

**Extremely small dimensions
Versions with special dimensions
can be supplied at short notice**

Construction

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

Features

- Special dimensions available upon request
- High pulse strength
- Minimum tensile strength of leads >10 N

Typical applications

- Standard applications
- Electronic lamp ballast circuits
- Energy-saving lamps
- Substitute for electrolytics in electronic lamp ballasts (420 Vdc)

Terminals

- Parallel wire leads, tinned
- Also available with $(3,0 \pm 0,5)$ mm lead length upon request

Marking

Rated capacitance (coded),
rated dc voltage

Delivery mode

Bulk (untaped)
Taped (AMMO pack or reel) for
lead spacing $\leq 15,0$ mm.
For notes on taping, [refer to page 279](#).

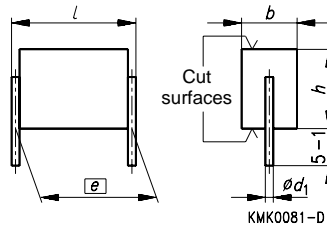
Detail specification

Homologated in accordance with CECC 30 401-007

Notes on mounting

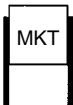
When mounting these capacitors, take into account creepage distances and clearances to adjacent live parts. The insulating strength of the cut surfaces to other live parts of the circuit is 1,5 times the capacitors rated dc voltage, but is always at least 300 Vdc.

Capacitors with 7,5 mm lead spacing are only suitable for use with single-clad printed circuit boards.



Dimensions in mm

Lead spacing $e \pm 0,4$	Diameter d_1	Type
7,5	0,5	B 32 560
10,0	0,5	B 32 561
15,0	0,6	B 32 562
22,5	0,8	B 32 563
27,5	0,8	B 32 564



Overview of available types

Lead spacing	7,5 mm	10 mm	15 mm	22,5 mm	27,5 mm
Type	B 32 560	B 32 561	B 32 562	B 32 563	B 32 564
Page	55	57	58	59	60
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					
0,33 µF					
0,47 µF					
0,68 µF					
1,0 µF					
1,5 µF					
2,2 µF					
3,3 µF					
4,7 µF					
5,6 µF ¹⁾					
6,8 µF					
10 µF					
15 µF					
22 µF					
33 µF					

1) For B 32 564, 420 Vdc only



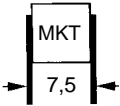
Ordering codes and packing units, lead spacing 7,5 mm

V_R (V_{rms} , $f \leq 60$ Hz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
63 Vdc (40 Vac)	0,22 μ F	2,5 \times 5,2 \times 9,0	B32560-J224-+	2)	2)	2500
	0,33 μ F	2,5 \times 5,6 \times 9,0	B32560-J334-+	2)	2)	2500
	0,47 μ F	2,6 \times 5,8 \times 9,0	B32560-J474-+****	3250	2600	2000
	0,68 μ F	3,2 \times 6,2 \times 9,0	B32560-J684-+****	2850	2300	1500
	1,0 μ F	4,0 \times 6,8 \times 9,0	B32560-J105-+****	2200	1800	1000
	1,5 μ F	5,1 \times 7,6 \times 9,0	B32560-J155-+****	1700	1400	500
	2,2 μ F	6,5 \times 8,2 \times 9,0	B32560-J225-+****	1300	1100	500
	3,3 μ F	8,5 \times 9,1 \times 9,0	B32560-J335-+	–	–	350
	4,7 μ F	9,8 \times 11,0 \times 9,0	B32560-J475-+	–	–	250
6,8 μ F	11,5 \times 13,3 \times 9,0	B32560-J685-+	–	–	150	
100 Vdc (63 Vac)	0,10 μ F	2,5 \times 4,7 \times 9,0	B32560-J1104-+	2)	2)	3000
	0,15 μ F	2,5 \times 4,7 \times 9,0	B32560-J1154-+	2)	2)	3000
	0,22 μ F	2,5 \times 5,1 \times 9,0	B32560-J1224-+****	3400	2700	2000
	0,33 μ F	2,7 \times 5,7 \times 9,0	B32560-J1334-+****	3100	2500	1500
	0,47 μ F	3,4 \times 6,1 \times 9,0	B32560-J1474-+****	2500	2000	1200
	0,68 μ F	4,2 \times 6,5 \times 9,0	B32560-J1684-+****	2000	1600	1000
	1,0 μ F	5,5 \times 7,0 \times 9,0	B32560-J1105-+****	1600	1300	500
	1,5 μ F	6,7 \times 8,2 \times 9,0	B32560-J1155-+	–	–	400
2,2 μ F	8,5 \times 9,2 \times 9,0	B32560-J1225-+	–	–	300	
250 Vdc (160 Vac)	33 nF	2,5 \times 4,8 \times 9,0	B32560-J3333-+	2)	2)	3000
	47 nF	2,5 \times 5,2 \times 9,0	B32560-J3473-+****	3500	2800	2300
	68 nF	2,6 \times 5,7 \times 9,0	B32560-J3683-+****	3400	2700	1700
	0,10 μ F	3,2 \times 6,1 \times 9,0	B32560-J3104-+****	2650	2200	1200
	0,15 μ F	3,9 \times 7,0 \times 9,0	B32560-J3154-+****	2150	1800	1000
	0,22 μ F	4,9 \times 7,5 \times 9,0	B32560-J3224-+****	1750	1400	650
	0,33 μ F	6,4 \times 8,2 \times 9,0	B32560-J3334-+	–	–	500

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

Special dimensions available upon request. For corresponding design rules, [refer to page 238](#).

- 1) Replace the + by the code letter for the required capacitance tolerance.
 Replace the *** by the code number for the required packing: Ammo pack = 289, reel = 189
 The ordering code for untaped components ends after the tolerance code letter.
- 2) Taping upon request



B 32 560

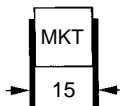
Ordering codes and packing units, lead spacing 7,5 mm

V_R (V_{rms} , $f \leq 60$ Hz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
400 Vdc (200 Vac)	1,0 nF	2,5 × 5,5 × 9,0	B32560-J6102-+	2)	2)	2300
	1,5 nF	2,5 × 5,5 × 9,0	B32560-J6152-+***	3500	2900	2000
	2,2 nF	2,5 × 5,5 × 9,0	B32560-J6222-+***	3700	3000	2100
	3,3 nF	2,5 × 5,5 × 9,0	B32560-J6332-+***	3400	2800	2000
	4,7 nF	2,5 × 5,5 × 9,0	B32560-J6472-+***	3700	3000	2000
	6,8 nF	2,5 × 5,5 × 9,0	B32560-J6682-+***	3700	3000	2000
	10 nF	2,5 × 5,5 × 9,0	B32560-J6103-+***	3500	2800	2200
	15 nF	2,5 × 5,5 × 9,0	B32560-J6153-+***	3500	2800	2500
	22 nF	2,5 × 5,5 × 9,0	B32560-J6223-+***	3400	2700	2300
	33 nF	2,6 × 6,0 × 9,0	B32560-J6333-+***	3400	2700	1600
	47 nF	3,2 × 6,5 × 9,0	B32560-J6473-+***	2650	2200	1200
	68 nF	3,8 × 7,3 × 9,0	B32560-J6683-+***	2250	1900	1000
	0,10 μF	4,9 × 7,7 × 9,0	B32560-J6104-+***	1750	1400	500
	0,15 μF	6,5 × 8,2 × 9,0	B32560-J6154-+	–	–	500
	630 Vdc (400 Vac)	1,0 nF	2,5 × 5,5 × 9,0	B32560-J8102-+	2)	2)
1,5 nF		2,5 × 5,5 × 9,0	B32560-J8152-+***	3500	2900	2000
2,2 nF		2,5 × 5,5 × 9,0	B32560-J8222-+***	3700	3000	2100
3,3 nF		2,5 × 5,5 × 9,0	B32560-J8332-+***	3400	2800	2000
4,7 nF		2,5 × 5,5 × 9,0	B32560-J8472-+***	3400	2700	1800
6,8 nF		3,2 × 6,5 × 9,0	B32560-J8682-+***	2900	2400	1300
10 nF		3,8 × 7,5 × 9,0	B32560-J8103-+***	2400	2000	1000

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

Special dimensions available upon request. For corresponding design rules, [refer to page 238](#).

- 1) Replace the + by the code letter for the required capacitance tolerance.
 Replace the *** by the code number for the required packing: Ammo pack = 289, reel = 189
 The ordering code for untaped components ends after the tolerance code letter.
- 2) Taping upon request



B 32 562

Ordering codes and packing units, lead spacing 15 mm

V_R (V_{rms} , $f \leq 60$ Hz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code ¹⁾	Packing units (pcs)		
				Ammo pack	Reel	Untaped
100 Vdc (63 Vac)	1,0 μ F	3,2 \times 6,3 \times 16,5	B32562-J1105-****	1750	2000	1500
	1,5 μ F	4,0 \times 7,3 \times 16,5	B32562-J1155-****	1460	1500	1000
	2,2 μ F	4,9 \times 8,0 \times 16,5	B32562-J1225-****	1190	1300	800
	3,3 μ F	6,0 \times 9,3 \times 16,5	B32562-J1335-****	960	1000	500
	4,7 μ F	7,3 \times 10,6 \times 16,5	B32562-J1475-****	790	900	400
	6,8 μ F	9,0 \times 11,8 \times 16,5	B32562-J1685-****	640	700	290
	10 μ F	11,8 \times 13,0 \times 16,5	B32562-J1106-+	–	–	200
250 Vdc (160 Vac)	0,22 μ F	3,2 \times 5,6 \times 16,5	B32562-J3224-****	1750	2000	1700
	0,33 μ F	4,0 \times 6,2 \times 16,5	B32562-J3334-****	1460	1500	1200
	0,47 μ F	5,0 \times 6,7 \times 16,5	B32562-J3474-****	1190	1300	950
	0,68 μ F	6,0 \times 7,8 \times 16,5	B32562-J3684-****	960	1000	500
	1,0 μ F	7,0 \times 9,3 \times 16,5	B32562-J3105-****	830	900	500
	1,5 μ F	8,7 \times 11,0 \times 16,5	B32562-J3155-****	660	700	300
	2,2 μ F	10,7 \times 12,8 \times 16,5	B32562-J3225-+	–	–	200
3,3 μ F	13,9 \times 14,5 \times 16,5	B32562-J3335-+	–	–	150	
400 Vdc (200 Vac)	22 nF	3,3 \times 5,6 \times 16,5	B32562-J6223-****	1750	2000	1800
	33 nF	3,3 \times 5,6 \times 16,5	B32562-J6333-****	1750	2000	1800
	47 nF	3,3 \times 5,6 \times 16,5	B32562-J6473-****	1870	2100	1800
	68 nF	3,3 \times 5,6 \times 16,5	B32562-J6683-****	1800	2000	1800
	0,10 μ F	3,3 \times 5,6 \times 16,5	B32562-J6104-****	1700	1900	1600
	0,15 μ F	3,9 \times 6,5 \times 16,5	B32562-J6154-****	1420	1600	1200
	0,22 μ F	4,7 \times 7,5 \times 16,5	B32562-J6224-****	1240	1300	850
	0,33 μ F	6,0 \times 8,3 \times 16,5	B32562-J6334-****	960	1000	500
	0,47 μ F	7,3 \times 9,3 \times 16,5	B32562-J6474-****	790	900	450
	0,68 μ F	8,9 \times 10,8 \times 16,5	B32562-J6684-****	640	700	300
	1,0 μ F	10,9 \times 12,5 \times 16,5	B32562-J6105-+	–	–	200
630 Vdc (350 Vac)	0,10 μ F	6,2 \times 9,3 \times 16,5	B32562-J8104-+	–	–	700
	0,15 μ F	7,6 \times 10,8 \times 16,5	B32562-J8154-+	–	–	500
	0,22 μ F	9,2 \times 12,2 \times 16,5	B32562-J8224-+	–	–	350
	0,33 μ F	11,2 \times 14,2 \times 16,5	B32562-J8334-+	–	–	250
	0,47 μ F	13,5 \times 16,3 \times 16,5	B32562-J8474-+	–	–	180

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

Special dimensions available upon request. For corresponding design rules, [refer to page 238](#).

1) Replace the + by the code letter for the required capacitance tolerance.

Replace the *** by the code number for the required packing: Ammo pack = 289, reel = 189

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

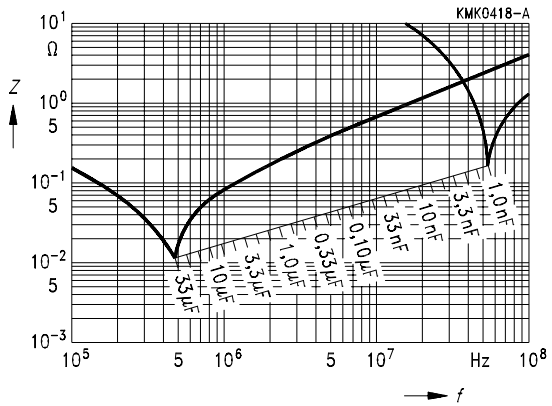
Technical data

Climatic category in accordance with IEC 68-1	55/100/56 ¹⁾			
Lower category temperature T_{\min}	- 55 °C			
Upper category temperature T_{\max}	+ 100 °C (+ 125 °C for 1000 h and $V_C = 0,5 \cdot V_R$)			
Damp heat test	56 days/40 °C/93 % relative humidity			
Limit values after damp heat test ¹⁾	Capacitance change $ \Delta C/C $	≤ 5 %		
	Dissipation factor change $\Delta \tan \delta$	≤ 3 · 10 ⁻³ (at 1 kHz)		
		≤ 5 · 10 ⁻³ (at 10 kHz)		
	Insulation resistance R_{is}	≥ 50 % of minimum		
	or time constant $\tau = C_R \cdot R_{is}$	as-delivered values		
Reliability:				
Reference conditions	0,5 · V_R ; 40 °C			
Failure rate	2 · 10 ⁻⁹ /h = 2 fit			
	For a conversion table for other operating conditions and temperatures, refer to page 276.			
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 $\tan \delta$	> 2 · upper limit value		
	Insulation resistance R_{is}	< 150 MΩ ($C_R \leq 0,33 \mu\text{F}$)		
	or time constant $\tau = C_R \cdot R_{is}$	< 50 s ($C_R > 0,33 \mu\text{F}$)		
DC test voltage	1,4 · V_R , 2 s			
Category voltage V_C	$T \leq 85 \text{ °C}$: $V_C = 1,0 \cdot V_R$ or $1,0 \cdot V_{\text{rms}}$			
Operation with dc voltage or ac voltage V_{rms} up to 60 Hz	$T \leq 100 \text{ °C}$: $V_C = 0,8 \cdot V_R$ or $0,8 \cdot V_{\text{rms}}$			
Category voltage for short operating periods	$T \leq 100 \text{ °C}$: $V_C = 1,25 \cdot V_R$ or $1,0 \cdot V_{\text{rms}}$ for max. 2000 h			
	$T \leq 125 \text{ °C}$: $V_C = 0,5 \cdot V_R$ or $0,5 \cdot V_{\text{rms}}$ for max. 1000 h			
Dissipation factor $\tan \delta$ (in 10 ⁻³) at 20 °C (upper limit values)		$C_R \leq 0,1 \mu\text{F}$	$0,1 \mu\text{F} < C_R \leq 1 \mu\text{F}$	$C_R > 1 \mu\text{F}$
	at 1 kHz	8	8	10
	10 kHz	15	15	–
	100 kHz	30	–	–
Insulation resistance R_{is} or time constant $\tau = C_R \cdot R_{is}$ at 20 °C, rel. humidity ≤ 65 % (minimum as-delivered values)	V_R	$C_R \leq 0,33 \mu\text{F}$	$C_R > 0,33 \mu\text{F}$	
	≤ 100 Vdc	3750 MΩ	1250 s	
	≥ 250 Vdc	7500 MΩ	2500 s	

1) According to CECC 30401-007, test criteria must be met after exposure to damp heat for 21 days.



Impedance Z
versus
frequency f
(typical values)



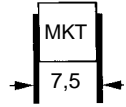
Pulse handling capability

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	15 mm	22,5 mm	27,5 mm
63 Vdc	120	—	—	—	—
100 Vdc	150	75	50	50	25
250 Vdc	200	150	100	100	50
400 Vdc	275	175	125	125	60
420 Vdc	—	—	—	—	60
630 Vdc	320	—	150	—	—

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 on [page 250](#).

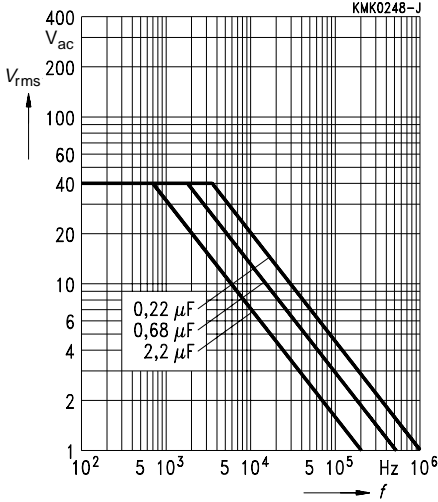
V_R	Pulse characteristic k_0 in $V^2/\mu s$ (for $V_{pp} \leq V_R$)				
	Lead spacing				
	7,5 mm	10 mm	15 mm	22,5 mm	27,5 mm
63 Vdc	15 000	—	—	—	—
100 Vdc	30 000	15 000	10 000	10 000	5 000
250 Vdc	100 000	75 000	50 000	50 000	25 000
400 Vdc	220 000	140 000	100 000	100 000	50 000
420 Vdc	—	—	—	—	50 000
630 Vdc	400 000	—	190 000	—	—



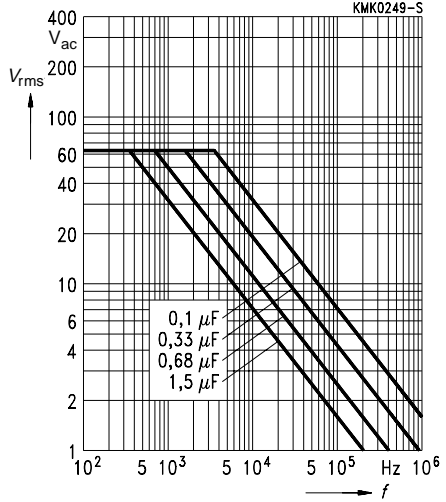
Permissible ac voltage V_{rms} versus frequency f

Lead spacing 7,5 mm

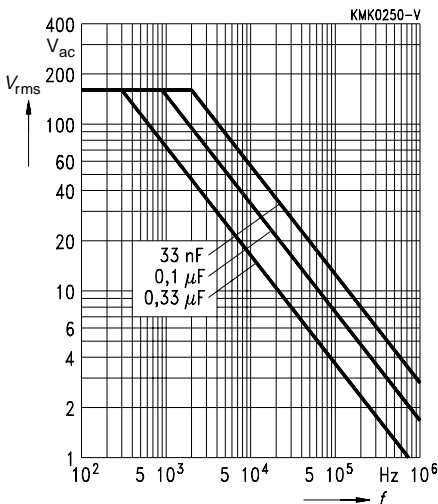
63 Vdc/ 40 Vac



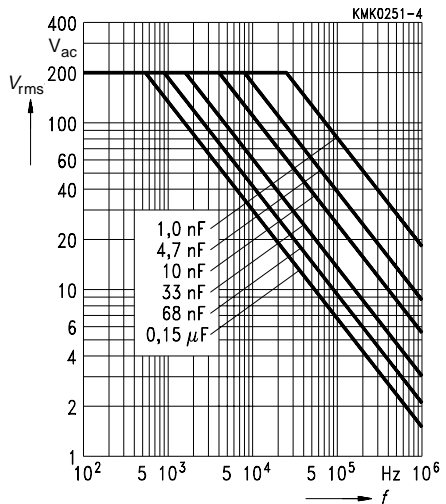
100 Vdc/ 63 Vac

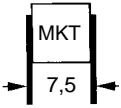


250Vdc/ 160Vac



400 Vdc/ 200 Vac

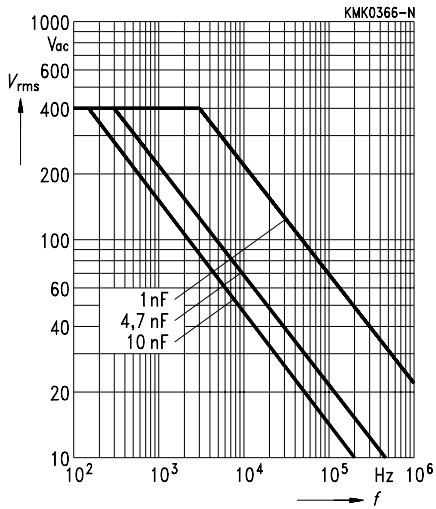


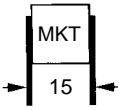


B 32 560

**Permissible ac voltage V_{rms} versus frequency f
Lead spacing 7,5 mm**

630 Vdc/ 400 Vac



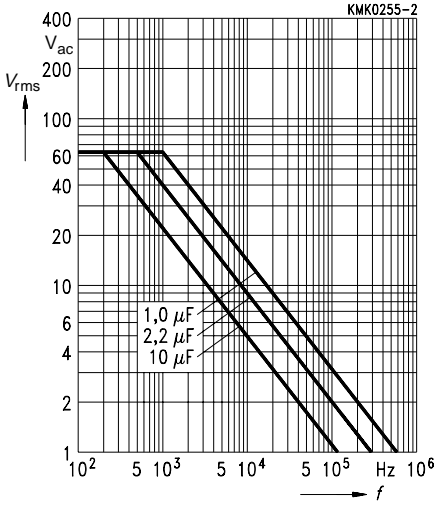


B 32 562

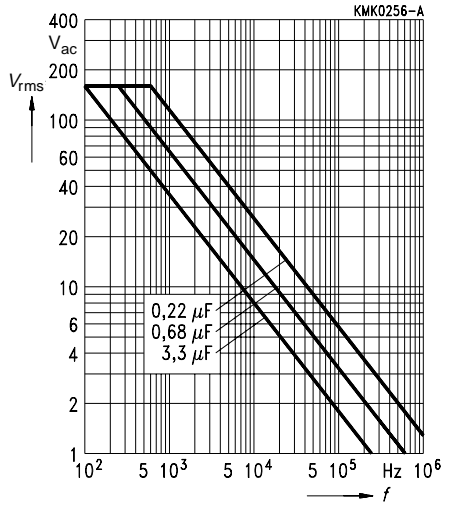
Permissible ac voltage V_{rms} versus frequency f

Lead spacing 15 mm

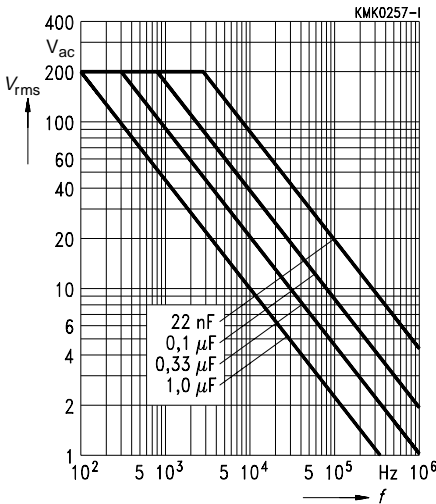
100 Vdc/63 Vac



250 Vdc/ 160 Vac



400 Vdc/200 Vac



630 Vdc/350 Vac

