

SIKOREL®

Applications

- For automotive applications with high EMV requirements

Features

- Very high ripple current capability
- Very low ESR, down to -55 °C
- High vibration resistance
- High reliability up to $140\text{ °C} / 1000\text{ h}$
- Shelf life up to 15 years

Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Negative pole connected to case

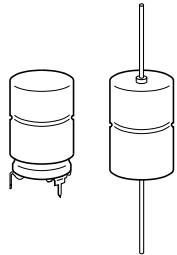
Terminals

- Axial leads, welded to ensure perfect electrical contact
- Also available with soldering stars

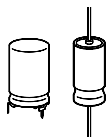
Taping and packing

- Axial-lead capacitors will be delivered in pallet package.
Capacitors with $d \times l \leq 16 \times 30\text{ mm}$ are also available taped on reel.
- Solder-star capacitors are packed in cardboard.

For details on taping and packing, refer to page 342.

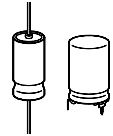


KAL0573-K


B41694 / B41794
Low ESR – Up to 140 °C
Specifications and characteristics in brief

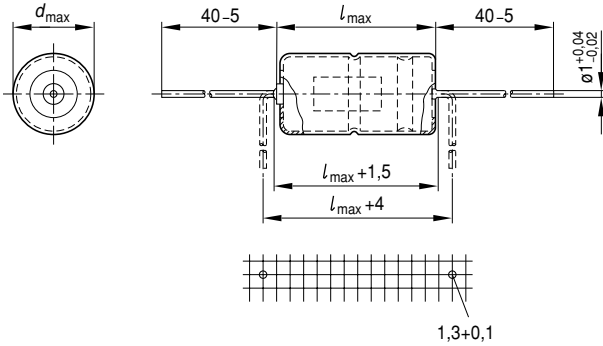
Rated voltage U_R	25 and 40 VDC				
Surge voltage U_S	$1,15 \cdot U_R$				
Rated capacitance C_R	330 ... 1 500 μF				
Capacitance tolerance	– 10/+ 30 % \triangleq Q				
Leakage current I_L (5 min, 20 °C)	$I_L \leq 0,006 \mu\text{A} \cdot \left(\frac{C_R}{\mu\text{F}} \cdot \frac{U_R}{\text{V}} \right) + 4 \mu\text{A}$				
Self-inductance $ESL^{1)}$	Diameter d	12 mm	14 mm	16 mm	18 mm
	Length / Terminal	Approx. ESL (nH)			
	25 mm axial / solder star	— / —	22 / 6	26 / 7	— / —
	30 mm axial / solder star	21 / 6	24 / 7	29 / 8	34 / 10
	39 mm axial / solder star	— / —	— / —	33 / 9	38 / 11
Useful life		Requirements:			
140 °C; U_R ; I_{-R}	> 1 000 h	$\Delta C/C$	$\leq \pm 30$ % of initial value		
125 °C; U_R ; I_{-R}	> 3 000 h	ESR	≤ 3 times initial specified limit		
85 °C; U_R ; I_{-max}	> 8 000 h	I_L	\leq initial specified limit		
40 °C; U_R ; $2,1 \cdot I_{-R}$	> 200 000 h	Failure percentage:	$\leq 0,5$ %		
		Failure rate:	≤ 10 fit ($\leq 10 \cdot 10^{-9}/\text{h}$)		
		(for definition “fit”, refer to chapter “Quality”, page 62)			
Voltage endurance test		Post test requirements:			
125 °C; U_R	2 000 h	$\Delta C/C$	$\leq \pm 10$ % of initial value		
		ESR	$\leq 1,3$ % initial specified limit		
		I_L	\leq initial specified limit		
Vibration resistance	To IEC 60068–2–6, test Fc: displacement amplitude 1,5 mm, at 10 Hz to 2 kHz, acceleration max. 20 g, duration 3×2 h				
IEC climatic category	To IEC 60068–1: 55/125/56 (– 55 °C/+ 125 °C/56 days damp heat test)				
Detail specification	Similar to CECC 30301-802				
Sectional specification	IEC 60384–4				

1) If optimum circuit design is used, the values are lower by 30 %.



Dimensional drawings

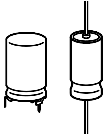
Axial-lead capacitors



KAL0524-S

Dimensions, weights and packing units

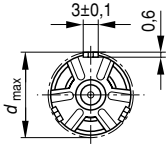
$d \times l$ mm	$d_{\max} \times l_{\max}$ mm	Approx. weight g	Packing units (pieces)	
			Pallet	Reel
12 × 30	12,5 × 30,5	5,1	288	450
14 × 25	14,5 × 25,5	5,7	200	350
16 × 30	16,5 × 30,5	8,9	180	250
16 × 39	16,5 × 40	11,7	180	—
18 × 30	18,5 × 30,5	11,1	160	—
18 × 39	18,5 × 40	14,7	160	—



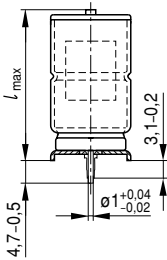
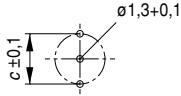
B41694 / B41794

Low ESR – Up to 140 °C

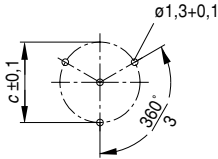
Soldering star capacitors



Mounting holes
d = 12 mm ... 14 mm



Mounting holes
d = 16 mm ... 18 mm

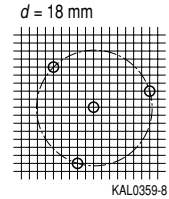
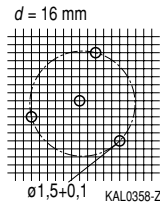
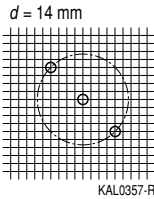
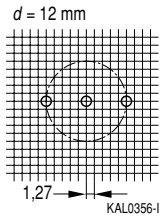


Soldering star is connected to the negative pole

KAL0525-1-E

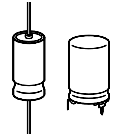
The PC-board hole arrangement specified above is based on circular arcs.

If, however, the mounting holes have to be matched to a standard drilling raster, a spacing of 1,27 mm ($1/20''$) has proved to be sufficiently accurate if the following arrangements are used:



Dimensions, weights and packing units

d × l mm	d _{max} × l _{max} mm	c ± 0,1 mm	Approx. weight g	Packing units pieces
12 × 30	13,5 × 32	12,5	5,4	480
14 × 25	15,5 × 27	14,5	6,1	480
16 × 30	17,5 × 32	16,5	9,4	300
16 × 39	17,5 × 41,5	16,5	12,2	200
18 × 30	19,5 × 32	18,5	11,8	300
18 × 39	19,5 × 41,5	18,5	15,4	200


Overview of available types

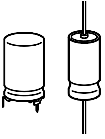
U_R (VDC)	25	40
C_R (μ F)	Case dimensions $d \times l$ (mm)	
330		12 \times 30
470	14 \times 25	
1 000	16 \times 30	18 \times 30
1 500	16 \times 39	18 \times 39

Case dimensions and ordering codes

U_R VDC	C_R μ F	Case dim. $d \times l$ mm	Ordering code Axial pallet package	Axial reel	Soldering star
25	470	14 \times 25	B41694A5477Q007	B41694A5477Q009	B41794A5477Q000
	1 000	16 \times 30	B41694A5108Q007	B41694A5108Q009	B41794A5108Q000
	1 500	16 \times 39	B41694A5158Q007		B41794A5158Q000
40	330	12 \times 30	B41694A7337Q007	B41694A7337Q009	B41794A7337Q000
	1 000	18 \times 30	B41694A7108Q007		B41794A7108Q000
	1 500	18 \times 39	B41694A7158Q007		B41794A7158Q000

Technical data

C_R 100 Hz 20 °C μ F	ESR_{typ} 100 Hz 20 °C m Ω	ESR_{max} 100 Hz 20 °C m Ω	ESR_{max} 100 Hz -40 °C Ω	ESR_{max} 10 kHz 20 °C m Ω	Z_{max} 100 kHz 20 °C m Ω	$I_{\sim max}$ 10 kHz 40 °C A	$I_{\sim max}$ 10 kHz 85 °C A	$I_{\sim R}$ 10 kHz 125 °C A
25 VDC								
470	110	170	0,9	70	65	5,90	5,15	2,25
1 000	55	90	0,5	40	38	8,20	7,15	3,15
1 500	40	60	0,4	28	26	11,20	9,80	4,30
40 VDC								
330	130	210	0,9	70	67	6,30	5,45	2,40
1 000	50	85	0,4	35	33	8,50	7,40	3,25
1 500	35	60	0,3	25	24	11,50	10,00	4,45

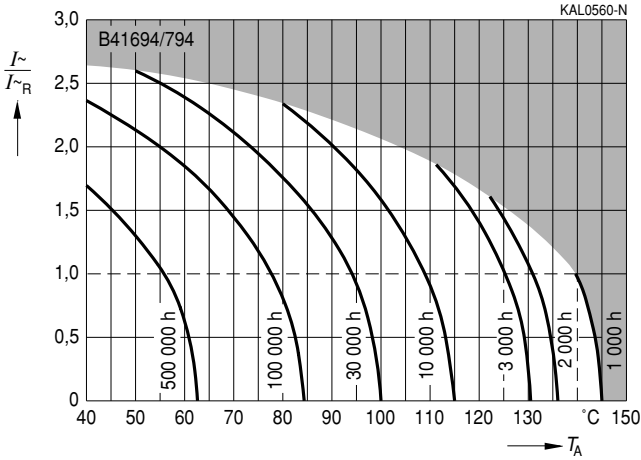


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Low ESR – Up to 140 °C

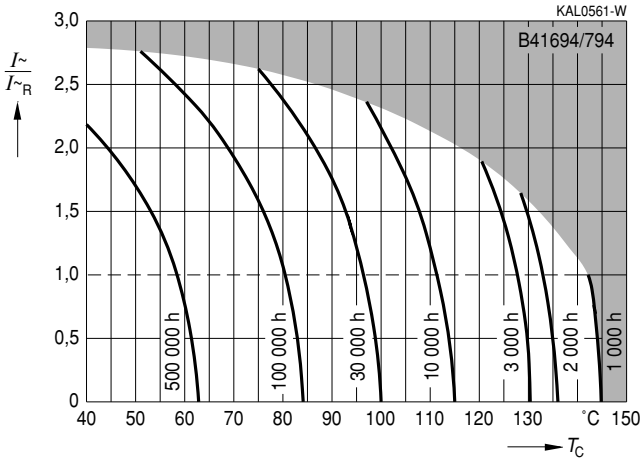
Useful life

depending on ambient temperature T_A under ripple current operating conditions at $U_R^{1)}$

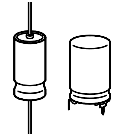


Useful life

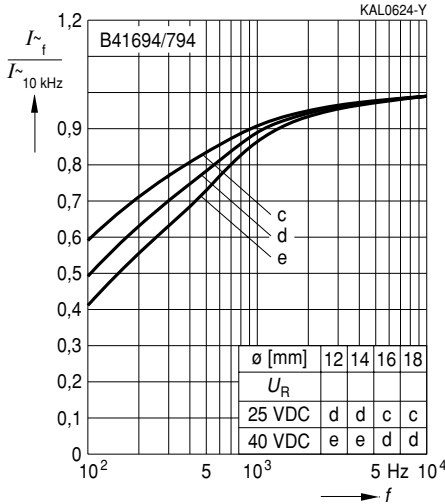
depending on case temperature T_C under ripple current operating conditions at $U_R^{1)}$



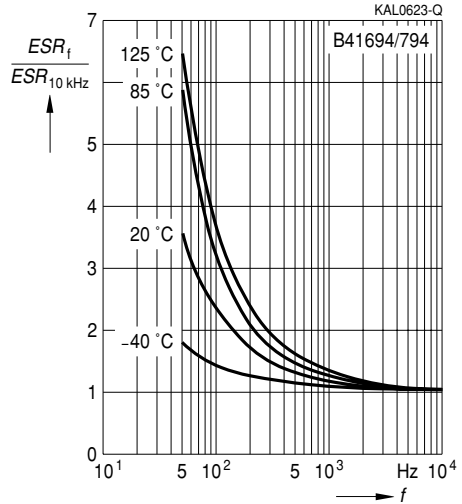
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.



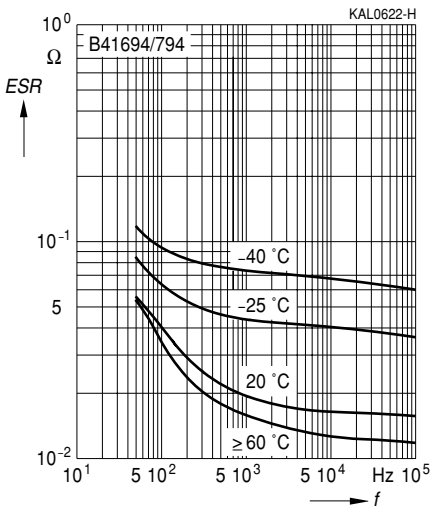
Frequency factor of permissible ripple current I_{\sim} versus frequency f



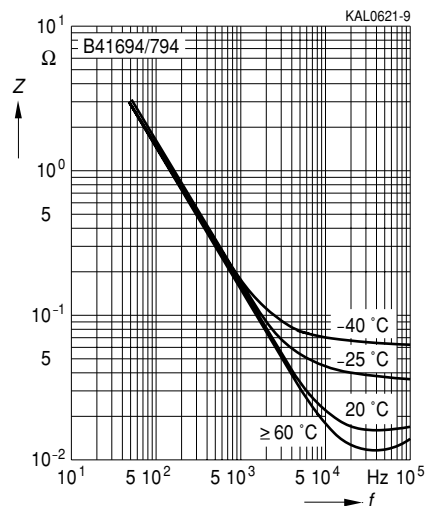
Frequency characteristics of ESR at different temperatures
Typical behavior



Equivalent series resistance ESR versus frequency at different temperatures
Typical behavior for 1 000 μ F/40 V



Impedance Z versus frequency f at different temperatures
Typical behavior for 1 000 μ F/40 V



Herausgegeben von EPCOS AG

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