

## SIKOREL®

### Applications

- For high-voltage applications in automotive

### Features

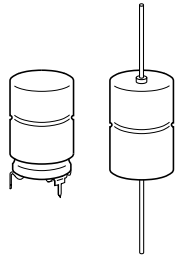
- High ripple current capability
- Long useful life
- High vibration resistance
- Shelf life up to 15 years

### 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

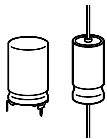


KAL0573-K

### Taping and packing

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

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



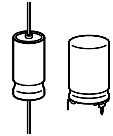
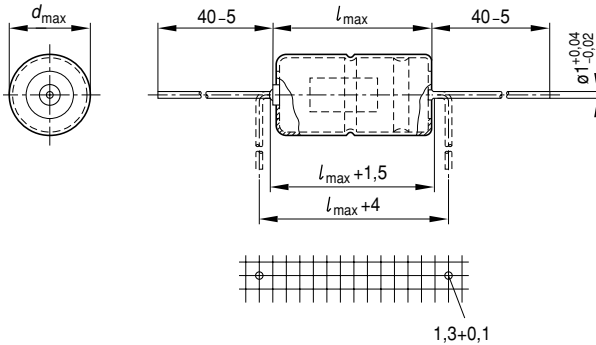
B43693 / B43793

High Voltage – 125 °C

**Specifications and characteristics in brief**

Rated voltage $U_R$	160 and 250 VDC			
Surge voltage $U_S$	$1,15 \cdot U_R$			
Rated capacitance $C_R$	22 ... 100 $\mu\text{F}$			
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 $d$	14 mm	16 mm	18 mm
	Length $l$ / Terminal	Approx. $ESL$ (nH)		
	25 mm axial / solder star	22 / 6	26 / 7	— / —
	30 mm axial / solder star	24 / 7	29 / 8	34 / 10
	39 mm axial / solder star	— / —	33 / 9	38 / 11
Useful life 125 °C; $U_R$ ; 0,5 $I_{R-}$ 105 °C; $U_R$ ; $I_{R-}$ 85 °C; $U_R$ ; $I_{R-\text{max}}$ 40 °C; $U_R$ ; 1,9 · $I_{R-}$	> 1 000 h > 4 000 h > 4 000 h > 200 000 h	Requirements: $\Delta C/C \leq \pm 30$ % of initial value $ESR \leq 3$ times initial limit $I_L \leq$ initial specified limit Failure percentage: $\leq 0,5$ % Failure rate: $\leq 10$ fit ( $\leq 10 \cdot 10^{-9}/\text{h}$ ) (for definiton "fit", refer to chapter "Quality", page 62)		
Voltage endurance test 105 °C; $U_R$	2 000 h	Post test requirements: $\Delta C/C \leq \pm 10$ % of initial value $ESR \leq 1,3$ % of 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 $3 \times 2$ h			
IEC climatic category	To IEC 60068-1: 40/125/56 (– 40 /+ 125 °C/56 days damp heat test)			
Detail specification	Similar to CECC 30301-802			
Sectional specification	IEC 60384-4			

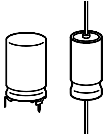
1) If optimum circuit design is used, the values are lower by 30 %.


**Dimensional drawings**
**Axial-lead capacitor**


KAL0524-S

**Dimensions, weights and packing units**

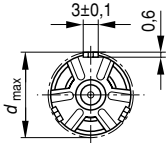
$d \times l$ mm	$d_{\max} \times l_{\max}$ mm	Approx. weight g	Packing units (pieces)	
			Pallet	Reel
14 × 30	14,5 × 30,5	6,8	200	350
16 × 30	16,5 × 30,5	8,9	180	250
18 × 30	18,5 × 30,5	11,1	160	—
18 × 39	18,5 × 40	14,7	160	—



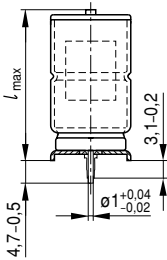
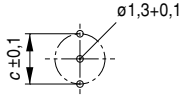
B43693 / B43793

High Voltage – 125 °C

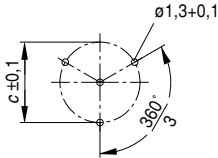
### Soldering star capacitors



Mounting holes  
 $d = 12 \text{ mm} \dots 14 \text{ mm}$



Mounting holes  
 $d = 16 \text{ mm} \dots 18 \text{ mm}$



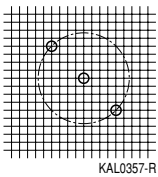
Soldering star is connected to the negative pole

KAL0525-1-E

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

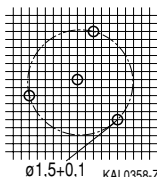
If, however, the mounting holes have to be matched to a standard drilling raster, a spacing of 1,27 mm ( $1/20''$ ) has proved to be sufficiently accurate if the following arrangements are used:

$d = 14 \text{ mm}$



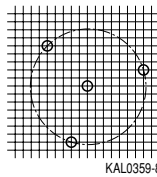
KAL0357-R

$d = 16 \text{ mm}$



$\varnothing 1,5 \pm 0,1$  KAL0358-Z

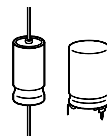
$d = 18 \text{ mm}$



KAL0359-B

### Dimensions, weights and packing units

$d \times l$ mm	$d_{\max} \times l_{\max}$ mm	$c \pm 0,1$ mm	Approx. weight g	Packing units pieces
14 × 30	15,5 × 32	14,5	7,2	480
16 × 30	17,5 × 32	16,5	9,4	300
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**

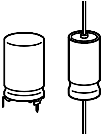
$U_R$ (VDC)	160	250
$C_R$ ( $\mu$ F)	Case dimensions $d \times l$ (mm)	
22		14 $\times$ 30
33	14 $\times$ 30	
47	16 $\times$ 30	18 $\times$ 30
68		18 $\times$ 39
100	18 $\times$ 39	

**Case dimensions and ordering codes**

$U_R$ VDC	$C_R$ $\mu$ F	Case dim. $d \times l$ mm	Ordering code Axial pallet package	Axial reel	Soldering star
160	33	14 $\times$ 30	B43693A1336Q007	B43693A1336Q009	B43793A1336Q000
	47	16 $\times$ 30	B43693A1476Q007	B43693A1476Q009	B43793A1476Q000
	100	18 $\times$ 39	B43693A1107Q007		B43793A1107Q000
250	22	14 $\times$ 30	B43693A2226Q007	B43693A2226Q009	B43793A2226Q000
	47	18 $\times$ 30	B43693A2476Q007		B43793A2476Q000
	68	18 $\times$ 39	B43693A2686Q007		B43793A2686Q000

**Technical data**

$C_R$ 100 Hz 20 °C $\mu$ F	$ESR_{typ}$ 100 Hz 20 °C m $\Omega$	$ESR_{max}$ 100 Hz 20 °C m $\Omega$	$ESR_{max}$ 100 Hz -40 °C $\Omega$	$ESR_{max}$ 10 kHz 20 °C m $\Omega$	$Z_{max}$ 100 kHz 20 °C m $\Omega$	$I_{\sim max}$ 10 kHz 40 °C A	$I_{\sim max}$ 10 kHz 85 °C A	$I_{\sim R}$ 10 kHz 105 °C A	$I_{\sim max}$ 10 kHz 125 °C A
<b>160 VDC</b>									
33	1,10	1,70	20,0	530	530	3,30	2,75	1,10	0,55
47	0,75	1,20	14,0	370	360	4,15	3,45	1,40	0,70
100	0,36	0,60	7,0	175	170	6,85	5,80	2,30	1,15
<b>250 VDC</b>									
22	1,40	2,30	25,0	540	500	3,55	2,95	1,20	0,60
47	0,65	1,10	12,0	250	230	5,20	4,35	1,75	0,87
68	0,45	0,75	8,5	170	160	7,15	6,00	2,40	1,20

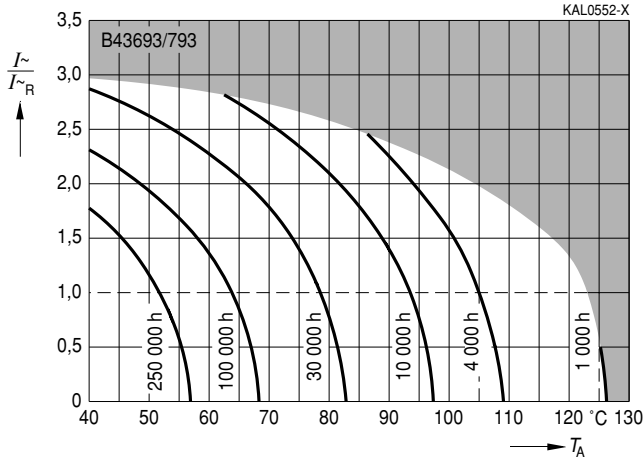


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**High Voltage – 125 °C**

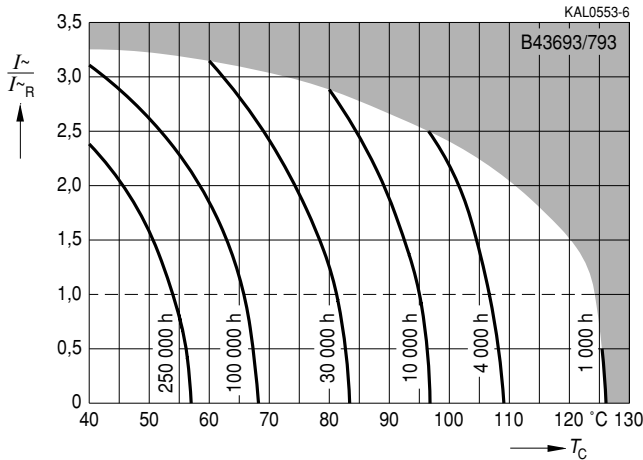
**Useful life**

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

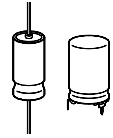
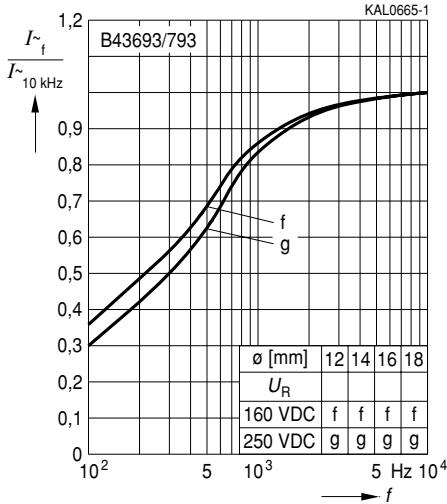
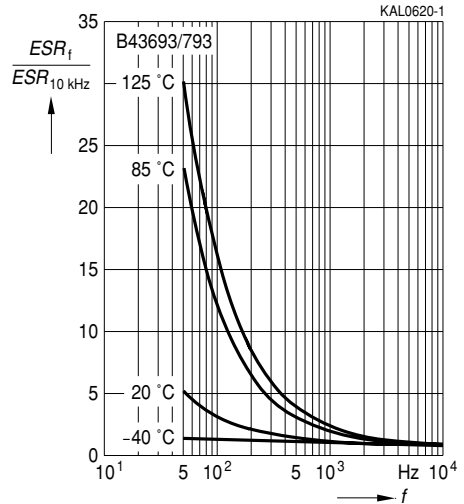
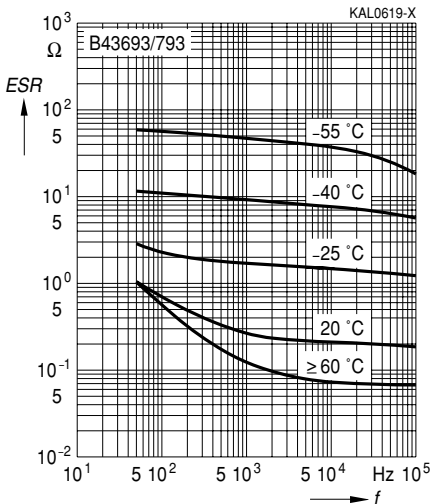
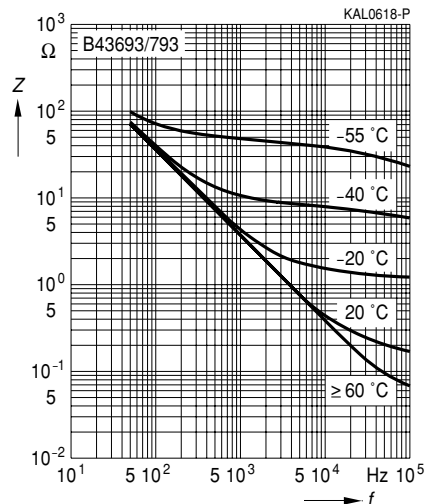


**Useful life**

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  $I_r$  versus frequency  $f$** 

**Frequency characteristics of ESR at different temperatures typical behavior**

**Equivalent series resistance ESR versus frequency  $f$  at different temperatures Typical behavior for 47  $\mu$ F/250 V**

**Impedance Z versus frequency  $f$  at different temperatures Typical behavior for 47  $\mu$ F/250 V**


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