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Specifications and characteristics in brief

Rated voltage V_R	25 … 63 VDC						
Surge voltage V_{surge}	$1.15 \cdot V_R$						
Rated capacitance C_R	220 … 6000 µF						
Capacitance tolerance	–10/+30% ≙ Q						
Leakage current I_{leak} (5 min, 20 °C)	$I_{leak} \leq 0.006 \cdot \mu A \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right) + 4\ \mu A$						
Self-inductance ESL[1)]	Diameter d		12 mm	14 mm	16 mm	18 mm	21 mm
	Length	Terminal	approx. ESL (nH)				
	25 mm	axial / soldering star	– / –	22 / 6	26 / 7	– / –	– / –
	30 mm	axial / soldering star	21 / 6	24 / 7	29 / 8	34 / 10	– / –
	39 mm	axial / soldering star	– / –	– / –	33 / 9	38 / 11	45 / –
	49 mm	axial	– / –	– / –	– / –	– / –	50 / –
Useful life 150 °C; V_{op}; $0.5 \cdot I_{\sim R}$ 140 °C; V_R; $0.6 \cdot I_{\sim R}$*) 125 °C; V_R; $I_{\sim R}$ 85 °C; V_R; $I_{\sim max}$ 40 °C; V_R; $2 \cdot I_{\sim R}$ *) V_{op}: see useful life graph, page 26	> 2 000 h > 2 000 h > 5 000 h > 15 000 h > 500 000 h	Requirements: ΔC/C ≤ ±30% of initial value ESR ≤ 3 times initial specified limit I_{leak} ≤ initial specified limit					
Voltage endurance test 125 °C; V_R	2 000 h	Post test requirements: ΔC/C ≤ ±10% of initial value ESR ≤ 1.3 times initial specified limit I_{leak} ≤ initial specified limit					
Vibration resistance	To IEC 60068-2-6, test Fc: displacement amplitude 1.5 mm, at 10 Hz … 2 kHz, acceleration max. 20 *g*, duration 3 x 2 h						
IEC climatic category	To IEC 60068-1: 55/125/56 (– 55 °C/+125 °C/56 days damp heat test)						
Detail specification Sectional specification	Similar to CECC 30301-802 IEC 60384–4						

Features

- Outstandingly long useful life of 2000 h at up to 140 °C
- 150 °C operating temperature at reduced voltage applied
- Very high ripple current capability
- Miniaturized design
- High vibration resistance
- Shelf life more than 15 years

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

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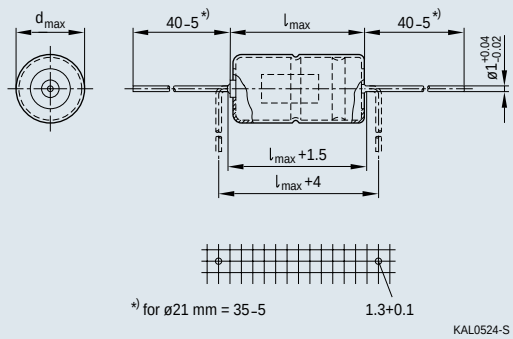
Axial-lead capacitors

Dimensional drawing

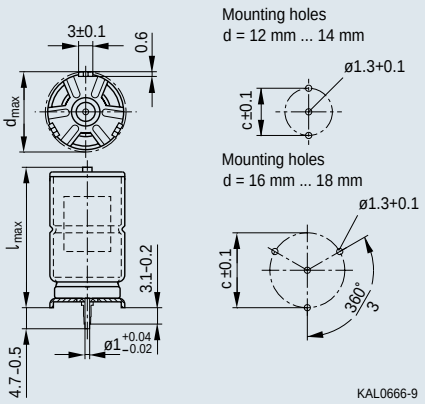


Dimensions, weights and packing units

d x l (mm)	d_{max} x l_{max} (mm)	Approx. weight (g)	Packing units (pieces) Pallet	Reel
12 x 30	12.5 x 30.5	5.1	288	450
14 x 25	14.5 x 25.5	5.7	200	350
14 x 30	14.5 x 30.5	6.8	200	350
16 x 30	16.5 x 30.5	8.9	180	250
16 x 39	16.5 x 40	11.7	180	–
18 x 30	18.5 x 30.5	11.1	160	–
18 x 39	18.5 x 40	14.7	160	–
21 x 39	21.5 x 40	20	140	–
21 x 49	21.5 x 50	25	110	–

Soldering star capacitors

Dimensional drawing

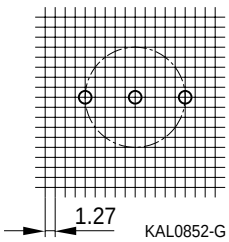


Dimensions, weights and packing units

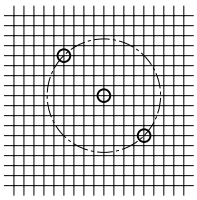
d x l (mm)	d_{max} x l_{max} (mm)	c ± 0.1 (mm)	Approx. weight (g)	Packing units (pieces)
12 x 30	13.5 x 32	12.5	5.4	480
14 x 25	15.5 x 27	14.5	6.1	480
14 x 30	15.5 x 32	14.5	7.2	480
16 x 30	17.5 x 32	16.5	9.4	300
16 x 39	17.5 x 41.5	16.5	12.2	200
18 x 30	19.5 x 32	18.5	11.8	300
18 x 39	19.5 x 41.5	18.5	15.4	200

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:

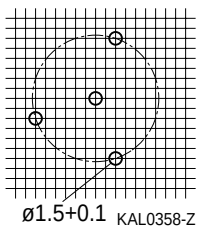
d = 12 mm



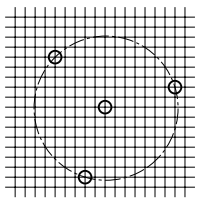
d = 14 mm



d = 16 mm



d = 18 mm



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Case dimensions and ordering codes

V_R VDC	C_R µF	Case dimensions d x l mm	Ordering code Axial pallet package	Axial reel	Soldering star
25	680	12 x 30	B41692A5687Q007	B41692A5687Q009	B41792A5687Q000
	1000	14 x 25	B41692A5108Q007	B41692A5108Q009	B41792A5108Q000
	1500	14 x 30	B41692A5158Q007	B41692A5158Q009	B41792A5158Q000
	2200	16 x 39	B41692A5228Q007	–	B41792A5228Q000
	2200[1)]	18 x 30	B41692B5228Q007	–	B41792B5228Q000
	3300[1)]	18 x 39	B41692A5338Q007	–	B41792A5338Q000
	4700[1)]	21 x 39	B41692A5478Q007	–	–
	6000[1)]	21 x 49	B41692A5608Q007	–	–
40	470	12 x 30	B41692A7477Q007	B41692A7477Q009	B41792A7477Q000
	680	14 x 30	B41692A7687Q007	B41692A7687Q009	B41792A7687Q000
	1000	16 x 30	B41692A7108Q007	B41692A7108Q009	B41792A7108Q000
	1500	16 x 39	B41692A7158Q007	–	B41792A7158Q000
	1500[1)]	18 x 30	B41692B7158Q007	–	B41792B7158Q000
	2200[1)]	18 x 39	B41692A7228Q007	–	B41792A7228Q000
	3000[1)]	21 x 39	B41692A7308Q007	–	–
	4000[1)]	21 x 49	B41692A7408Q007	–	–
63	220	12 x 30	B41692A8227Q007	B41692A8227Q009	B41792A8227Q000
	330	14 x 30	B41692A8337Q007	B41692A8337Q009	B41792A8337Q000
	470	16 x 30	B41692A8477Q007	B41692A8477Q009	B41792A8477Q000
	680	16 x 39	B41692A8687Q007	–	B41792A8687Q000
	680[1)]	18 x 30	B41692B8687Q007	–	B41792B8687Q000
	1000[1)]	18 x 39	B41692A8108Q007	–	B41792A8108Q000
	1500[1)]	21 x 49	B41692A8158Q007	–	–
	2200[1)]	21 x 49	B41692A8208Q007	–	–

Technical data

V_R VDC	C_R 100 Hz 20 °C µF	ESR_{typ} 100 Hz 20 °C mΩ	ESR_{max} 100 Hz 20 °C mΩ	ESR_{max} 100 Hz –40 °C mΩ	ESR_{max} 10 kHz 20 °C mΩ	Z_{max} 100 kHz 20 °C mΩ	$I_{\sim max}$ 10 kHz 40 °C A	$I_{\sim max}$ 10 kHz 85 °C A	$I_{\sim max}$ 10 kHz 105 °C A	$I_{\sim max}$ 10 kHz 125 °C A	$I_{\sim R}$ 10 kHz 125 °C A	$I_{\sim max}$ 10 kHz 140 °C A
25	680	150	250	1700	175	163	4.6	4.0	3.4	2.5	1.7	1.1
	1000	105	175	1200	125	117	5.1	4.4	3.8	2.8	1.9	1.3
	1500	72	120	800	85	80	6.6	5.8	4.9	3.7	2.5	1.6
	2200	50	82	550	59	56	9.6	8.3	7.1	5.3	3.7	2.4
	2200[1)]	48	79	550	55	53	9.6	8.3	7.1	5.3	3.6	2.4
	3300[1)]	32	53	360	38	36	13.1	11.3	9.7	7.2	5.0	3.2
	4700[1)]	24	39	250	28	27	15.6	13.5	11.6	8.6	5.9	3.9
	6000[1)]	19	31	190	22	21	19.7	17.1	14.6	10.8	7.5	4.9
40	470	145	240	1400	140	132	5.0	4.4	3.7	2.8	1.9	1.2
	680	105	170	1000	100	95	6.2	5.4	4.6	3.4	2.4	1.5
	1000	73	120	660	73	70	7.4	6.4	5.5	4.1	2.8	1.8
	1500	49	80	450	50	48	10.1	8.8	7.5	5.6	3.8	2.5
	1500[1)]	47	77	450	46	44	10.2	8.9	7.6	5.6	3.9	2.5
	2200[1)]	32	53	300	32	31	13.9	12.0	10.3	7.6	5.3	3.4
	3000[1)]	25	41	220	25	24	16.1	14.0	11.9	8.9	6.1	4.0
	4000[1)]	19	31	165	19	18	20.5	17.7	15.2	11.3	7.8	5.1
63	220	210	350	1600	150	144	4.9	4.2	3.6	2.7	1.9	1.2
	330	145	240	1100	105	100	6.1	5.3	4.6	3.4	2.3	1.5
	470	105	170	750	78	74	7.3	6.3	5.4	4.0	2.8	1.8
	680	71	120	510	55	52	9.9	8.5	7.3	5.4	3.7	2.4
	680[1)]	69	114	510	51	49	9.9	8.6	7.3	5.4	3.8	2.4
	1000[1)]	53	88	430	44	42	12.2	10.6	9.0	6.7	4.6	3.0
	1500[1)]	36	60	290	30	29	17.5	15.2	13.0	9.6	6.7	4.3
	2200[1)]	26	42	200	22	21	19.3	16.7	14.3	10.6	7.3	4.8

[1)] Available from 04/2005.

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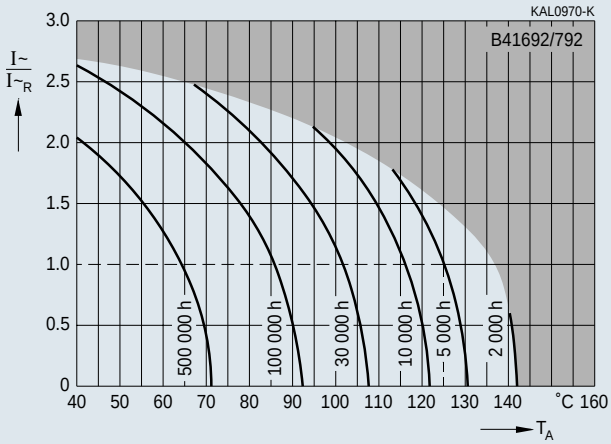
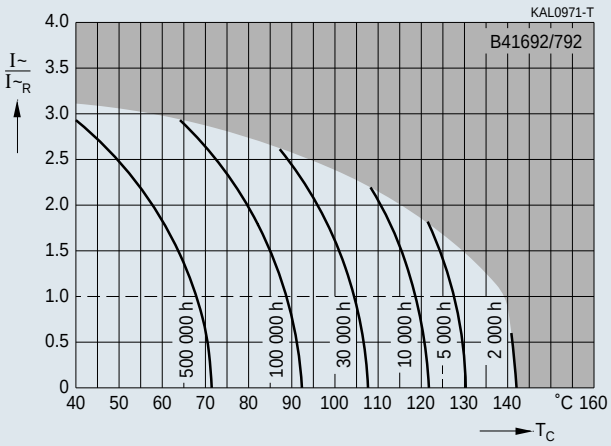
Characteristics

Useful life
depending on ambient temperature T_A under ripple current operating conditions at V_R

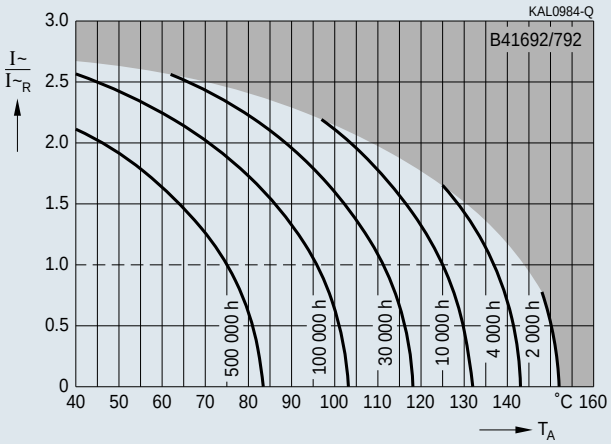


Useful life
depending on case temperature T_C under ripple current operating conditions at V_R



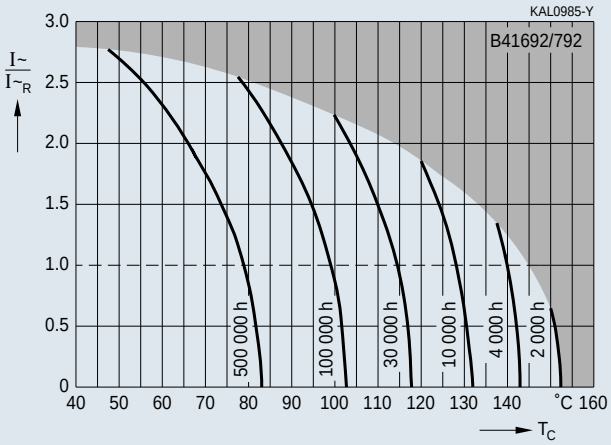
Useful life
depending on ambient temperature T_A under ripple current operating conditions at V_{op}

V_R = 25 V: $V_{op} \leq$ 20 V
V_R = 40 V: $V_{op} \leq$ 35 V
V_R = 63 V: $V_{op} \leq$ 55 V



Useful life
depending on case temperature T_C under ripple current operating conditions at V_{op}

V_R = 25 V: $V_{op} \leq$ 20 V
V_R = 40 V: $V_{op} \leq$ 35 V
V_R = 63 V: $V_{op} \leq$ 55 V



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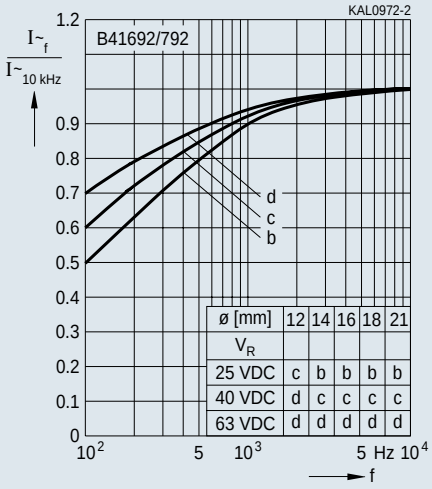
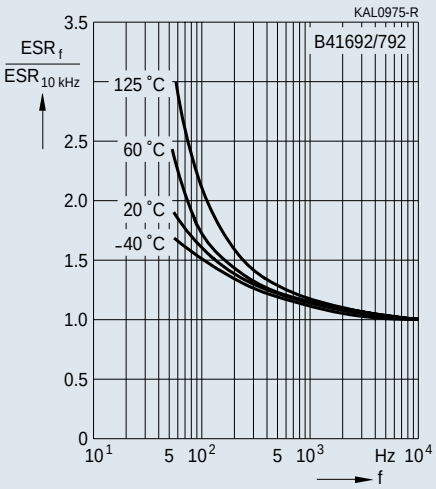
Characteristics

Frequency factor of permissible ripple current I~
versus frequency f

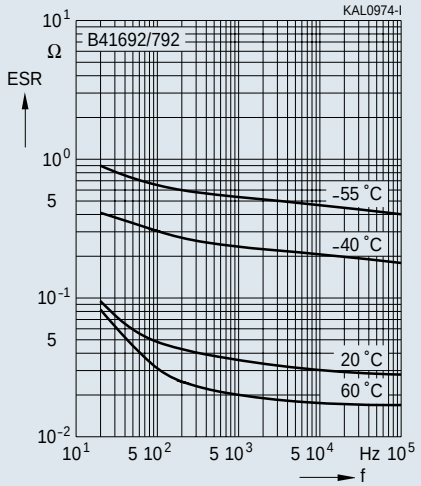


ø [mm]	12	14	16	18	21
V_R					
25 VDC	c	b	b	b	b
40 VDC	d	c	c	c	c
63 VDC	d	d	d	d	d

Frequency characteristics of ESR
at different temperatures
Typical behavior



Equivalent series resistance ESR
versus frequency at different temperatures
Typical behavior for 2200 µF/25 V



Impedance Z
versus frequency f at different temperatures
Typical behavior for 2200 µF/25 V