Wound MKP capacitors

Construction

- Dielectric: polypropylene
- 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
- Very low inductance

Typical applications

- IGBT circuits

Terminals

- Strap terminals, tinned

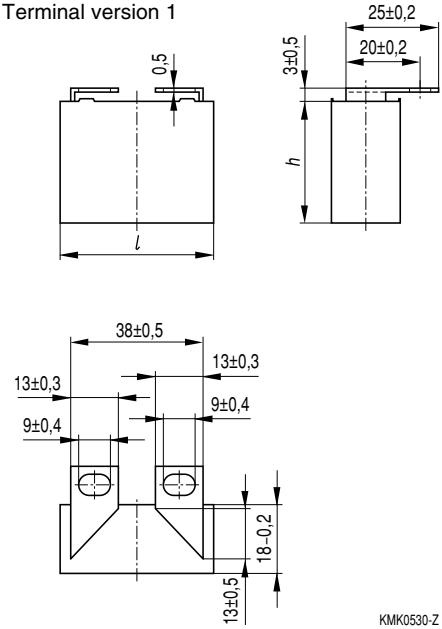
Marking

Manufacturer's logo,
lot number, style (MKP),
rated capacitance (coded),
capacitance tolerance (code letter),
rated dc voltage
date of manufacture (coded)

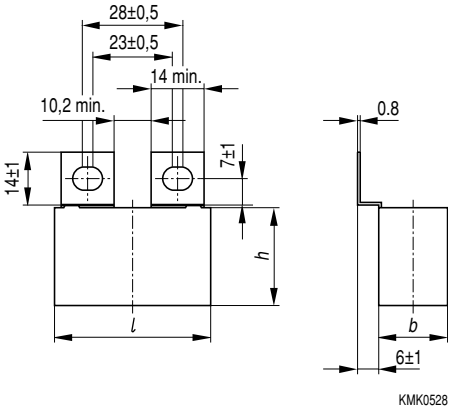
Delivery mode

Bulk

Terminal version 1



Terminal version 2



Dimensions in mm

Ordering codes and packing units

V_R (V_{rms} $f < 60$ kHz)	C_R	Maximum dimensions $b \times h \times l$ (mm)	Ordering code	Terminal version	Packing units (pcs) Untaped
1000 Vdc (500 Vac)	0,68 µF	16,0 × 28,5 × 42,0	B32654-S0684-+503	1	48
	1,0 µF	20,0 × 39,5 × 42,0	B32654-S0105-+502	1	24
	1,0 µF	31,0 × 26,5 × 42,0	B32654-S0105-+500	2	32
	1,5 µF	31,0 × 26,5 × 42,0	B32654-S0155-+501	2	32
1250 Vdc (500 Vac)	0,22 µF	14,0 × 25,0 × 42,0	B32654-S7224-+500	2	60
	1,0 µF	28,0 × 37,0 × 42,0	B32654-S7105-+500	2	27

Capacitance tolerance: ±20 % ≙ M, ±10 % ≙ K, ±5 % ≙ J

Technical data

Climatic category in accordance with IEC 60068-1	55/100/56
Lower category temperature T_{min} Upper category temperature T_{max}	– 55 °C + 100 °C
Damp heat test	56 days/40 °C/93 % relative humidity
Limit values after damp heat test	Capacitance change $\lvert\Delta C/C\rvert$ ≤ 3 % Dissipation factor change $\Delta \tan \delta$ ≤ 0,5 · 10^{-3} (at 1 kHz) ≤ 1,0 · 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 Failure rate	0,5 · V_R; 40 °C 1 · 10^{-9}/h = 1 fit For a conversion table for other operating conditions and temperatures, refer to chapter “Quality assurance”, page 327.
Service life	200 000 h
Failure criteria: Total failure Failure due to variation of parameters	Short circuit or open circuit Capacitance change $\lvert\Delta C/C\rvert$ > 10 % Dissipation factor tan δ > 4 · upper limit values Insulation resistance R_{is} < 1500 MΩ ($C_R \le 0{,}33$ µF) or time constant $\tau = C_R \cdot R_{is}$ < 500 s ($C_R > 0{,}33$ µF)
DC test voltage	1,6 · V_R, 2 s
Category voltage V_C Operation with Vdc voltage or ac voltage V_{rms} up to 1 kHz	$T \le$ 85 °C: $V_C = 1{,}0 \cdot V_R$ or $1{,}0 \cdot V_{rms}$ T = 100 °C: $V_C = 0{,}7 \cdot V_R$ or $0{,}7 \cdot V_{rms}$

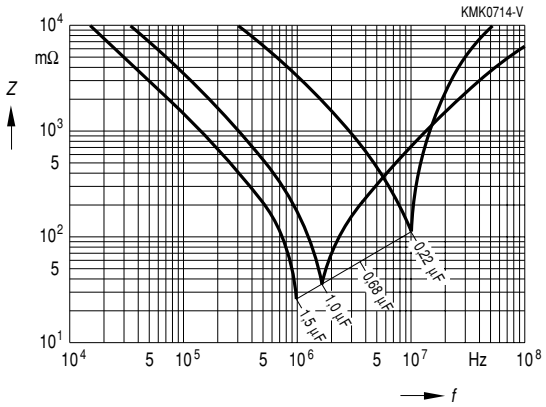
Dissipation factor tan δ (in 10^{-3}) at 20 °C (upper limit values)

	$C_R \le 0{,}1$ µF	0,1 µF < $C_R \le$ 1 µF	$C_R >$ 1 µF
at 1 kHz	–	0,5	0,5
10 kHz	–	0,8	1,5
100 kHz	5,0	–	–

Insulation resistance R_{is} or time constant $\tau = C_R \cdot R_{is}$ at 20 °C, rel. humidity ≤ 65 % (minimum as-delivered values)

$C_R \le 0{,}33$ µF	$C_R > 0{,}33$ µF
100 GΩ	30 000 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)

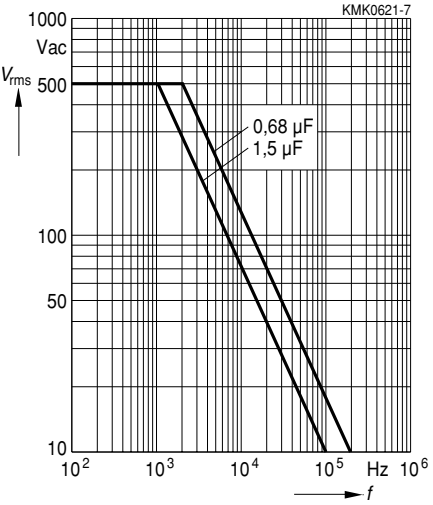
V_R	Max. rate of voltage rise V_{pp}/τ in V/µs (for $V_{pp} = V_R$)
1000 Vdc	90
1250 Vdc	140

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 in chapter “General technical information”, page 302.

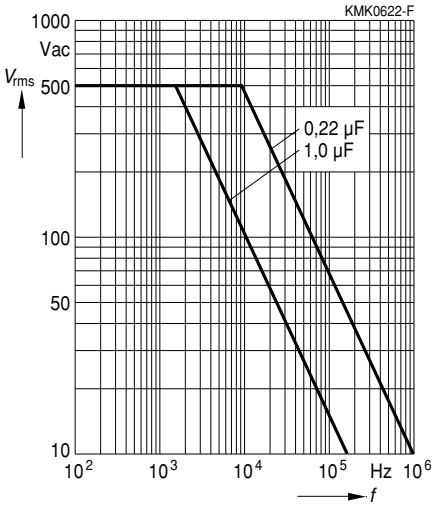
V_R	Pulse characteristic k_0 in V²/µs (for $V_{pp} \leq V_R$)
1000 Vdc	180 000
1250 Vdc	350 000

Permissible ac voltage V_{rms} versus frequency f

1000 Vdc/ 500 Vac



1250 Vdc/ 500 Vac



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