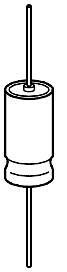
Applications

- Electronic ballasts



KAL0277-Z

Features

- Long useful life
- High reliability
- Small dimensions
- Extensive field experience in standard electronic ballast applications

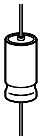
Construction

- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Negative pole connected to case
- Axial leads, welded to ensure perfect electrical contact

Taping and packing

- Bulk
- Pallet package
- Capacitors with $d \times l \leq 16 \times 30$ mm are also available taped on reel.

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



Specifications and characteristics in brief

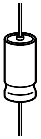
Rated voltage U_R	450 VDC				
Surge voltage U_S	495 VDC				
Rated capacitance C_R	10 … 47 µF				
Capacitance tolerance	– 10/+ 30 % ≙ Q				
Leakage current I_L (5 min, 20 °C)	$I_L \leq 0{,}3\ \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{U_R}{V}\right)^{0{,}7} + 4\ \mu A$				
Self-inductance *ESL*[1)]	Diameter *d*	12 mm	14 mm	16 mm	18 mm
	Length *l*	Approx. *ESL* (nH)			
	25 mm	—	22	26	—
	30 mm	21	24	29	34
	39 mm	—	—	33	38

Useful life	450 VDC	420 VDC	Requirements:
105 °C; U_R; $I_{\sim R}$	> 4 000 h	> 11 500 h	$\Delta C/C$ ≤ ± 30 % of initial value
85 °C; U_R; $I_{\sim max}$	> 9 000 h	> 17 500 h	*ESR* ≤ 3 times initial spec. limit
85 °C; U_R; $I_{\sim R}$	> 20 000 h	> 58 000 h	I_L ≤ initial specified limit
40 °C; U_R;1,85 · $I_{\sim R}$	> 200 000 h	—	Failure percentage: ≤ 1 %
40 °C; U_R; 2,3 · $I_{\sim R}$	—	> 200 000 h	Failure rate: ≤ 20 fit (≤ 20 · 10^{-9}/h) (for definiton “fit”, refer to chapter *“Quality”*, page 62)

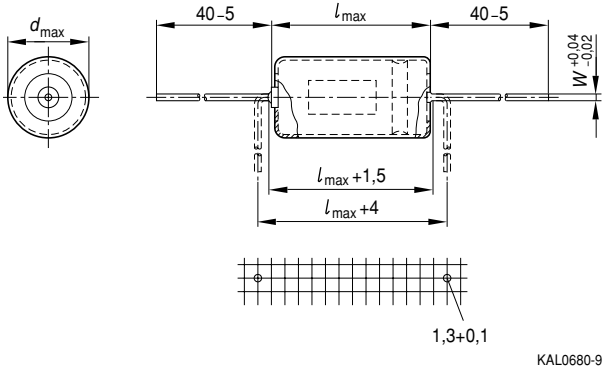
Voltage endurance test	3 000 h	5 000 h	Post test requirements:
105 °C; U_R			$\Delta C/C$ ≤ ± 10 % of initial value
			ESR ≤ 1,3 % times initial spec. limit
			I_L ≤ initial specified limit

Vibration resistance	To IEC 60068-2-6, test Fc: displacement amplitude 0,75 mm, frequency range 10 Hz to 55 Hz, acceleration max. 10 *g*, duration 3 × 2 h
IEC climatic category	To IEC 60068-1: 40/105/56 (– 40 °C/+ 105 °C/56 days damp heat test)
Detail specification	Similar to CECC 30301-801
Sectional specification	IEC 60384-4

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

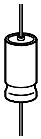


Dimensional drawings



Dimensions, weights and packing units

$d \times l$	$d_{max} \times l_{max}$	Wire W	Approx. weight	Packing units (pieces)		
mm	mm	mm	g	Bulk	Reel	Pallet
12 × 30	12,5 × 30,5	0,8	5,1	600	450	288
14 × 30	14,5 × 30,5	0,8	6,8	400	350	200
16 × 30	16,5 × 30,5	0,8	8,9	350	250	180
18 × 30	18,5 × 30,5	1,0	11,1	300	—	160
18 × 39	18,5 × 40	1,0	14,7	250	—	160



Case dimensions and ordering codes

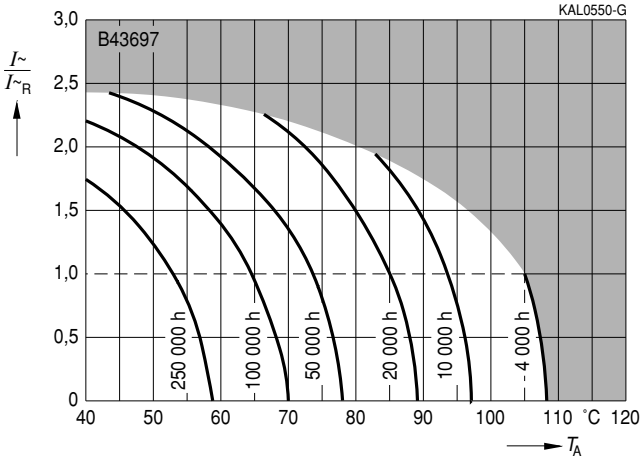
U_R	C_R	Case dim. $d \times l$	Ordering code		
VDC	µF	mm	Bulk	Pallet package	Reel
450	10	12 × 30	B43697A5106Q000	B43697A5106Q007	B43697A5106Q009
	15	14 × 30	B43697A5156Q000	B43697A5156Q007	B43697A5156Q009
	22	16 × 30	B43697A5226Q000	B43697A5226Q007	B43697A5226Q009
	33	18 × 30	B43697A5336Q000	B43697A5336Q007	
	47	18 × 39	B43697A5476Q000	B43697A5476Q007	

Technical data

C_R 100 Hz 20 °C µF	ESR_{typ} 100 Hz 20 °C Ω	ESR_{max} 100 Hz 20 °C Ω	ESR_{max} 100 Hz –25 °C Ω	ESR_{max} 10 kHz 20 °C Ω	Z_{max} 100 kHz 20 °C Ω	$I_{\sim max}$ 10 kHz 40 °C A	$I_{\sim max}$ 10 kHz 85 °C A	$I_{\sim R}$ 10 kHz 105 °C A
450 VDC								
10	7,5	11,0	300	4,4	4,3	1,20	0,95	0,50
15	4,8	7,6	170	3,0	2,9	1,55	1,20	0,65
22	3,2	5,2	120	2,0	1,9	2,05	1,60	0,85
33	2,1	3,5	95	1,4	1,3	2,45	1,90	1,00
47	1,5	2,6	70	1,0	0,9	3,40	2,65	1,40

Useful life

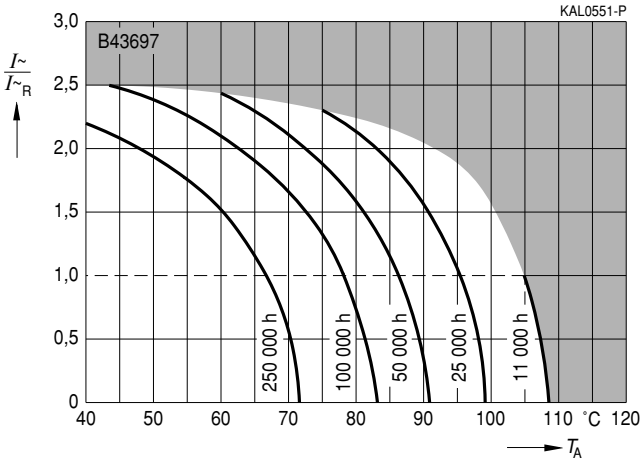
depending on ambient temperature T_A under ripple current operating conditions at U_R [1)]



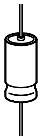
Useful life

depending on ambient temperature T_A under ripple current operating conditions at U_{op} [1)]

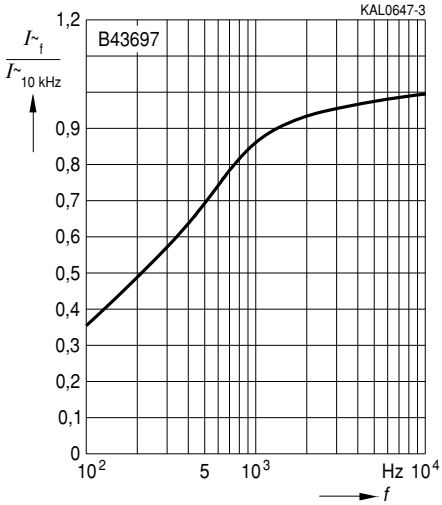
U_{op} = 420 V



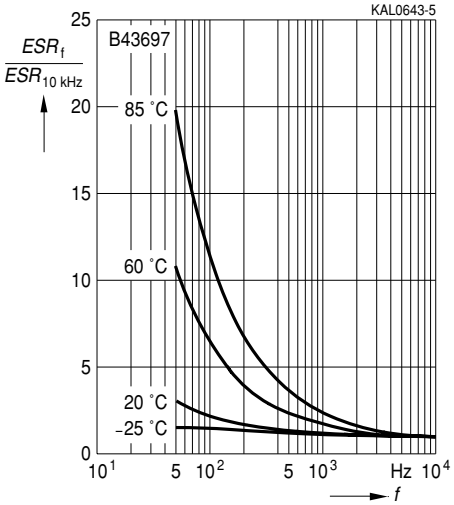
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.



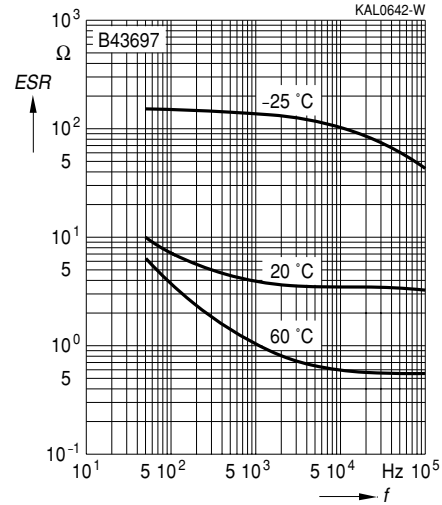
Frequency factor of permissible ripple current *I~*
versus frequency *f*



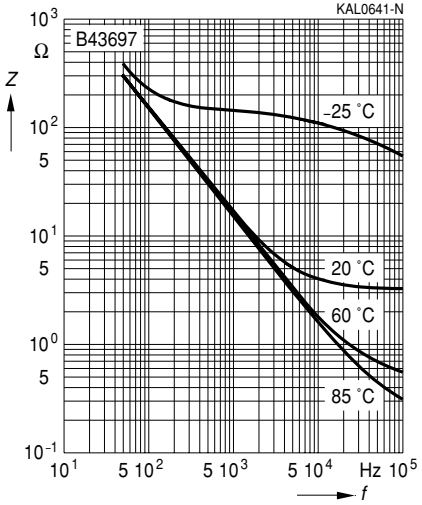
Frequency characteristics of *ESR*
at different temperatures
Typical behavior



Equivalent series resistance *ESR*
versus frequency *f* at different temperatures
Typical behavior for 10 µF/450 V



Impedance Z
versus frequency *f* at different temperatures
Typical behavior for 10 µF/450 V



Herausgegeben von EPCOS AG
Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND
☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

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