

**General purpose grade capacitors**  
**Ultra-miniaturized dimensions**

**Applications**

- General-purpose applications,  
mainly used in compact electronic equipments

**Features**

- Ultra-miniaturized dimensions
- Low profile

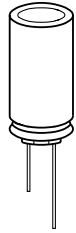
**Construction**

- Dimension 4 × 5 mm
- Charge-discharge proof, polar
- Aluminum case with insulating sleeve
- Minus pole marking on the insulating sleeve
- Stand off rubber seal

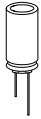
**Delivery mode**

- Bulk
- Taped, Ammo pack

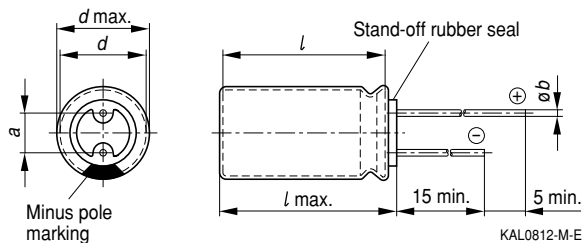
Refer to page 503 for further details and ordering example.



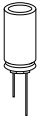
KAL0707-F


**Specifications and characteristics in brief**

Rated voltage $U_R$	6,3 ... 50 VDC	
Surge voltage $U_S$	$1,15 \cdot U_R$	
Rated capacitance $C_R$	0,1 ... 22 $\mu\text{F}$	
Capacitance tolerance	$\pm 20 \% \triangleq M$	
Useful life 85 °C; $U_R$ ; $I_{\sim R}$ 40 °C; $U_R$ ; $1,3 \cdot I_{\sim R}$	> 1 000 h > 40 000 h	Requirements: $\Delta C/C \leq \pm 50 \%$ of initial value $\tan \delta \leq 3$ times initial specified limit $I_L \leq$ initial specified limit Failure percentage: $\leq 3 \%$ Failure rate: $\leq 100$ fit ( $\leq 100 \cdot 10^{-9}/\text{h}$ ) (for definition "fit", refer to chapter "Quality", page 62)
Voltage endurance test 85 °C; $U_R$	1 000 h	Post test requirements: $\Delta C/C \leq \pm 25 \%$ 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: 40/085/56 (– 40 °C/+ 85 °C/56 days damp heat test)	
Sectional specification	IEC 60384-4	

**Dimensional drawing**

**Dimensions and weight**

Dimensions (mm)				Approx. weight g
$d \times l$	$d_{\text{max}} \times l_{\text{max}}$	$a \pm 0,5$	$b$	
4 × 5	4,5 × 6	1,5	0,45 ± 0,05	0,3


**B41820**
**Low Profile – 85 °C**
**Overview of available types**

$U_R$ (VDC)	6,3	10	16	35	50
$C_R$ ( $\mu\text{F}$ )	Case dimensions $d \times l$ (mm)				
0,10					4 × 5
0,22					4 × 5
0,33					4 × 5
0,47					4 × 5
1,0					4 × 5
2,2					4 × 5
3,3				4 × 5	4 × 5
4,7				4 × 5	
10			4 × 5		
15		4 × 5			
22	4 × 5				

Other capacitance and voltage ratings are available upon request.

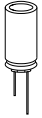
**Technical data and ordering codes**

$U_R$	$C_R$	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 85 °C mA	
6,3	22	4 × 5	3,0	0,22	14	22	B41820A2226M00*
10	15	4 × 5	3,0	0,20	18	20	B41820A3156M00*
16	10	4 × 5	3,0	0,17	23	18	B41820A4106M00*
35	3,3	4 × 5	3,0	0,12	48	12	B41820A7335M00*
	4,7	4 × 5	3,0	0,12	34	14	B41820A7475M00*
50	0,10	4 × 5	3,0	0,10	1 326	1,0	B41820A6104M00*
	0,22	4 × 5	3,0	0,10	603	2,0	B41820A6224M00*
	0,33	4 × 5	3,0	0,10	402	4,0	B41820A6334M00*
	0,47	4 × 5	3,0	0,10	282	5,0	B41820A6474M00*
	1,0	4 × 5	3,0	0,10	133	7,0	B41820A6105M00*
	2,2	4 × 5	3,0	0,10	60	11	B41820A6225M00*
	3,3	4 × 5	3,0	0,10	40	13	B41820A6335M00*

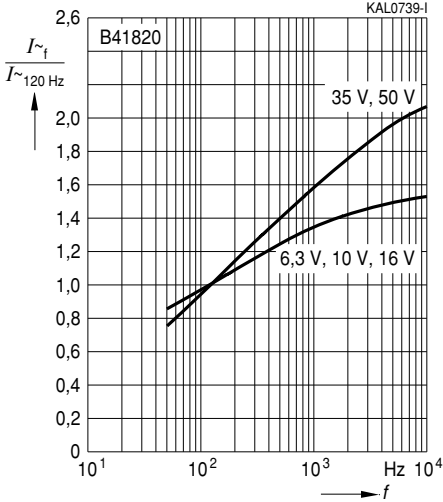
Preferred types

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

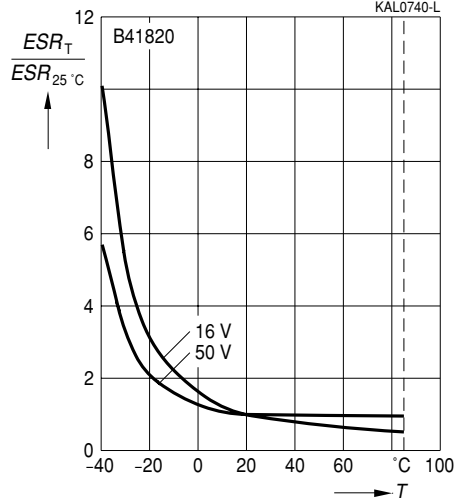
For taping versions, other lead configurations and packing information see page 503.



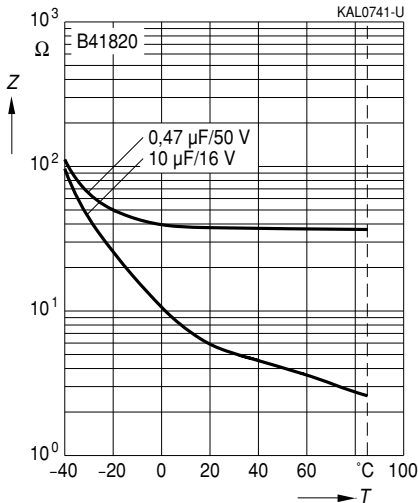
**Frequency factor of permissible ripple current  $I_{\sim}$  versus frequency  $f$**



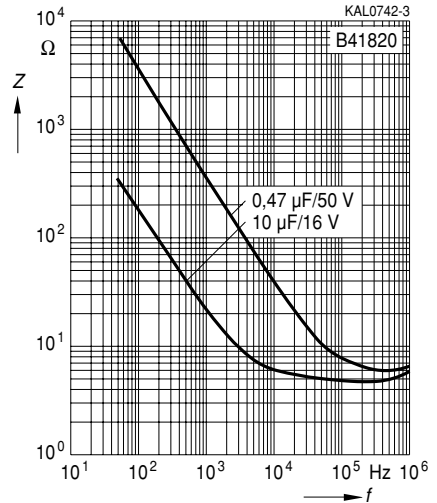
**Equivalent series resistance  $ESR$  at  $f = 120 \text{ Hz}$  versus temperature  $T$**   
Typical behavior

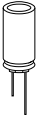


**Impedance  $Z$  at  $f = 10 \text{ kHz}$  versus temperature  $T$**   
Typical behavior



**Impedance  $Z$  versus frequency  $f$**   
Typical behavior at 20 °C





**B41820**

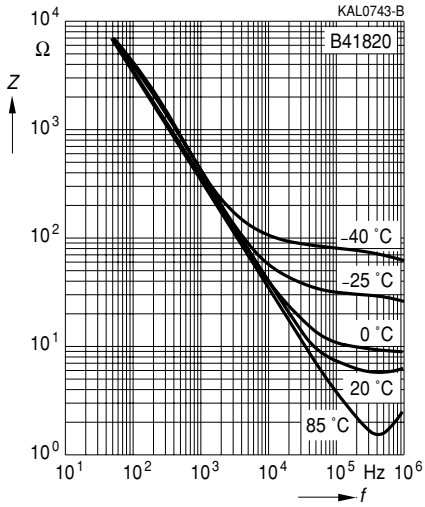
**Low Profile – 85 °C**

**Impedance  $Z$**

versus frequency  $f$  and temperature  $T$

for 0,47  $\mu$ F/50 V

Typical behavior

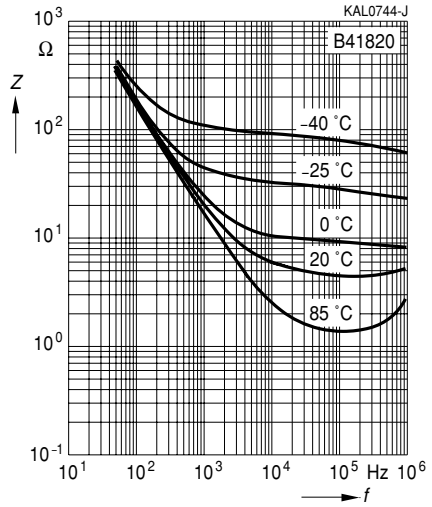


**Impedance  $Z$**

versus frequency  $f$  and temperature  $T$

for 10  $\mu$ F/16 V

Typical behavior at 20 °C



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

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

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

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