

## General-purpose grade capacitors

### Applications

- General-purpose applications in the entertainment industry
- Semi-professional to professional application range
- For filtering, coupling and pulse circuits

### Features

- Miniaturized dimensions
- Operation up to 105 °C
- High CU product, i.e. very compact

### Construction

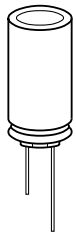
- Radial leads
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulation sleeve
- Stand off rubber seal
- Case with safety vent from diameter 6,3 mm

### Delivery mode

Special terminal configurations and packing:

- Bulk
- Taped, Ammo pack
- Cut
- Kinked
- PAPR (protection against polarity reversal)

Refer to page 503 for further details and ordering example.



KAL0707-F


**B41851 / B43851**
**Standard Series – 105 °C**
**Specifications and characteristics in brief**

Type	B41851	B43851
Rated voltage $U_R$	6,3...100 VDC	160...450 VDC
Surge voltage $U_S$	$1,15 \cdot U_R$	$1,1 \cdot U_R$
Rated capacitance $C_R$	0,1...10 000 $\mu$ F	0,47...470 $\mu$ F
Capacitance tolerance	$\pm 20 \% \triangleq M$	$\pm 20 \% \triangleq M$
Useful life		
105 °C, $U_R$ ; $I_{-R}$	> 2 000 h	> 3 000 h
40 °C, $U_R$ ; $1,8 \cdot I_{-R}$	> 250 000 h	—
40 °C, $U_R$ ; $2,1 \cdot I_{-R}$	—	> 250 000 h
Requirements:	$\Delta C/C \leq \pm 45 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 1 \%$ Failure rate: $\leq 100$ fit ( $\leq 100 \cdot 10^{-9}/h$ ) (for definition "fit", refer to chapter "Quality", page 62)	
Voltage endurance test		
105 °C; $U_R$	1 000 h	1 000 h
Post test requirements:	$\Delta C/C \leq \pm 30 \%$ of initial value $\tan \delta \leq 2$ times initial specified limit $I_L \leq$ initial specified limit	
Vibration resistance	To IEC 60068-2-6, test Fc: displacement amplitude 0,75 mm, frequency range 10 ... 2000 Hz, acceleration max.10 g, duration $3 \times 2$ h	
IEC climatic category	To IEC 60068-1: $U_R \leq 250$ V: 40/105/56 (– 40 °C/+ 105 °C/56 days damp heat test) $U_R \geq 350$ V: 25/105/56 (– 25 °C/+ 105 °C/56 days damp heat test)	
Sectional specification	IEC 60384-4	


**Dimensional drawing**

**Dimensions and weights**

Dimensions (mm)				Approx. weight
$d \times l$	$d_{\max} \times l_{\max}$	$a \pm 0,5$	$b$	g
5 × 11	5,5 × 12	2,0	0,50 ± 0,05	0,5
6,3 × 11	6,8 × 12	2,5	0,50 ± 0,05	0,7
8 × 11	8,5 × 12	3,5	0,60 ± 0,05	1,0
10 × 12,5	10,5 × 13,5	5,0	0,60 ± 0,05	1,6
10 × 16	10,5 × 17	5,0	0,60 ± 0,05	1,9
10 × 20	10,5 × 22	5,0	0,60 ± 0,05	2,6
12,5 × 20	13 × 22	5,0	0,60 ± 0,05	3,6
12,5 × 25	13 × 27	5,0	0,60 ± 0,05	4,5
16 × 20	16,5 × 22	7,5	0,80 ± 0,05	5,5
16 × 25	16,5 × 27	7,5	0,80 ± 0,05	7,5
16 × 31,5	16,5 × 33,5	7,5	0,80 ± 0,05	7,8
18 × 31,5	18,5 × 32,5	7,5	0,80 ± 0,1	11
18 × 35	18,5 × 36	7,5	0,80 ± 0,1	13
18 × 40	18,5 × 41	7,5	0,80 ± 0,1	16
20 × 30	20,5 × 32	10,0	0,80 ± 0,1	14
20 × 35	20,5 × 37	10,0	0,80 ± 0,1	18
20 × 40	20,5 × 42	10,0	0,80 ± 0,1	20
22 × 35	22,5 × 37	10,0	1,0 ± 0,1	21
22 × 40	22,5 × 42	10,0	1,0 ± 0,1	23



**B41851 / B43851**

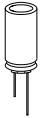
**Standard Series – 105 °C**

**Overview of available types**

**B41851**

$U_R$ (VDC)	6,3	10	16	25	35	50	63	100
$C_R$ (μF)	Case dimensions $d \times l$ (mm)							
0,10								5 × 11
0,22								5 × 11
0,33								5 × 11
0,47								5 × 11
1,0						5 × 11		5 × 11
2,2						5 × 11		5 × 11
3,3						5 × 11		5 × 11
4,7						5 × 11		5 × 11
10						5 × 11	5 × 11	6,3 × 11
22						5 × 11	6,3 × 11	8 × 11
33					5 × 11	6,3 × 11	6,3 × 11	10 × 12,5
47				5 × 11	5 × 11	6,3 × 11	8 × 11	10 × 12,5
100		5 × 11	5 × 11	6,3 × 11	6,3 × 11	8 × 11	10 × 12,5	10 × 20
220	6,3 × 11	6,3 × 11	6,3 × 11	8 × 11	10 × 12,5	10 × 12,5	10 × 16	12,5 × 25
330	6,3 × 11	8 × 11	8 × 11	10 × 12,5	10 × 12,5	10 × 16	10 × 20	16 × 25
470	8 × 11	8 × 11	10 × 12,5	10 × 12,5	10 × 16	10 × 20	12,5 × 25	16 × 31,5
1 000	10 × 12,5	10 × 12,5	10 × 16	10 × 20	12,5 × 20 12,5 × 25	16 × 20	16 × 31,5	20 × 40
2 200	10 × 20	10 × 20	12,5 × 25	16 × 20	16 × 25 16 × 31,5	18 × 35	20 × 40	
3 300	10 × 20	12,5 × 25	16 × 25	16 × 25	18 × 31,5	18 × 40		
4 700	12,5 × 25	16 × 20	16 × 25	16 × 31,5	18 × 40	22 × 40		
10 000		18 × 35	20 × 35	22 × 40				

Other capacitance and voltage ratings are available upon request.


**B43851**

$U_R$ (VDC)	160	200	250	350	400	450
$C_R$ ( $\mu$ F)	Case dimensions $d \times l$ (mm)					
0,47	6,3 × 11	6,3 × 11	6,3 × 11	6,3 × 11		
1,0	6,3 × 11	6,3 × 11	6,3 × 11	6,3 × 11		
2,2	6,3 × 11	6,3 × 11	6,3 × 11	8 × 11	10 × 12,5	10 × 12,5
3,3	6,3 × 11	6,3 × 11	8 × 11	10 × 12,5	10 × 12,5	10 × 16
4,7	8 × 11	8 × 11	10 × 12,5	10 × 12,5	10 × 16	10 × 20
10	10 × 12,5	10 × 12,5	10 × 16	10 × 20	10 × 20	12,5 × 25
22	10 × 16	10 × 20	10 × 20	12,5 × 25	16 × 20	16 × 25
33	10 × 20	10 × 20	12,5 × 25	16 × 25	16 × 25	16 × 31,5
47	12,5 × 25	12,5 × 25	16 × 20	16 × 31,5	16 × 31,5	18 × 31,5
100	16 × 25	16 × 25	18 × 35	20 × 30	20 × 35	20 × 40
220	18 × 31,5	18 × 35	18 × 40			
330	20 × 30	22 × 35	22 × 40			
470	22 × 35					

Other capacitance and voltage ratings are available upon request.


**B41851 / B43851**
**Standard Series – 105 °C**
**Technical data and ordering codes**

$U_R$	$C_R$	Case dimensions	$I_{L, \max}$	$\tan \delta_{\max}$	$ESR_{\max}$	$I_{\sim R}$	Ordering code <sup>1)</sup>
	120 Hz 20 °C	$d \times l$	5 min 20 °C	120 Hz 20 °C	120 Hz 20 °C	120 Hz 105 °C	
VDC	$\mu F$	mm	$\mu A$		$\Omega$	mA	
<b>B41851</b>							
6,3	220	6,3 × 11	14	0,28	2,1	133	B41851A2227M00*
	330	6,3 × 11	21	0,28	1,4	189	B41851A2337M00*
	470	8 × 11	30	0,28	1,0	231	B41851A2477M00*
	1 000	10 × 12,5	63	0,28	0,46	392	B41851A2108M00*
	2 200	10 × 20	139	0,30	0,23	665	B41851A2228M00*
	3 300	10 × 20	208	0,32	0,16	735	B41851A2338M00*
	4 700	12,5 × 25	296	0,34	0,12	910	B41851A2478M00*
10	100	5 × 11	10	0,24	4,0	84	B41851A3107M00*
	220	6,3 × 11	22	0,24	1,8	154	B41851A3227M00*
	330	8 × 11	33	0,24	1,2	196	B41851A3337M00*
	470	8 × 11	47	0,24	0,85	280	B41851A3477M00*
	1 000	10 × 12,5	100	0,24	0,40	448	B41851A3108M00*
	2 200	10 × 20	220	0,26	0,20	728	B41851A3228M00*
	3 300	12,5 × 25	330	0,28	0,14	1 015	B41851A3338M00*
	4 700	16 × 20	470	0,30	0,11	1 078	B41851A3478M00*
10 000	18 × 35	1 000	0,42	0,07	1 764	B41851A3109M00*	
16	100	5 × 11	16	0,20	3,3	112	B41851A4107M00*
	220	6,3 × 11	35	0,20	1,5	180	B41851F4227M00*
	330	8 × 11	53	0,20	1,0	245	B41851A4337M00*
	470	10 × 12,5	75	0,20	0,71	350	B41851A4477M00*
	1 000	10 × 16	160	0,20	0,33	504	B41851A4108M00*
	2 200	12,5 × 25	352	0,22	0,17	950	B41851A4228M00*
	3 300	16 × 25	528	0,24	0,12	1 106	B41851A4338M00*
	4 700	16 × 25	752	0,26	0,09	1 190	B41851A4478M00*
	10 000	20 × 35	1 600	0,38	0,06	1 820	B41851A4109M00*

Preferred types

1) \* = "0" for bulk version.

For taping versions, other lead configurations and packing information see page 503.


**Technical data and ordering codes**

$U_R$ VDC	$C_R$ 120 Hz 20 °C $\mu\text{F}$	Case dimensions $d \times l$ mm	$I_{L, \max}$ 5 min 20 °C $\mu\text{A}$	$\tan \delta_{\max}$ 120 Hz 20 °C	$ESR_{\max}$ 120 Hz 20 °C $\Omega$	$I_{\sim R}$ 120 Hz 105 °C mA	Ordering code <sup>1)</sup>
25	47	5 × 11	12	0,16	5,6	70	B41851A5476M00*
	100	6,3 × 11	25	0,16	2,7	126	B41851A5107M00*
	220	8 × 11	55	0,16	1,2	203	B41851A5227M00*
	330	10 × 12,5	83	0,16	0,80	280	B41851A5337M00*
	470	10 × 12,5	118	0,16	0,56	380	B41851F5477M00*
	1 000	10 × 20	250	0,16	0,27	595	B41851A5108M00*
	2 200	16 × 20	550	0,18	0,14	910	B41851A5228M00*
	3 300	16 × 25	825	0,20	0,10	1 225	B41851A5338M00*
	4 700	16 × 31,5	1 175	0,22	0,08	1 400	B41851A5478M00*
	10 000	22 × 40	2 500	0,34	0,06	2 100	B41851A5109M00*
35	33	5 × 11	12	0,14	7,0	60	B41851A7336M00*
	47	5 × 11	16	0,14	4,9	91	B41851A7476M00*
	100	6,3 × 11	35	0,14	2,3	150	B41851F7107M00*
	220	10 × 12,5	77	0,14	1,1	273	B41851A7227M00*
	330	10 × 12,5	116	0,14	0,70	315	B41851A7337M00*
	470	10 × 16	165	0,14	0,49	399	B41851A7477M00*
	1 000	12,5 × 20	350	0,14	0,23	810	B41851F7108M00*
	1 000	12,5 × 25	350	0,14	0,23	850	B41851A7108M00*
	2 200	16 × 31,5	770	0,16	0,12	1 050	B41851A7228M00*
	3 300	18 × 31,5	1 155	0,18	0,09	1 505	B41851A7338M00*
4 700	18 × 40	1 645	0,20	0,07	1 610	B41851A7478M00*	
50	1	5 × 11	4	0,12	199	12	B41851A6105M00*
	2,2	5 × 11	4	0,12	90	20	B41851A6225M00*
	3,3	5 × 11	4	0,12	60	25	B41851A6335M00*
	4,7	5 × 11	4	0,12	42	30	B41851A6475M00*
	10	5 × 11	5	0,12	20	40	B41851A6106M00*
	22	5 × 11	11	0,12	9,0	63	B41851A6226M00*
	33	6,3 × 11	17	0,12	6,0	77	B41851A6336M00*
	47	6,3 × 11	24	0,12	4,2	105	B41851A6476M00*
	100	8 × 11	50	0,12	2,0	175	B41851A6107M00*
	220	10 × 12,5	110	0,12	0,90	280	B41851A6227M00*
330	10 × 16	165	0,12	0,60	357	B41851A6337M00*	

\* Preferred types

1) \* = "0" for bulk version. For taping versions, other lead configurations and packing information see page 503.


**B41851 / B43851**
**Standard Series – 105 °C**
**Technical data and ordering codes**

$U_R$	$C_R$ 120 Hz 20 °C μF	Case dimensions $d \times l$ mm	$I_{L, \max}$ 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	$ESR_{\max}$ 120 Hz 20 °C Ω	$I_{\sim R}$ 120 Hz 105 °C mA	Ordering code <sup>1)</sup>
50	470	10 × 20	235	0,12	0,42	490	B41851A6477M00*
	1 000	16 × 20	500	0,12	0,20	770	B41851A6108M00*
	2 200	18 × 35	1 100	0,14	0,11	1 190	B41851A6228M00*
	3 300	18 × 40	1 650	0,16	0,08	1 330	B41851A6338M00*
	4 700	22 × 40	2 350	0,18	0,06	1 540	B41851A6478M00*
63	10	5 × 11	6,3	0,12	20	42	B41851A8106M00*
	22	6,3 × 11	14	0,12	9,0	77	B41851A8226M00*
	33	6,3 × 11	21	0,12	6,0	91	B41851A8336M00*
	47	8 × 11	30	0,12	4,2	126	B41851A8476M00*
	100	10 × 12,5	63	0,12	2,0	203	B41851A8107M00*
	220	10 × 16	139	0,12	0,90	329	B41851A8227M00*
	330	10 × 20	208	0,12	0,60	434	B41851A8337M00*
	470	12,5 × 25	296	0,12	0,42	630	B41851A8477M00*
	1 000	16 × 31,5	630	0,12	0,20	1 050	B41851A8108M00*
	2 200	20 × 40	1 386	0,14	0,11	1 540	B41851A8228M00*
100	0,10	5 × 11	3,0	0,10	1 658	1,4	B41851A9104M00*
	0,22	5 × 11	3,0	0,10	754	2,8	B41851A9224M00*
	0,33	5 × 11	3,0	0,10	502	4,9	B41851A9334M00*
	0,47	5 × 11	3,0	0,10	353	7,0	B41851A9474M00*
	1	5 × 11	3,0	0,10	166	14	B41851A9105M00*
	2,2	5 × 11	3,0	0,10	75	21	B41851A9225M00*
	3,3	5 × 11	3,3	0,10	50	28	B41851A9335M00*
	4,7	5 × 11	4,7	0,10	35	31	B41851A9475M00*
	10	6,3 × 11	10	0,10	17	52	B41851A9106M00*
	22	8 × 11	22	0,10	7,5	91	B41851A9226M00*
	33	10 × 12,5	33	0,10	5,0	133	B41851A9336M00*
	47	10 × 12,5	47	0,10	3,5	161	B41851B9476M00*
	100	10 × 20	100	0,10	1,7	245	B41851A9107M00*
	220	12,5 × 25	220	0,10	0,75	434	B41851A9227M00*
	330	16 × 25	330	0,10	0,50	560	B41851A9337M00*
	470	16 × 31,5	470	0,10	0,35	630	B41851A9477M00*
1 000	20 × 40	1 000	0,10	0,17	910	B41851A9108M00*	

Preferred types

1) \* = "0" for bulk version. For taping versions, other lead configurations and packing information see page 503.




**Technical data and ordering codes**

$U_R$	$C_R$	Case dimensions	$I_{L, \max}$	$\tan \delta_{\max}$	$ESR_{\max}$	$I_{\sim R}$	Ordering code <sup>1)</sup>
VDC	120 Hz 20 °C $\mu\text{F}$	$d \times l$ mm	5 min 20 °C $\mu\text{A}$	120 Hz 20 °C	120 Hz 20 °C $\Omega$	120 Hz 105 °C mA	

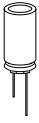
**B43851**

160	0,47	6,3 × 11	17	0,20	705	9,8	B43851A1474M00*	
	1,0	6,3 × 11	20	0,20	332	15	B43851A1105M00*	
	2,2	6,3 × 11	26	0,20	151	28	B43851A1225M00*	
	3,3	6,3 × 11	31	0,20	100	32	B43851A1335M00*	
	4,7	8 × 11	38	0,20	71	39	B43851A1475M00*	
	10	10 × 12,5	63	0,20	33	60	B43851A1106M00*	
	22	10 × 16	121	0,20	15	91	B43851A1226M00*	
	33	10 × 20	173	0,20	10	123	B43851A1336M00*	
	47	12,5 × 25	241	0,20	7,1	182	B43851A1476M00*	
	100	16 × 25	495	0,20	3,3	287	B43851A1107M00*	
	220	18 × 31,5	1 071	0,20	1,5	462	B43851A1227M00*	
200	330	20 × 30	1 599	0,20	1,0	525	B43851A1337M00*	
	470	22 × 35	2 271	0,20	0,71	700	B43851A1477M00*	
	200	0,47	6,3 × 11	18	0,20	705	9	B43851A2474M00*
		1,0	6,3 × 11	21	0,20	332	15	B43851A2105M00*
		2,2	6,3 × 11	28	0,20	151	28	B43851A2225M00*
		3,3	6,3 × 11	35	0,20	100	32	B43851A2335M00*
		4,7	8 × 11	43	0,20	71	39	B43851A2475M00*
		10	10 × 12,5	75	0,20	33	56	B43851B2106M00*
		22	10 × 20	147	0,20	15	98	B43851A2226M00*
		33	10 × 20	213	0,20	10	109	B43851B2336M00*
		47	12,5 × 25	297	0,20	7,1	175	B43851A2476M00*
100		16 × 25	615	0,20	3,3	287	B43851A2107M00*	
220		18 × 35	1 335	0,20	1,5	700	B43851A2227M00*	
330	22 × 35	1 995	0,20	1,0	840	B43851A2337M00*		

Preferred types

1) \* = "0" for bulk version.

For taping versions, other lead configurations and packing information see page 503.


**B41851 / B43851**
**Standard Series – 105 °C**
**Technical data and ordering codes**

$U_R$	$C_R$ 120 Hz 20 °C μF	Case dimensions $d \times l$ mm	$I_{L, \max}$ 5 min 20 °C μA	$\tan \delta_{\max}$ 120 Hz 20 °C	$ESR_{\max}$ 120 Hz 20 °C Ω	$I_{-R}$ 120 Hz 105 °C mA	Ordering code <sup>1)</sup>
250	0,47	6,3 × 11	19	0,20	705	8	B43851F2474M00*
	1,0	6,3 × 11	23	0,20	332	15	B43851F2105M00*
	2,2	6,3 × 11	32	0,20	151	32	B43851F2225M00*
	3,3	8 × 11	40	0,20	100	35	B43851F2335M00*
	4,7	10 × 12,5	50	0,20	71	49	B43851F2475M00*
	10	10 × 16	90	0,20	33	63	B43851F2106M00*
	22	10 × 20	180	0,20	15	102	B43851F2226M00*
	33	12,5 × 25	263	0,20	10	151	B43851F2336M00*
	47	16 × 20	368	0,20	7,1	210	B43851F2476M00*
	100	18 × 35	765	0,20	3,3	490	B43851F2107M00*
220	18 × 40	1 665	0,20	1,5	700	B43851F2227M00*	
330	22 × 40	2 490	0,20	1,0	840	B43851F2337M00*	
350	0,47	6,3 × 11	20	0,20	705	8	B43851A4474M00*
	1,0	6,3 × 11	26	0,20	332	15	B43851A4105M00*
	2,2	8 × 11	38	0,20	151	21	B43851A4225M00*
	3,3	10 × 12,5	50	0,20	100	32	B43851A4335M00*
	4,7	10 × 12,5	64	0,20	71	39	B43851A4475M00*
	10	10 × 20	120	0,20	33	67	B43851A4106M00*
	22	12,5 × 25	246	0,20	15	123	B43851A4226M00*
	33	16 × 25	362	0,20	10	168	B43851A4336M00*
	47	16 × 31,5	509	0,20	7,1	224	B43851A4476M00*
	100	20 × 30	1 065	0,20	3,3	420	B43851A4107M00*
400	2,2	10 × 12,5	41	0,20	151	28	B43851A9225M00*
	3,3	10 × 12,5	55	0,20	100	32	B43851A9335M00*
	4,7	10 × 16	71	0,20	71	42	B43851A9475M00*
	10	10 × 20	135	0,20	33	67	B43851A9106M00*
	22	16 × 20	279	0,20	15	126	B43851A9226M00*
	33	16 × 25	411	0,20	10	168	B43851A9336M00*
	47	16 × 31,5	579	0,20	7,1	217	B43851A9476M00*
	100	20 × 35	1 215	0,20	3,3	420	B43851A9107M00*

Preferred types

1) \* = "0" for bulk version.

For taping versions, other lead configurations and packing information see page 503.


**Technical data and ordering codes**

$U_R$	$C_R$	Case dimensions	$I_{L, \max}$	$\tan \delta_{\max}$	$ESR_{\max}$	$I_{\sim R}$	Ordering code <sup>1)</sup>
VDC	120 Hz 20 °C $\mu\text{F}$	$d \times l$ mm	5 min 20 °C $\mu\text{A}$	120 Hz 20 °C	120 Hz 20 °C $\Omega$	120 Hz 105 °C mA	
450	2,2	10 × 12,5	45	0,20	151	20	B43851A5225M00*
	3,3	10 × 16	60	0,20	100	31	B43851A5335M00*
	4,7	10 × 20	78	0,20	71	35	B43851A5475M00*
	10	12,5 × 25	150	0,20	33	63	B43851A5106M00*
	22	16 × 25	312	0,20	15	116	B43851A5226M00*
	33	16 × 31,5	460	0,20	10	154	B43851A5336M00*
	47	18 × 31,5	650	0,20	7,1	186	B43851A5476M00*
	100	20 × 40	1 365	0,20	3,3	420	B43851A5107M00*

1) \* = "0" for bulk version.

For taping versions, other lead configurations and packing information see page 503.



**B41851 / B43851**

**Standard Series – 105 °C**

**Useful life**

depending on ambient temperature  $T_A$  under ripple current operating conditions<sup>1)</sup>

$U_R = 6,3 \dots 100 \text{ VDC}$



**Useful life**

depending on ambient temperature  $T_A$  under ripple current operating conditions<sup>1)</sup>

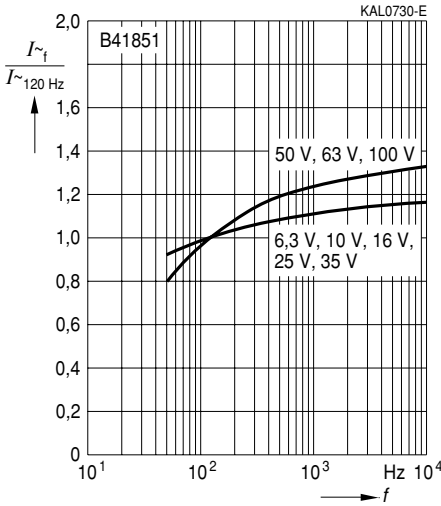
$U_R = 160 \dots 450 \text{ VDC}$



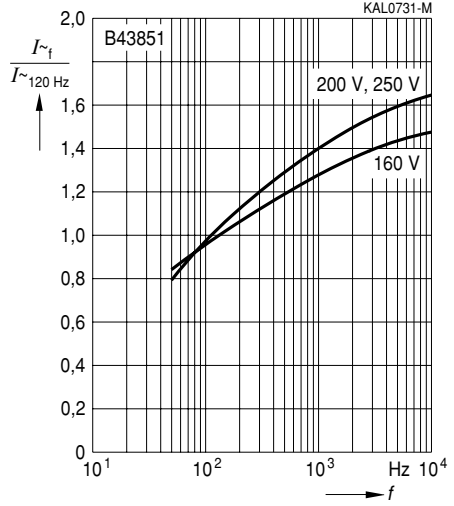
1) Refer to page 40 for an explanation on how to interpret the useful life graphs.



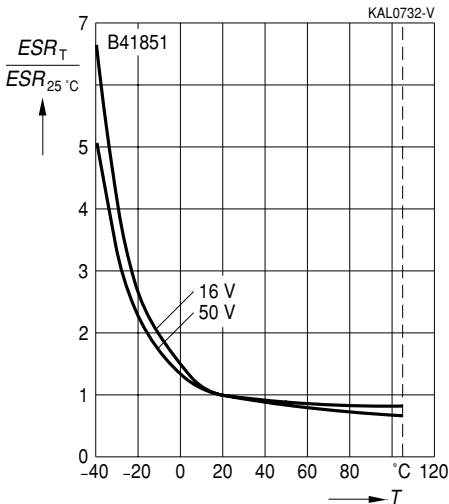
**Frequency factor of permissible ripple current  $I_{\sim}$  versus frequency  $f$**   
 $U_R \leq 100$  VDC



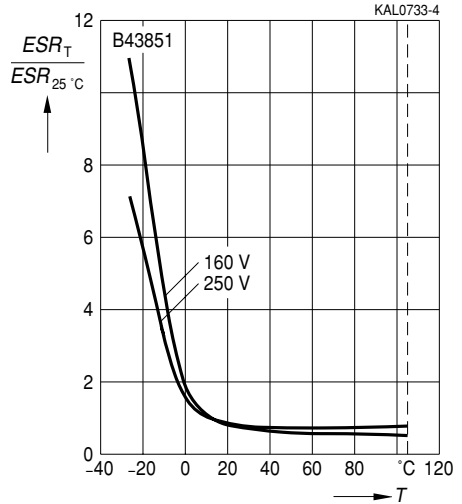
**Frequency factor of permissible ripple current  $I_{\sim}$  versus frequency  $f$**   
 $U_R \geq 160$  VDC



**Equivalent series resistance  $ESR$  at  $f = 120$  Hz versus temperature  $T$**   
 Typical behavior  
 $U_R \leq 100$  VDC



**Equivalent series resistance  $ESR$  at  $f = 120$  Hz versus temperature  $T$**   
 Typical behavior  
 $U_R \geq 160$  VDC





**B41851 / B43851**

**Standard Series – 105 °C**

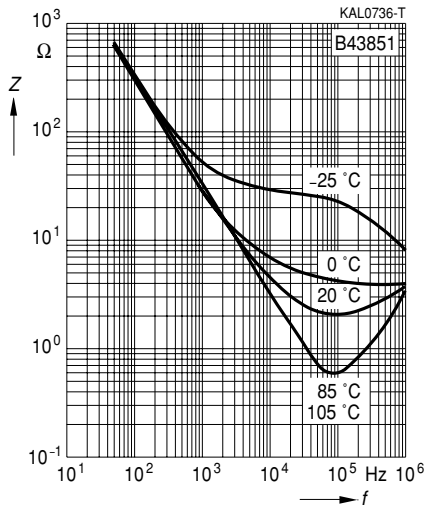
**Impedance  $Z$  at  $f = 10$  kHz**  
 versus temperature  $T$   
 Typical behavior  
 $U_R \leq 100$  VDC



**Impedance  $Z$  at  $f = 10$  kHz**  
 versus temperature  $T$   
 Typical behavior  
 $U_R \geq 160$  VDC



**Impedance  $Z$**   
 versus frequency  $f$  and temperature  $T$   
 for 4,7  $\mu$ F/160 VDC  
 Typical behavior



**Impedance  $Z$**   
 versus frequency  $f$  and temperature  $T$   
 for 10  $\mu$ F/160 VDC  
 Typical behavior

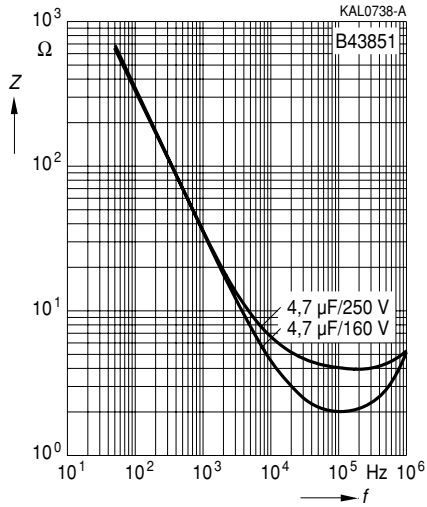




**Impedance  $Z$**

versus frequency  $f$

Typical behavior at 20 °C



**Herausgegeben von EPCOS AG**

**Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND**

**☎ ++49 89 636 09, FAX (0 89) 636-2 26 89**

© EPCOS AG 2002. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

**Published by EPCOS AG**

**Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY**

**☎ ++49 89 636 09, FAX (0 89) 636-2 26 89**

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.