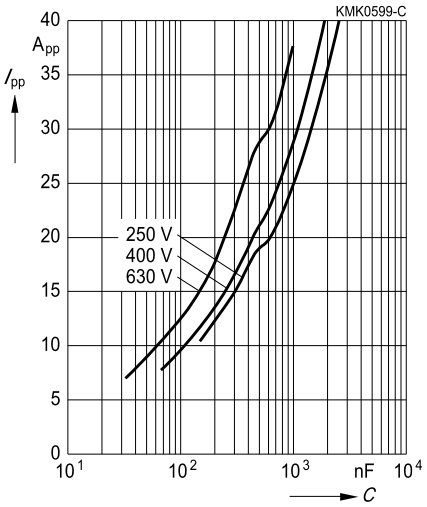
S-correction application

Permissible current I_{pp} versus rated capacitance C_R

Frequency = 15.75 kHz



Frequency = 31.75 kHz



Frequency = 95 kHz

