



Metallized Polyester Film Capacitors (MKT)

Series/Type: B32520 ... B32529

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B32529C5334+	B32529C0334+	2007-08-10	2008-01-31	2008-04-30
B32529C5474+	B32529C0474+	2007-08-10	2008-01-31	2008-04-30
B32529C5684+	B32529C0684+	2007-08-10	2008-01-31	2008-04-30
B32529C5105+	B32529C0105+	2007-08-10	2008-01-31	2008-04-30
B32529C5155+	B32529C0155+	2007-08-10	2008-01-31	2008-04-30
B32529D5225+	B32529D0225+	2007-08-10	2008-01-31	2008-04-30

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at www.epcos.com/sales.

Typical applications

- Blocking
- Coupling, decoupling
- Bypassing
- RFI for automotive

Climatic

- Max. operating temperature: 125 °C
- Climatic category (IEC 60068-1): 55/125/56

Construction

- Dielectric: polyethylene terephthalate (polyester, PET)
- Stacked-film technology for lead spacing 5 to 15 mm
= code D or C in digit 7 of ordering code
- Wound capacitor technology for lead spacing 10 to 27.5 mm
= code N, Q or T in digit 7 of ordering code
- Plastic case (UL 94 V-0)
- Epoxy resin sealing (UL 94 V-0)

Features

- High pulse strength
- High contact reliability

Terminals

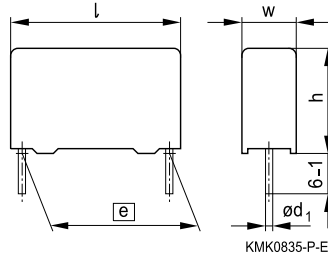
- Parallel wire leads, lead-free tinned
- Special lead lengths available on request

Marking

Manufacturer's logo,
rated capacitance (coded), cap. tolerance (code letter),
rated DC voltage, date of manufacture (coded),
coded type ("1") for lead spacing 5 mm,
series and lot number for lead spacing ≥ 10 mm

Delivery mode

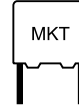
Bulk (untaped)
Taped (Ammo pack or reel)
For notes on taping, refer to chapter "Taping and packing".

Dimensional drawing


Dimensions in mm

Lead spacing $e \pm 0.4$	Lead diameter d_1	Type
5.0	0.5	B32529
7.5	0.5	B32520
10.0	0.6 ¹⁾	B32521
15.0	0.8	B32522
22.5	0.8	B32523
27.5	0.8	B32524

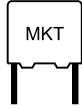
1) 0.5 mm for capacitor width $w = 4$ mm





Overview of available types

Lead spacing	5.0 mm						7.5 mm				10.0 mm				
Type	B32529						B32520				B32521				
Page	5						9				11				
Technology	s	s	s	s	s	s	s	s	s	s	s	s	s	s	w
V_R (VDC)	50	63	100	250	400	630	63	100	250	400	63	100	250	400	630
V_{rms} (VAC)	32	40	63	160	200	400	40	63	160	200	40	63	160	200	200
C_R (μ F)															
0.0010															
0.0015															
0.0022															
0.0033															
0.0047															
0.0068															
0.010															
0.015															
0.022															
0.033															
0.047															
0.068															
0.10															
0.15															
0.22															
0.33															
0.47															
0.68															
1.0															
1.5															
2.2															
3.3															

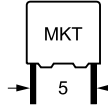
Technology: s = Stacked-film technology / w = Wound capacitor technology



Overview of available types

Lead spacing	15.0 mm						22.5 mm						27.5 mm					
Type	B32522						B32523						B32524					
Page	13						15						16					
Technology	s	s/w	s/w	s	w	w	w	w	w	w	w	w	w	w	w	w	w	
V _R (VDC)	63	100	250	400	450	630	63	100	250	400	630	63	100	250	400	630		
V _{rms} (VAC)	40	63	160	200	200	200	40	63	160	200	200	40	63	160	200	220		
C _R (μF)																		
0.033																		
0.047																		
0.068																		
0.10																		
0.15																		
0.22																		
0.33																		
0.47																		
0.68																		
1.0																		
1.5																		
2.2																		
3.3																		
4.7																		
6.8																		
10																		
15																		
22																		
33																		
47																		
68																		

Technology: s = Stacked-film technology / w = Wound capacitor technology


Ordering codes and packing units (lead spacing 5 mm)

V_R	V_{rms} $f \leq 60$ Hz	C_R	Max. dimensions $w \times h \times l$	Ordering code (composition see below)	Ammo pack pcs./unit	Reel pcs./unit	Untaped pcs./unit
VDC	VAC	μF	mm				
50	32	0.33	3.0 × 6.5 × 7.2	B32529C5334+***	2700	2400	2000
		0.47	3.5 × 8.0 × 7.2	B32529C5474+***	2300	2000	2000
		0.68	4.5 × 9.5 × 7.3	B32529C5684+***	1800	1500	1500
		1.0	4.5 × 9.5 × 7.3	B32529C5105+***	1800	1500	1500
		1.5	6.0 × 10.5 × 7.5	B32529C5155+***	1300	1100	1000
		2.2	7.8 × 13.0 × 7.8	B32529D5225+***	1000	800	1000
		3.3	7.8 × 13.0 × 7.8	B32529D5335+***	1000	800	1000
63	40	0.0010	2.5 × 6.5 × 7.2	B32529C0102+***	3200	2800	2000
		0.0015	2.5 × 6.5 × 7.2	B32529C0152+***	3200	2800	2000
		0.0022	2.5 × 6.5 × 7.2	B32529C0222+***	3200	2800	2000
		0.0033	2.5 × 6.5 × 7.2	B32529C0332+***	3200	2800	2000
		0.0047	2.5 × 6.5 × 7.2	B32529C0472+***	3200	2800	2000
		0.0068	2.5 × 6.5 × 7.2	B32529C0682+***	3200	2800	2000
		0.010	2.5 × 6.5 × 7.2	B32529C0103+***	3200	2800	2000
		0.015	2.5 × 6.5 × 7.2	B32529C0153+***	3200	2800	2000
		0.022	2.5 × 6.5 × 7.2	B32529C0223+***	3200	2800	2000
		0.033	2.5 × 6.5 × 7.2	B32529C0333+***	3200	2800	2000
		0.047	2.5 × 6.5 × 7.2	B32529C0473+***	3200	2800	2000
		0.068	2.5 × 6.5 × 7.2	B32529C0683+***	3200	2800	2000
		0.10	2.5 × 6.5 × 7.2	B32529C0104+***	3200	2800	2000
		0.15	2.5 × 6.5 × 7.2	B32529C0154+***	3200	2800	2000
		0.22	2.5 × 6.5 × 7.2	B32529C0224+***	3200	2800	2000
		0.33	3.0 × 6.5 × 7.2	B32529C0334+***	2700	2400	2000
		0.47	3.5 × 8.0 × 7.2	B32529C0474+***	2300	2000	2000
		0.68	4.5 × 9.5 × 7.3	B32529C0684+***	1800	1500	1500
		1.0	4.5 × 9.5 × 7.3	B32529C0105+***	1800	1500	1500
1.5	6.0 × 10.5 × 7.5	B32529C0155+***	1300	1100	1000		
2.2	7.8 × 13.0 × 7.8	B32529D0225+***	1000	800	1000		

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

M = ±20%

K = ±10%

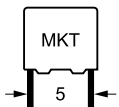
J = ±5%

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 –1 mm)


B32529
General purpose (stacked)
Ordering codes and packing units (lead spacing 5 mm)

V_R	V_{rms} $f \leq 60$ Hz	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	μF					
100	63	0.0010	$2.5 \times 6.5 \times 7.2$	B32529C1102+***	3200	2800	2000
		0.0015	$2.5 \times 6.5 \times 7.2$	B32529C1152+***	3200	2800	2000
		0.0022	$2.5 \times 6.5 \times 7.2$	B32529C1222+***	3200	2800	2000
		0.0033	$2.5 \times 6.5 \times 7.2$	B32529C1332+***	3200	2800	2000
		0.0047	$2.5 \times 6.5 \times 7.2$	B32529C1472+***	3200	2800	2000
		0.0068	$2.5 \times 6.5 \times 7.2$	B32529C1682+***	3200	2800	2000
		0.010	$2.5 \times 6.5 \times 7.2$	B32529C1103+***	3200	2800	2000
		0.015	$2.5 \times 6.5 \times 7.2$	B32529C1153+***	3200	2800	2000
		0.022	$2.5 \times 6.5 \times 7.2$	B32529C1223+***	3200	2800	2000
		0.033	$2.5 \times 6.5 \times 7.2$	B32529C1333+***	3200	2800	2000
		0.047	$2.5 \times 6.5 \times 7.2$	B32529C1473+***	3200	2800	2000
		0.068	$2.5 \times 6.5 \times 7.2$	B32529C1683+***	3200	2800	2000
		0.10	$2.5 \times 6.5 \times 7.2$	B32529C1104+***	3200	2800	2000
		0.15	$3.0 \times 6.5 \times 7.2$	B32529C1154+***	2700	2400	2000
		0.22	$3.5 \times 8.0 \times 7.2$	B32529C1224+***	2300	2000	2000
		0.33	$3.5 \times 8.0 \times 7.2$	B32529C1334+***	2300	2000	2000
		0.47	$4.5 \times 9.5 \times 7.3$	B32529C1474+***	1800	1500	1500
0.68	$6.0 \times 10.5 \times 7.5$	B32529C1684+***	1300	1100	1000		
1.0	$7.8 \times 13.0 \times 7.8$	B32529D1105+***	1000	800	1000		

Further E series and intermediate capacitance values on request.

Composition of ordering code

+ = Capacitance tolerance code:

 M = $\pm 20\%$

 K = $\pm 10\%$

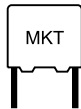
 J = $\pm 5\%$

*** = Packaging code:

289 = Ammo pack

189 = Reel

000 = Untaped (lead length 6 – 1 mm)

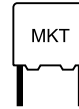


B32520 ... B32529

General purpose (stacked/wound)

Technical data

Operating temperature range	Max. operating temperature $T_{op,max}$			+125 °C
	Upper category temperature T_{max}			+125 °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	$C_R \leq 0.1 \mu F$	$0.1 \mu F < C_R \leq 1 \mu F$	$C_R > 1 \mu F$
	1 kHz	8	8	10
	10 kHz	15	15	—
	100 kHz	30	—	—
Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$ at 20 °C, rel. humidity $\leq 65\%$ (minimum as-delivered values)	V_R	$C_R \leq 0.33 \mu F$		$C_R > 0.33 \mu F$
	≤ 100 VDC	3750 M Ω		1250 s
	≥ 250 VDC	7500 M Ω		2500 s
DC test voltage	$1.4 \cdot V_R, 2$ s			
Category voltage V_C (continuous operation with V_{DC} or V_{AC} at $f \leq 60$ Hz)	T_A (°C)	DC voltage derating		AC voltage derating
	$T_A \leq 85$	$V_C = V_R$		$V_{C,rms} = V_{rms}$
	$85 < T_A \leq 125$	$V_C = V_R \cdot (165 - T_A)/80$		$V_{C,rms} = V_{rms} \cdot (165 - T_A)/80$
Operating voltage V_{op} for short operating periods (V_{DC} or V_{AC} at $f \leq 60$ Hz)	T_A (°C)	DC voltage (max. hours)		AC voltage (max. hours)
	$T_A \leq 100$	$V_{op} = 1.25 \cdot V_C$ (2000 h)		$V_{op} = 1.0 \cdot V_{C,rms}$ (2000 h)
	$100 < T_A \leq 125$	$V_{op} = 1.25 \cdot V_C$ (1000 h)		$V_{op} = 1.0 \cdot V_{C,rms}$ (1000 h)
Damp heat test Limit values after damp heat test	56 days/40 °C/93% relative humidity			
	Capacitance change $ \Delta C/C $		$\leq 5\%$	
	Dissipation factor change $\Delta \tan \delta$		$\leq 5 \cdot 10^{-3}$ (at 1 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 $\tan \delta$		$> 2 \cdot$ upper limit value	
	Insulation resistance R_{ins} or time constant $\tau = C_R \cdot R_{ins}$		< 150 M Ω ($C_R \leq 0.33 \mu F$) < 50 s ($C_R > 0.33 \mu F$)	



Pulse handling capability

"dV/dt" represents the maximum permissible voltage change per unit of time for non-sinusoidal voltages, expressed in V/μs.

"k₀" represents the maximum permissible pulse characteristic of the waveform applied to the capacitor, expressed in V²/μs.

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		5 mm	7.5 mm	10 mm		15 mm		22.5 mm	27.5 mm
Technology		Stacked	Stacked	Stacked	Wound	Stacked	Wound	Wound	Wound
V _R VDC	V _{rms} VAC	dV/dt in V/μs							
50	32	200	—	—	—	—	—	—	—
63	40	250	120	50	—	30	—	3	1
100	63	300	150	75	—	50	5	4	3
250	160	400	200	150	—	100	10	6	4.5
400	200	600	275	175	—	125	—	10	7.5
450	200	—	—	—	—	—	20	—	—
630	400	800	—	—	20	—	25	15	12

k₀ values

Lead spacing		5 mm	7.5 mm	10 mm		15 mm		22.5 mm	27.5 mm
Technology		Stacked	Stacked	Stacked	Wound	Stacked	Wound	Wound	Wound
V _R VDC	V _{rms} VAC	k ₀ in V ² /μs							
50	32	20 000	—	—	—	—	—	—	—
63	40	30 000	15 000	6 300	—	3 800	—	375	130
100	63	60 000	30 000	15 000	—	10 000	850	750	600
250	160	200 000	100 000	75 000	—	50 000	5 000	3 000	2 250
400	200	500 000	220 000	140 000	—	100 000	—	8 000	6 000
450	200	—	—	—	—	—	15 000	—	—
630	400	1 000 000	—	—	25 000	—	30 000	18 000	15 000