

**Standard applications**

**Construction**

- Dielectric: polyethylene terephthalate (polyester)
- Stacked-film technology for lead spacing 5 and 7,5 mm as well as for 10 and 15 mm (63 ... 400 Vdc)
- Wound capacitor technology for lead spacing 10 mm (630 Vdc), for lead spacing 15 mm (250 ... 630 Vdc), for lead spacing 22,5 and 27,5 mm
- Plastic case (UL 94 V-0)
- Epoxy resin sealing

**Features**

- High pulse strength
- High contact reliability

**Terminals**

- Parallel wire leads, tinned
- Also available with (3,2 ± 0,3) mm lead length
- Special lead lengths available upon request

**Marking**

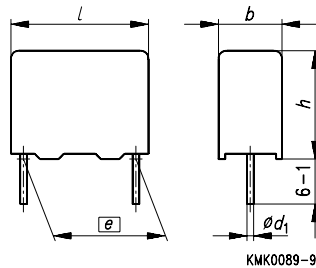
Manufacturer's logo,  
lot number for lead spacing ≥ 15 mm,  
style (MKT) for lead spacing ≥ 7,5 mm,  
type (coded) for lead spacing 5 mm (B32529 ± 1),  
rated capacitance (coded),  
capacitance tolerance (code letter),  
rated dc voltage,  
date of manufacture (coded)

**Delivery mode**

Bulk (untaped)  
Taped (Ammo pack or reel)  
For notes on taping, [refer to page 279](#).

**Detail specifications**

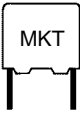
Homologated in accordance with  
CECC 30 401-043  
CECC 30 401-052/DIN 44 112



Dimensions in mm

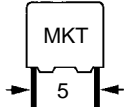
Lead spacing	Diameter $d_1$	Type
$\overline{e} \pm 0,4$		
5,0	0,5	B 32 529
7,5	0,5	B 32 520
10,0	$0,5^{1)}/0,6$	B 32 521
15,0	0,8	B 32 522
22,5	0,8	B 32 523
27,5	0,8	B 32 524

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



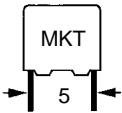
Overview of available types

Lead spacing	5 mm	7,5 mm	10 mm	15 mm	22,5 mm	27,5 mm
Type	B 32 529	B 32 520	B 32 521	B 32 522	B 32 523	B 32 524
Page	19	22	24	26	28	29
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						
6,8 µF						
10 µF						
15 µF						
22 µF						
33 µF						
Note	Stacked-film technology			Stacked-film/ Wound capacitor technology	Wound capacitor technology	


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

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
50 Vdc (32 Vac)	0,33 $\mu$ F	3,0 × 6,5 × 7,2	B32529-C5334-+***	2700	2400	2000
	0,47 $\mu$ F	3,5 × 8,0 × 7,2	B32529-C5474-+***	2300	2000	2000
	0,68 $\mu$ F	4,5 × 9,5 × 7,2	B32529-C5684-+***	1800	1500	1500
	1,0 $\mu$ F	4,5 × 9,5 × 7,3	B32529-C5105-+***	1800	1500	1500
	1,5 $\mu$ F	6,0 × 10,5 × 7,5	B32529-C5155-+***	1300	1100	1000
	2,2 $\mu$ F	7,2 × 13,0 × 7,8	B32529-C5225-+***	1000	900	1000
	3,3 $\mu$ F	7,2 × 13,0 × 7,8	B32529-C5335-+***	1000	900	1000
	63 Vdc (40 Vac)	1,0 nF	2,5 × 6,5 × 7,2	B32529-C102-+***	3200	2800
1,5 nF		2,5 × 6,5 × 7,2	B32529-C152-+***	3200	2800	2000
2,2 nF		2,5 × 6,5 × 7,2	B32529-C222-+***	3200	2800	2000
3,3 nF		2,5 × 6,5 × 7,2	B32529-C332-+***	3200	2800	2000
4,7 nF		2,5 × 6,5 × 7,2	B32529-C472-+***	3200	2800	2000
6,8 nF		2,5 × 6,5 × 7,2	B32529-C682-+***	3200	2800	2000
10 nF		2,5 × 6,5 × 7,2	B32529-C103-+***	3200	2800	2000
15 nF		2,5 × 6,5 × 7,2	B32529-C153-+***	3200	2800	2000
22 nF		2,5 × 6,5 × 7,2	B32529-C223-+***	3200	2800	2000
33 nF		2,5 × 6,5 × 7,2	B32529-C333-+***	3200	2800	2000
47 nF		2,5 × 6,5 × 7,2	B32529-C473-+***	3200	2800	2000
68 nF		2,5 × 6,5 × 7,2	B32529-C683-+***	3200	2800	2000
0,10 $\mu$ F		2,5 × 6,5 × 7,2	B32529-C104-+***	3200	2800	2000
0,15 $\mu$ F		2,5 × 6,5 × 7,2	B32529-C154-+***	3200	2800	2000
0,22 $\mu$ F		2,5 × 6,5 × 7,2	B32529-C224-+***	3200	2800	2000
0,33 $\mu$ F		3,0 × 6,5 × 7,2	B32529-C334-+***	2700	2400	2000
0,47 $\mu$ F		3,5 × 8,0 × 7,2	B32529-C474-+***	2300	2000	2000
0,68 $\mu$ F		4,5 × 9,5 × 7,2	B32529-C684-+***	1800	1500	1500
1,0 $\mu$ F		4,5 × 9,5 × 7,2	B32529-C105-+***	1800	1500	1500
1,5 $\mu$ F		6,0 × 10,5 × 7,5	B32529-C155-+***	1300	1100	1000
2,2 $\mu$ F		7,2 × 13,0 × 7,8	B32529-C225-+***	1000	900	1000

1) For instructions on how to determine the ordering code, refer to page 21.

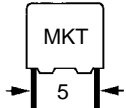


## B 32 529

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

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
100 Vdc (63 Vac)	1,0 nF	2,5 × 6,5 × 7,2	B32529-C1102-****	3200	2800	2000
	1,5 nF	2,5 × 6,5 × 7,2	B32529-C1152-****	3200	2800	2000
	2,2 nF	2,5 × 6,5 × 7,2	B32529-C1222-****	3200	2800	2000
	3,3 nF	2,5 × 6,5 × 7,2	B32529-C1332-****	3200	2800	2000
	4,7 nF	2,5 × 6,5 × 7,2	B32529-C1472-****	3200	2800	2000
	6,8 nF	2,5 × 6,5 × 7,2	B32529-C1682-****	3200	2800	2000
	10 nF	2,5 × 6,5 × 7,2	B32529-C1103-****	3200	2800	2000
	15 nF	2,5 × 6,5 × 7,2	B32529-C1153-****	3200	2800	2000
	22 nF	2,5 × 6,5 × 7,2	B32529-C1223-****	3200	2800	2000
	33 nF	2,5 × 6,5 × 7,2	B32529-C1333-****	3200	2800	2000
	47 nF	2,5 × 6,5 × 7,2	B32529-C1473-****	3200	2800	2000
	68 nF	2,5 × 6,5 × 7,2	B32529-C1683-****	3200	2800	2000
	0,10 μF	2,5 × 6,5 × 7,2	B32529-C1104-****	3200	2800	2000
	0,15 μF	3,0 × 6,5 × 7,2	B32529-C1154-****	2700	2400	2000
	0,22 μF	3,5 × 8,0 × 7,2	B32529-C1224-****	2300	2000	2000
	0,33 μF	3,5 × 8,0 × 7,2	B32529-C1334-****	2300	2000	2000
	0,47 μF	4,5 × 9,5 × 7,3	B32529-C1474-****	1800	1500	1500
	0,68 μF	6,0 × 10,5 × 7,5	B32529-C1684-****	1300	1100	1000
1,0 μF	7,2 × 13,0 × 7,8	B32529-C1105-****	1000	900	1000	
250 Vdc (160 Vac)	1,0 nF	2,5 × 6,5 × 7,2	B32529-C3102-****	3200	2800	2000
	1,5 nF	2,5 × 6,5 × 7,2	B32529-C3152-****	3200	2800	2000
	2,2 nF	2,5 × 6,5 × 7,2	B32529-C3222-****	3200	2800	2000
	3,3 nF	2,5 × 6,5 × 7,2	B32529-C3332-****	3200	2800	2000
	4,7 nF	2,5 × 6,5 × 7,2	B32529-C3472-****	3200	2800	2000
	6,8 nF	2,5 × 6,5 × 7,2	B32529-C3682-****	3200	2800	2000
	10 nF	2,5 × 6,5 × 7,2	B32529-C3103-****	3200	2800	2000
	15 nF	2,5 × 6,5 × 7,2	B32529-C3153-****	3200	2800	2000
	22 nF	2,5 × 6,5 × 7,2	B32529-C3223-****	3200	2800	2000
	33 nF	3,0 × 6,5 × 7,2	B32529-C3333-****	2700	2400	2000
	47 nF	3,5 × 8,0 × 7,2	B32529-C3473-****	2300	2000	2000
	68 nF	4,5 × 9,5 × 7,3	B32529-C3683-****	1800	1500	1500
	0,10 μF	4,5 × 9,5 × 7,3	B32529-C3104-****	1800	1500	1500
	0,15 μF	5,0 × 10,0 × 7,5	B32529-C3154-****	1600	1400	1500
	0,22 μF	7,2 × 13,0 × 7,8	B32529-C3224-****	1000	900	1000

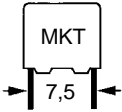
1) For instructions on how to determine the ordering code, refer to page 21.


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

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
400 Vdc (200 Vac)	1,0 nF	2,5 × 6,5 × 7,2	B32529-C6102-****	3200	2800	2000
	1,5 nF	2,5 × 6,5 × 7,2	B32529-C6152-****	3200	2800	2000
	2,2 nF	2,5 × 6,5 × 7,2	B32529-C6222-****	3200	2800	2000
	3,3 nF	2,5 × 6,5 × 7,2	B32529-C6332-****	3200	2800	2000
	4,7 nF	2,5 × 6,5 × 7,2	B32529-C6472-****	3200	2800	2000
	6,8 nF	2,5 × 6,5 × 7,2	B32529-C6682-****	3200	2800	2000
	10 nF	3,0 × 6,5 × 7,2	B32529-C6103-****	2700	2400	2000
	15 nF	3,5 × 8,0 × 7,2	B32529-C6153-****	2300	2000	2000
	22 nF	4,5 × 9,5 × 7,3	B32529-B6223-****	1800	1500	1500
	33 nF	5,0 × 10,0 × 7,5	B32529-B6333-****	1600	1400	1500
	47 nF	6,0 × 10,5 × 7,5	B32529-B6473-****	1300	1100	1000
	68 nF	7,2 × 13,0 × 7,8	B32529-B6683-****	1000	900	1000
	0,10 μF	7,2 × 13,0 × 7,8	B32529-C6104-****	1000	900	1000
630 Vdc (400 Vac)	1,0 nF	2,5 × 6,5 × 7,2	B32529-C8102-****	3200	2800	2000
	1,5 nF	2,5 × 6,5 × 7,2	B32529-C8152-****	3200	2800	2000
	2,2 nF	2,5 × 6,5 × 7,2	B32529-C8222-****	3200	2800	2000
	3,3 nF	3,5 × 8,0 × 7,2	B32529-C8332-****	2300	2000	2000
	4,7 nF	3,5 × 8,0 × 7,2	B32529-C8472-****	2300	2000	2000
	6,8 nF	3,5 × 8,0 × 7,2	B32529-C8682-****	2300	2000	2000
	10 nF	5,0 × 10,0 × 7,5	B32529-C8103-****	1600	1400	1500

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

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.  
 For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32529-C6102-K3

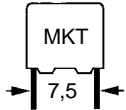


## B 32 520

### 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 <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
63 Vdc (40 Vac)	68 nF	2,5 × 7,0 × 10,0	B32520-C683-+***	3200	2800	2500
	0,10 μF	2,5 × 7,0 × 10,0	B32520-C104-+***	3200	2800	2500
	0,15 μF	2,5 × 7,0 × 10,0	B32520-C154-+***	3200	2800	2500
	0,22 μF	2,5 × 7,0 × 10,0	B32520-C224-+***	3200	2800	2500
	0,33 μF	2,5 × 7,0 × 10,0	B32520-C334-+***	3200	2800	2500
	0,47 μF	3,0 × 8,0 × 10,0	B32520-C474-+***	2600	2400	2000
	0,68 μF	4,0 × 8,5 × 10,0	B32520-C684-+***	2000	1800	1500
	1,0 μF	5,0 × 10,5 × 10,0	B32520-C105-+***	1600	1400	1000
	1,5 μF	5,0 × 10,5 × 10,0	B32520-C155-+***	1600	1400	1000
	2,2 μF	6,0 × 12,0 × 10,3	B32520-C225-+***	1300	1100	750
100 Vdc (63 Vac)	47 nF	2,5 × 7,0 × 10,0	B32520-C1473-+***	3200	2800	2500
	68 nF	2,5 × 7,0 × 10,0	B32520-C1683-+***	3200	2800	2500
	0,10 μF	2,5 × 7,0 × 10,0	B32520-C1104-+***	3200	2800	2500
	0,15 μF	3,0 × 8,0 × 10,0	B32520-C1154-+***	2600	2400	2000
	0,22 μF	3,0 × 8,0 × 10,0	B32520-C1224-+***	2600	2400	2000
	0,33 μF	4,0 × 8,5 × 10,0	B32520-C1334-+***	2000	1800	1500
	0,47 μF	5,0 × 10,5 × 10,0	B32520-C1474-+***	1600	1400	1000
	0,68 μF	6,0 × 12,0 × 10,3	B32520-C1684-+***	1300	1100	750
250 Vdc (160 Vac)	15 nF	2,5 × 7,0 × 10,0	B32520-C3153-+***	3200	2800	2500
	22 nF	2,5 × 7,0 × 10,0	B32520-C3223-+***	3200	2800	2500
	33 nF	2,5 × 7,0 × 10,0	B32520-C3333-+***	3200	2800	2500
	47 nF	2,5 × 7,0 × 10,0	B32520-C3473-+***	3200	2800	2500
	68 nF	3,0 × 8,0 × 10,0	B32520-C3683-+***	2600	2400	2000
	0,10 μF	4,0 × 8,5 × 10,0	B32520-C3104-+***	2000	1800	1500
	0,15 μF	5,0 × 10,5 × 10,0	B32520-C3154-+***	1600	1400	1000

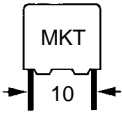
1) For instructions on how to determine the ordering code, see next page.


**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 <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
400 Vdc (200 Vac)	1,0 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6102-****	3200	2800	2500
	1,5 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6152-****	3200	2800	2500
	2,2 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6222-****	3200	2800	2500
	3,3 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6332-****	3200	2800	2500
	4,7 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6472-****	3200	2800	2500
	6,8 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6682-****	3200	2800	2500
	10 nF	$2,5 \times 7,0 \times 10,0$	B32520-C6103-****	3200	2800	2500
	15 nF	$3,0 \times 8,0 \times 10,0$	B32520-C6153-****	2600	2400	2000
	22 nF	$4,0 \times 8,5 \times 10,0$	B32520-C6223-****	2000	1800	1500
	33 nF	$5,0 \times 10,5 \times 10,0$	B32520-C6333-****	1600	1400	1000
	47 nF	$5,0 \times 10,5 \times 10,0$	B32520-C6473-****	1600	1400	1000
	68 nF	$6,0 \times 12,0 \times 10,3$	B32520-C6683-****	1300	1100	750

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

1) Replace the + by the code letter for the required capacitance tolerance.  
 Replace the \*\*\* by the code number for the required packaging: 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.: B32520-C6102-K3



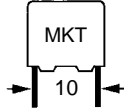
## B 32 521

### Ordering codes and packing units, lead spacing 10 mm

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
63 Vdc (40 Vac)	0,47 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C474-+***	1000	1700	1000
	0,68 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C684-+***	1000	1700	1000
	1,0 $\mu$ F	4,0 $\times$ 9,0 $\times$ 13,0	B32521-C105-+***	1000	1700	1000
	1,5 $\mu$ F	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C155-+***	830	1300	1000
	2,2 $\mu$ F	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C225-+***	830	1300	1000
	3,3 $\mu$ F	6,0 $\times$ 12,0 $\times$ 13,0	B32521-C335-+***	680	1100	1000
100 Vdc (63 Vac)	0,10 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C1104-+***	1000	1700	1000
	0,15 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C1154-+***	1000	1700	1000
	0,22 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C1224-+***	1000	1700	1000
	0,33 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C1334-+***	1000	1700	1000
	0,47 $\mu$ F	4,0 $\times$ 9,0 $\times$ 13,0	B32521-C1474-+***	1000	1700	1000
	0,68 $\mu$ F	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C1684-+***	830	1300	1000
250 Vdc (160 Vac)	1,0 $\mu$ F	6,0 $\times$ 12,0 $\times$ 13,0	B32521-C1105-+***	680	1100	1000
	33 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C3333-+***	1000	1700	1000
	47 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C3473-+***	1000	1700	1000
	68 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C3683-+***	1000	1700	1000
	0,10 $\mu$ F	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C3104-+***	1000	1700	1000
	0,15 $\mu$ F	4,0 $\times$ 9,0 $\times$ 13,0	B32521-C3154-+***	1000	1700	1000
	0,22 $\mu$ F	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C3224-+***	830	1300	1000
	0,33 $\mu$ F	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C3334-+***	830	1300	1000
400 Vdc (200 Vac)	0,47 $\mu$ F	6,0 $\times$ 12,0 $\times$ 13,0	B32521-C3474-+***	680	1100	1000
	10 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C6103-+***	1000	1700	1000
	15 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C6153-+***	1000	1700	1000
	22 nF	4,0 $\times$ 7,0 $\times$ 13,0	B32521-C6223-+***	1000	1700	1000
	33 nF	4,0 $\times$ 9,0 $\times$ 13,0	B32521-C6333-+***	1000	1700	1000
	47 nF	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C6473-+***	830	1300	1000
	68 nF	5,0 $\times$ 11,0 $\times$ 13,0	B32521-C6683-+***	830	1300	1000
	0,10 $\mu$ F	6,0 $\times$ 12,0 $\times$ 13,0	B32521-C6104-+***	680	1100	1000

1) For instructions on how to determine the ordering code, see next page.



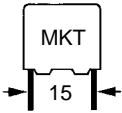


**Ordering codes and packing units, lead spacing 10 mm**

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
630 Vdc (200 Vac)	6,8 nF <sup>2)</sup>	4,0 × 9,0 × 13,0	B32521-N8682-+***	1000	1700	1000
	10 nF <sup>2)</sup>	4,0 × 9,0 × 13,0	B32521-N8103-+***	1000	1700	1000
	15 nF <sup>2)</sup>	5,0 × 11,0 × 13,0	B32521-N8153-+***	830	1300	1000
	22 nF <sup>2)</sup>	5,0 × 11,0 × 13,0	B32521-N8223-+***	830	1300	1000
	33 nF <sup>2)</sup>	6,0 × 12,0 × 13,0	B32521-N8333-+***	680	1100	1000

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

- 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.  
 For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32521-N8682-K3
- 2) Wound capacitor technology



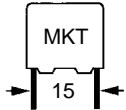
## B 32 522

### 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 <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
63 Vdc (40 Vac)	0,68 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C684-+***	1170	1300	1000
	1,0 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C105-+***	1170	1300	1000
	1,5 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C155-+***	1170	1300	1000
	2,2 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C225-+***	1170	1300	1000
	3,3 $\mu$ F	6,0 × 11,0 × 18,0	B32522-C335-+***	960	1100	1000
	4,7 $\mu$ F	7,0 × 12,5 × 18,0	B32522-C475-+***	830	900	1000
100 Vdc (63 Vac)	0,33 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C1334-+***	1170	1300	1000
	0,47 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C1474-+***	1170	1300	1000
	0,68 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C1684-+***	1170	1300	1000
	1,0 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C1105-+***	1170	1300	1000
	1,5 $\mu$ F	6,0 × 11,0 × 18,0	B32522-C1155-+***	960	1100	1000
	2,2 $\mu$ F	7,0 × 12,5 × 18,0	B32522-C1225-+***	830	900	1000
250 Vdc (160 Vac)	3,3 $\mu$ F	8,5 × 14,5 × 18,0	B32522-C1335-+***	680	700	500
	0,10 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C3104-+***	1170	1300	1000
	0,15 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C3154-+***	1170	1300	1000
	0,22 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C3224-+***	1170	1300	1000
	0,33 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C3334-+***	1170	1300	1000
	0,47 $\mu$ F	6,0 × 11,0 × 18,0	B32522-C3474-+***	960	1100	1000
400 Vdc (200 Vac)	0,68 $\mu$ F	7,0 × 12,5 × 18,0	B32522-C3684-+***	830	900	1000
	1,0 $\mu$ F	8,5 × 14,5 × 18,0	B32522-C3105-+***	680	700	500
	1,0 $\mu$ F <sup>2)</sup>	8,5 × 14,5 × 18,0	B32522-N3105-+***	680	700	500
	47 nF	5,0 × 10,5 × 18,0	B32522-C6473-+***	1170	1300	1000
	68 nF	5,0 × 10,5 × 18,0	B32522-C6683-+***	1170	1300	1000
	0,10 $\mu$ F	5,0 × 10,5 × 18,0	B32522-C6104-+***	1170	1300	1000
400 Vdc (200 Vac)	0,10 $\mu$ F <sup>2)</sup>	5,0 × 10,5 × 18,0	B32522-N6104-+***	1170	1300	1000
	0,15 $\mu$ F	6,0 × 11,0 × 18,0	B32522-C6154-+***	960	1100	1000
	0,15 $\mu$ F <sup>2)</sup>	5,0 × 10,5 × 18,0	B32522-N6154-+***	1170	1300	1000
	0,22 $\mu$ F	7,0 × 12,5 × 18,0	B32522-C6224-+***	830	900	1000
	0,22 $\mu$ F <sup>2)</sup>	6,0 × 11,0 × 18,0	B32522-N6224-+***	960	1100	1000
	0,33 $\mu$ F	8,5 × 14,5 × 18,0	B32522-C6334-+***	680	700	500
	0,33 $\mu$ F <sup>2)</sup>	8,5 × 14,5 × 18,0	B32522-N6334-+***	680	700	500
	0,47 $\mu$ F <sup>2)</sup>	8,5 × 14,5 × 18,0	B32522-N6474-+***	680	700	500
	0,68 $\mu$ F <sup>2)</sup>	9,0 × 17,5 × 18,0	B32522-N6684-+***	640	700	500

1) For instructions on how to determine the ordering code, see next page.

2) Wound capacitor technology


**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 <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
630 Vdc (200 Vac)	33 nF <sup>2)</sup>	5,0 × 10,5 × 18,0	B32522-Q8333-+***	1170	1300	1000
	47 nF <sup>2)</sup>	5,0 × 10,5 × 18,0	B32522-Q8473-+***	1170	1300	1000
	68 nF <sup>2)</sup>	6,0 × 11,0 × 18,0	B32522-Q8683-+***	960	1100	1000
	0,10 $\mu$ F <sup>2)</sup>	7,0 × 12,5 × 18,0	B32522-Q8104-+***	830	900	1000

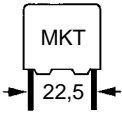
Capacitance tolerance:  $\pm 20\% \hat{=} M$ ,  $\pm 10\% \hat{=} K$ ,  $\pm 5\% \hat{=} J$

1) Replace the + by the code letter for the required 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.: B32522-Q8104-K3

2) Wound capacitor technology



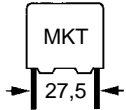
## B 32 523

### Ordering codes and packing units, lead spacing 22,5 mm

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
63 Vdc (40 Vac)	6,8 $\mu$ F	8,5 $\times$ 16,5 $\times$ 26,5	B32523-Q685-+***	480	500	510
	10 $\mu$ F	11,0 $\times$ 20,5 $\times$ 26,5	B32523-Q106-+***	370	350	510
100 Vdc (63 Vac)	1,5 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q1155-+***	680	700	720
	2,2 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q1225-+***	680	700	720
	3,3 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q1335-+***	680	700	720
	4,7 $\mu$ F	8,5 $\times$ 16,5 $\times$ 26,5	B32523-Q1475-+***	480	500	510
	6,8 $\mu$ F	10,5 $\times$ 16,5 $\times$ 26,5	B32523-Q1685-+***	390	400	540
250 Vdc (160 Vac)	0,47 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q3474-+***	680	700	720
	0,68 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q3684-+***	680	700	720
	1,0 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q3105-+***	680	700	720
	1,5 $\mu$ F	7,0 $\times$ 16,0 $\times$ 26,5	B32523-Q3155-+***	580	600	630
	2,2 $\mu$ F	10,5 $\times$ 16,5 $\times$ 26,5	B32523-Q3225-+***	390	400	540
	3,3 $\mu$ F	11,0 $\times$ 20,5 $\times$ 26,5	B32523-Q3335-+***	370	350	510
400 Vdc (200 Vac)	0,22 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q6224-+***	680	700	720
	0,33 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q6334-+***	680	700	720
	0,47 $\mu$ F	7,0 $\times$ 16,0 $\times$ 26,5	B32523-Q6474-+***	580	600	630
	0,68 $\mu$ F	8,5 $\times$ 16,5 $\times$ 26,5	B32523-Q6684-+***	480	500	510
630 Vdc (200 Vac)	0,10 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q8104-+***	680	700	720
	0,15 $\mu$ F	6,0 $\times$ 15,0 $\times$ 26,5	B32523-Q8154-+***	680	700	720
	0,22 $\mu$ F	7,0 $\times$ 16,0 $\times$ 26,5	B32523-Q8224-+***	580	600	630

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

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.  
 For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32523-Q685-K3


**Ordering codes and packing units, lead spacing 27,5 mm**

$V_R$ ( $V_{rms}$ , $f \leq 60$ Hz)	$C_R$	Maximum dimensions $b \times h \times l$ (mm)	Ordering code <sup>1)</sup>	Packing units (pcs)		
				Ammo pack	Reel	Untaped
100 Vdc (63 Vac)	6,8 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q1685-+***	–	350	320
	10 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q1106-+***	–	350	320
	15 $\mu$ F	12,5 $\times$ 21,5 $\times$ 31,5	B32524-Q1156-+***	–	300	280
	22 $\mu$ F	15,0 $\times$ 24,5 $\times$ 31,5	B32524-Q1226-+***	–	–	240
	33 $\mu$ F	19,0 $\times$ 30,0 $\times$ 31,5	B32524-Q1336-+***	–	–	180
250 Vdc (160 Vac)	2,2 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q3225-+***	–	350	320
	3,3 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q3335-+***	–	350	320
	4,7 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q3475-+***	–	350	320
	6,8 $\mu$ F	14,0 $\times$ 24,5 $\times$ 31,5	B32524-Q3685-+***	–	–	260
	10 $\mu$ F	18,0 $\times$ 27,5 $\times$ 31,5	B32524-Q3106-+***	–	–	200
400 Vdc (200 Vac)	1,0 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q6105-+***	–	350	320
	1,5 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q6155-+***	–	350	320
	2,2 $\mu$ F	12,5 $\times$ 21,5 $\times$ 31,5	B32524-Q6225-+***	–	300	280
	3,3 $\mu$ F	15,0 $\times$ 24,5 $\times$ 31,5	B32524-Q6335-+***	–	–	240
	4,7 $\mu$ F	18,0 $\times$ 27,5 $\times$ 31,5	B32524-Q6475-+***	–	–	200
630 Vdc (220 Vac)	0,33 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q8334-+***	–	350	320
	0,47 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q8474-+***	–	350	320
	0,68 $\mu$ F	11,0 $\times$ 21,0 $\times$ 31,5	B32524-Q8684-+***	–	350	320
	1,0 $\mu$ F	14,0 $\times$ 24,5 $\times$ 31,5	B32524-Q8105-+***	–	–	260
	1,5 $\mu$ F	18,0 $\times$ 27,5 $\times$ 31,5	B32524-Q8155-+***	–	–	200

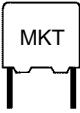
Capacitance tolerance:  $\pm 20\% \hat{=} M, \pm 10\% \hat{=} K, \pm 5\% \hat{=} J$

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

Replace the \*\*\* by the code number for the required packaging: reel = 189

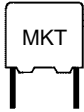
The ordering code for untaped components ends after the tolerance code letter.

For capacitors with 3,2 mm lead length, append code number "3" to the tolerance code, e.g.: B32524-Q1685-K3

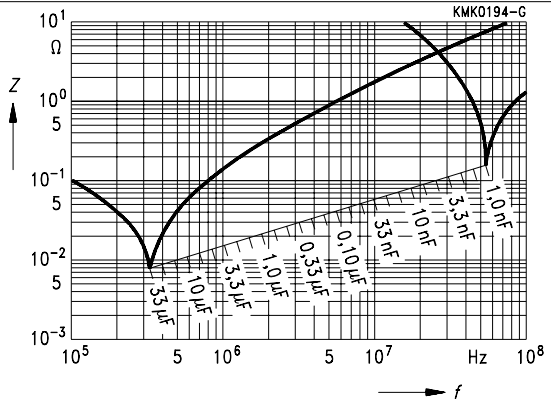


**Technical data**

Climatic category in accordance with IEC 68-1	55/100/56			
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	Capacitance change $ \Delta C/C $	$\leq 5 \%$		
	Dissipation factor change $\Delta \tan \delta$	$\leq 5 \cdot 10^{-3}$ (at 1 kHz)		
	Insulation resistance $R_{is}$	$\geq 50 \%$ 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	1 · 10 <sup>-9</sup> /h = 1 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 $\tan \delta$	$> 2 \cdot$ upper limit value		
	Insulation resistance $R_{is}$	$< 150 \text{ M}\Omega$ ( $C_R \leq 0,33 \mu\text{F}$ )		
	or time constant $\tau = C_R \cdot R_{is}$	$< 50 \text{ s}$ ( $C_R > 0,33 \mu\text{F}$ )		
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 $1,0 \cdot V_{rms}$			
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 $0,8 \cdot V_{rms}$			
Category voltage for short operating periods	$T \leq 100 \text{ °C}$ : $V_C = 1,25 \cdot V_R$ or $1,0 \cdot V_{rms}$ for max. 2000 h			
	$T \leq 125 \text{ °C}$ : $V_C = 0,5 \cdot V_R$ or $0,5 \cdot V_{rms}$ for max. 1000 h			
Dissipation factor $\tan \delta$ (in 10 <sup>-3</sup> ) 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	10	10
	10 kHz	15	20	–
	100 kHz	30	–	–
Insulation resistance $R_{is}$ or time constant $\tau = C_R \cdot R_{is}$ at 20 °C, rel. humidity $\leq 65 \%$ (minimum as-delivered values)	$V_R$	$C_R \leq 0,33 \mu\text{F}$	$C_R > 0,33 \mu\text{F}$	
	$\leq 100 \text{ Vdc}$	3750 M $\Omega$	1250 s	
	$\geq 250 \text{ Vdc}$	7500 M $\Omega$	2500 s	



Impedance  $Z$   
versus  
frequency  $f$   
(typical values)



**Pulse handling capability**

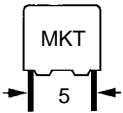
Maximum permissible voltage change per unit of time for non-sinusoidal voltages (pulse, sawtooth)

$V_R$	Max. rate of voltage rise $V_{pp}/\tau$ in $V/\mu s$ (for $V_{pp} = V_R$ )					
	Lead spacing					
	5 mm	7,5 mm	10 mm <sup>1)</sup>	15 mm <sup>1)</sup>	22,5 mm <sup>1)</sup>	27,5 mm <sup>1)</sup>
50 Vdc	200	–	–	–	–	–
63 Vdc	250	120	50	30	(2)	–
100 Vdc	300	150	75	50	(2,5)	(2)
250 Vdc	400	200	150	100 (10)	(4)	(3)
400 Vdc	600	275	175	125 (12,5)	(7)	(5)
630 Vdc	800	–	(20)	(15)	(10)	(8)

For  $V_{pp} < V_R$ , the permissible voltage rise rate value  $V_{pp}/\tau$  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					
	5 mm	7,5 mm	10 mm <sup>1)</sup>	15 mm <sup>1)</sup>	22,5 mm <sup>1)</sup>	27,5 mm <sup>1)</sup>
50 Vdc	20 000	–	–	–	–	–
63 Vdc	30 000	15 000	6 300	3 800	(250)	–
100 Vdc	60 000	30 000	15 000	10 000	(500)	(400)
250 Vdc	200 000	100 000	75 000	50 000 (5 000)	(2 000)	(1 500)
400 Vdc	500 000	220 000	140 000	100 000 (10 000)	(5 600)	(4 000)
630 Vdc	1 000 000	–	(25 000)	(19 000)	(12 600)	(10 000)

1) Values in brackets apply to wound capacitors

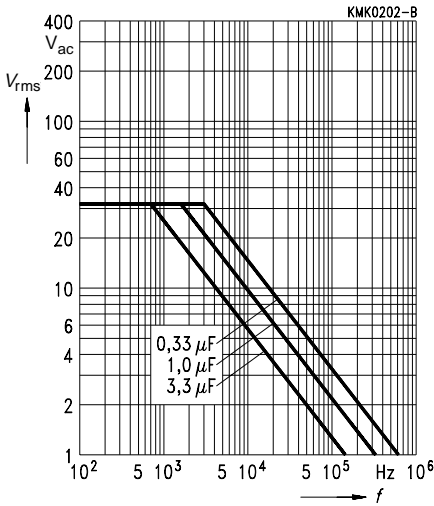


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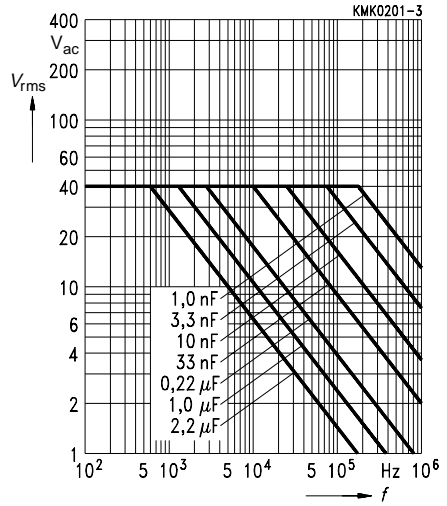
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 5 mm

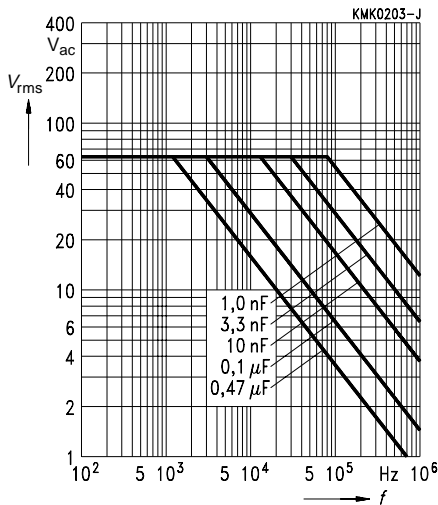
50 Vdc/32 Vac



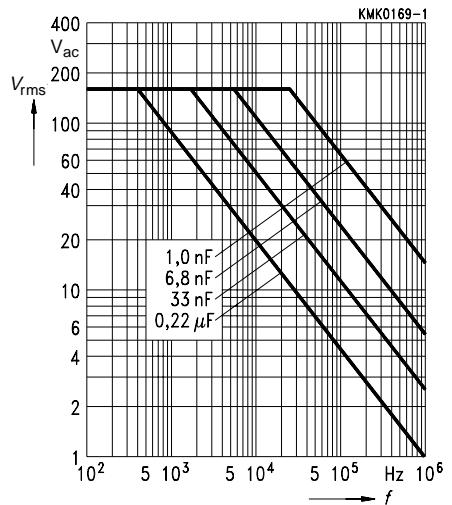
63 Vdc/40 Vac



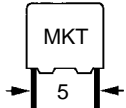
100 Vdc/63 Vac



250 Vdc/160 Vac



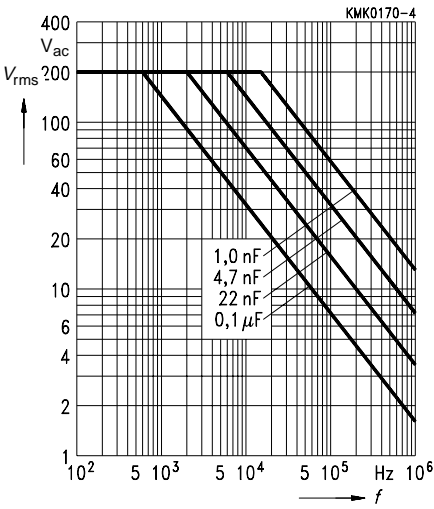




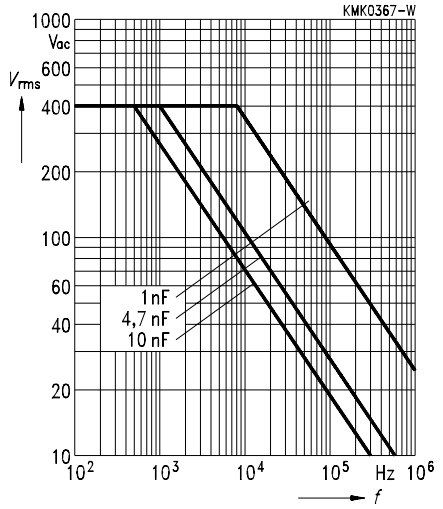
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

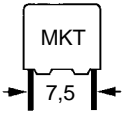
Lead spacing 5 mm

400 Vdc/ 200 Vac



630 Vdc/ 400 Vac



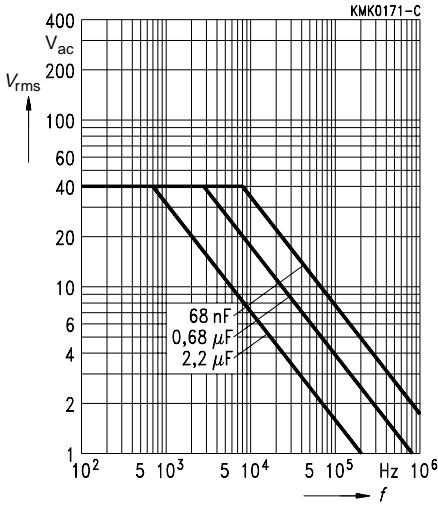


# B 32 520

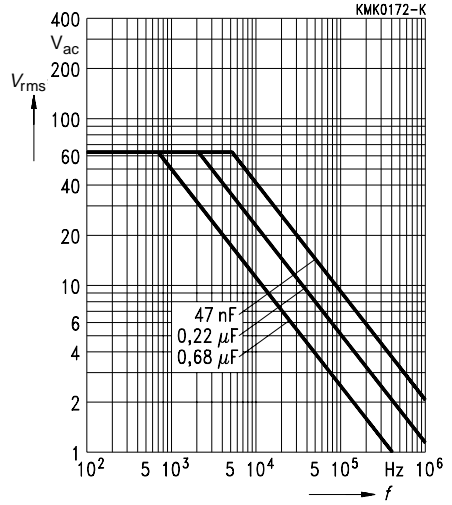
## Permissible ac voltage $V_{rms}$ versus frequency $f$

### Lead spacing 7,5 mm

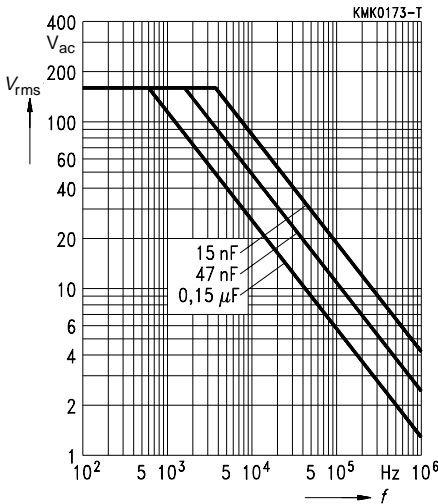
63 Vdc/ 40 Vac



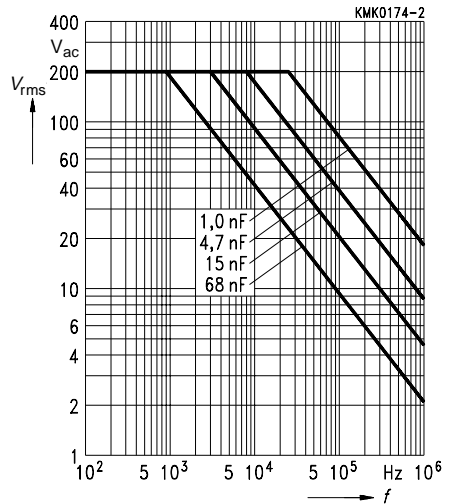
100 Vdc/ 63 Vac

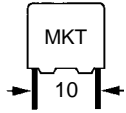


250 Vdc/ 160 Vac



400 Vdc/ 200 Vac

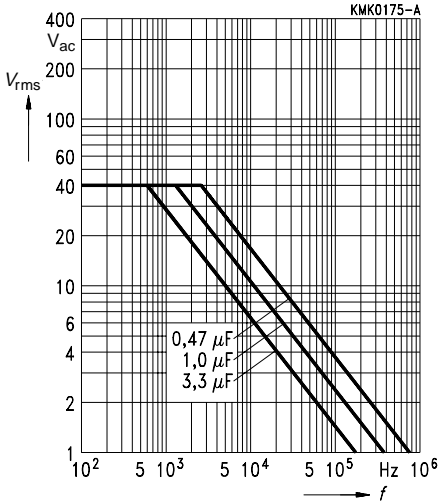




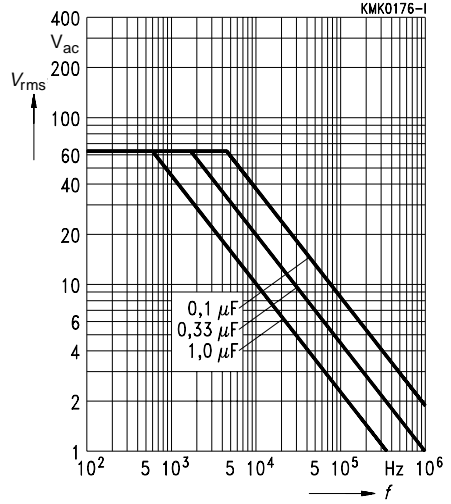
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 10 mm

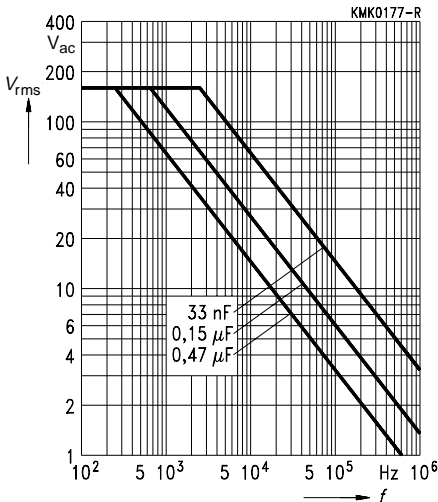
63 Vdc/ 40 Vac



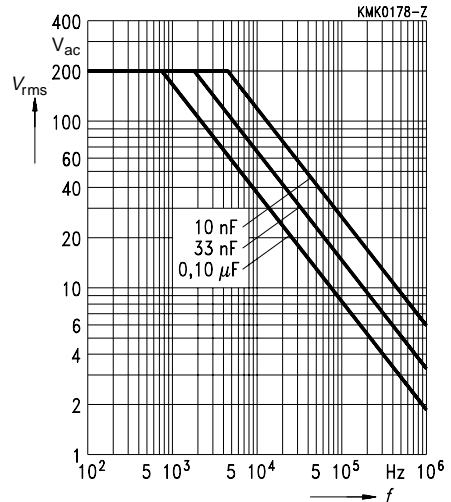
100 Vdc/ 63 Vac

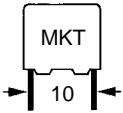


250 Vdc/ 160 Vac



400 Vdc/ 200 Vac



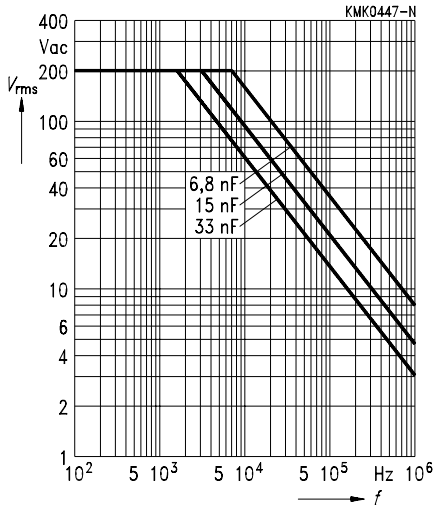


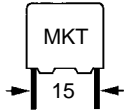
**B 32 521**

**Permissible ac voltage  $V_{rms}$  versus frequency  $f$**

**Lead spacing 10 mm**

630 Vdc/ 200 Vac

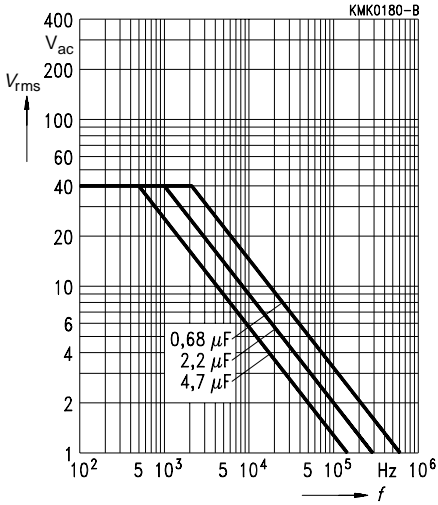




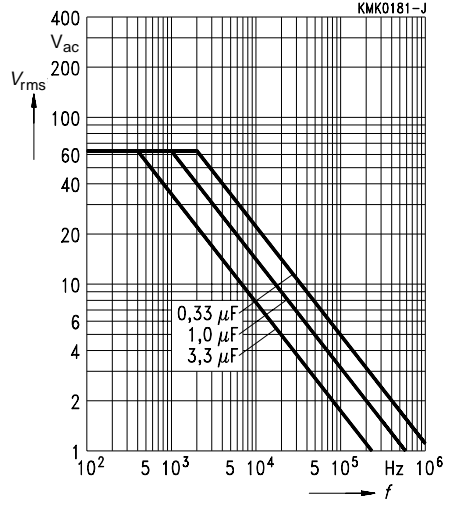
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 15 mm

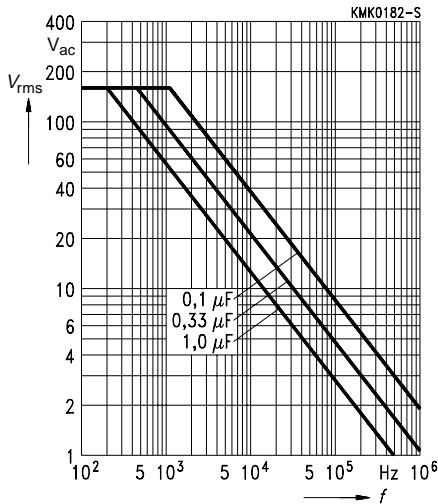
63 Vdc/ 40 Vac



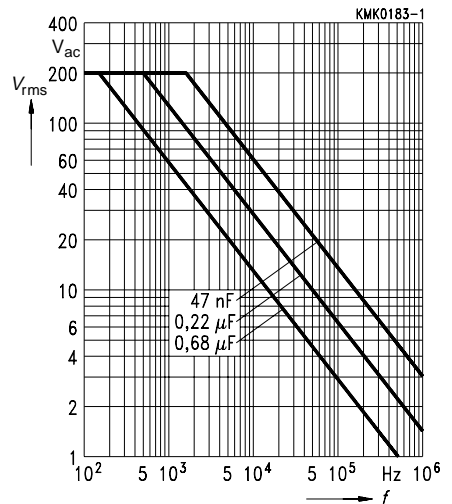
100 Vdc/ 63 Vac

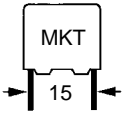


250 Vdc/ 160 Vac



400 Vdc/ 200 Vac



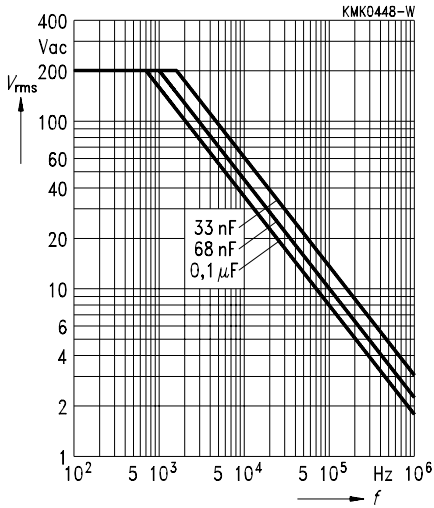


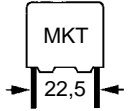
**B 32 522**

Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 15 mm

630 Vdc/ 200 Vac

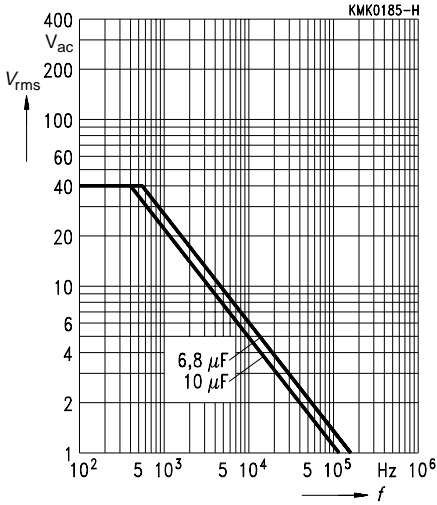




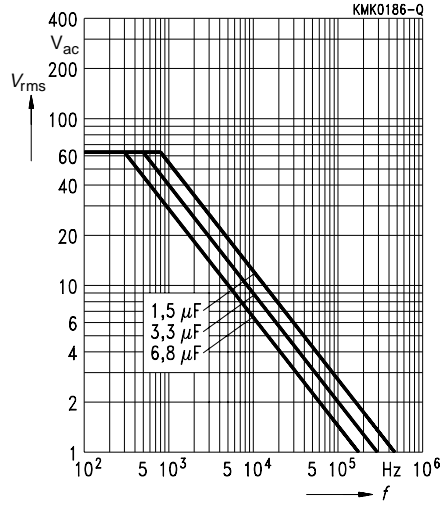
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 22,5 mm

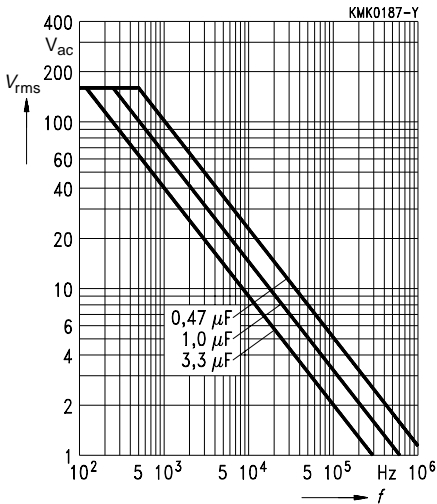
63 Vdc/ 40 Vac



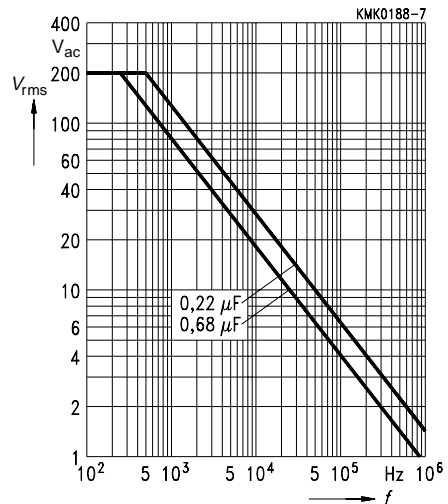
100 Vdc/ 63 Vac

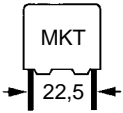


250 Vdc/ 160 Vac



400 Vdc/ 200 Vac



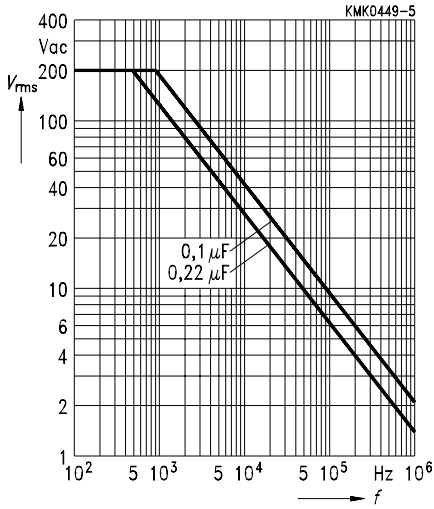


**B 32 523**

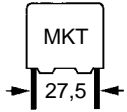
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 22,5 mm

630 Vdc/ 200 Vac



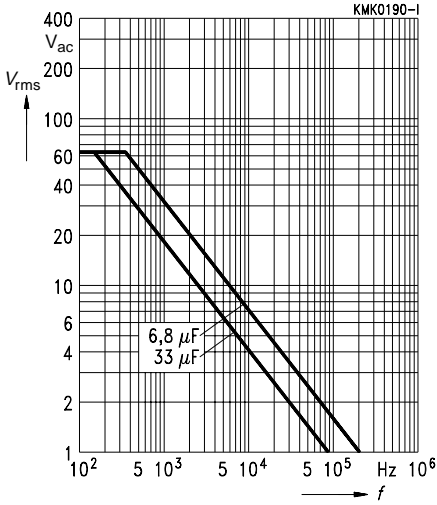




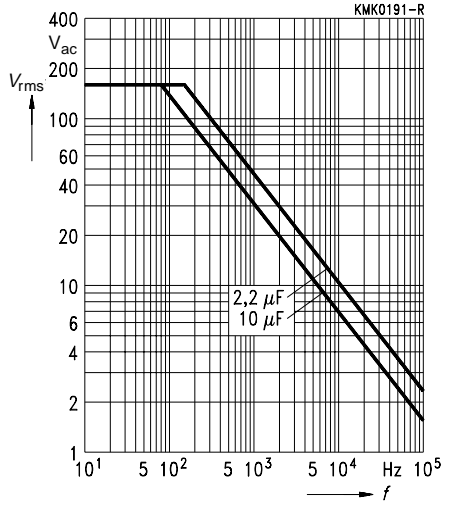
Permissible ac voltage  $V_{rms}$  versus frequency  $f$

Lead spacing 27,5 mm

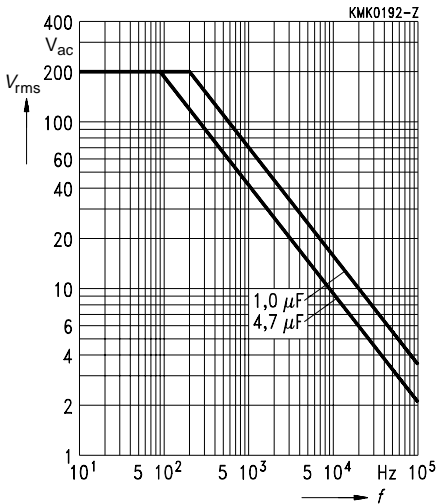
100 Vdc/ 63 Vac



250 Vdc/ 160 Vac



400 Vdc/ 200 Vac



630 Vdc/ 220 Vac

