Single-ended Aluminum electrolytic capacitors

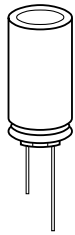
Series/Type: **B41043**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B41043*		2013-02-22	2013-09-30	2014-03-31

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at www.epcos.com/sales.

Long-life grade capacitors for professional applications



Applications

- Professional switch mode power supplies

Features

- RoHS-compatible
- High C/V value
- Low impedance at high frequencies
- High reliability
- Load life of 5000 h at 105 °C

Construction

- Radial leads
- Aluminum case, fully insulated
- Charge-discharge proof
- Minus pole marking on the insulating sleeve
- Case with safety vent from diameter 8 mm

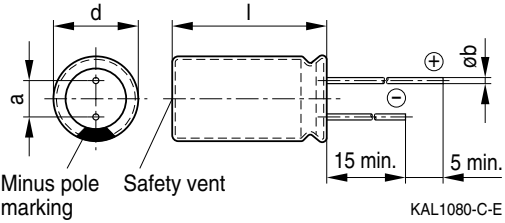
Delivery mode

- Bulk
- Taped, Ammo pack
- Cut
- Kinked

Specifications and characteristics in brief

Rated voltage V_R	6.3 ... 50 V DC						
Operating temp. range	–55 °C … +105 °C						
Rated capacitance C_R (20 °C, 120 Hz)	0.47 … 15000 µF						
Capacitance tolerance	±20% ≙ M						
Load life (105 °C, V_R, $I_{AC,R}$)	2000 h for d = 5 ... 6.3 mm 3000 h for d = 8 mm 5000 h for d ≥ 10 mm	Requirements: ΔC/C ≤ ±20% of initial value tan δ ≤ 2 times initial specified limit I_{leak} ≤ initial specified limit					
Leakage current I_{leak} (20 °C, after 5 minutes)	$I_{leak} \leq 0.03\ \mu A \cdot \left(\frac{C_R}{\mu F} \cdot \frac{V_R}{V}\right)$ or 4 µA, wichever is greater						
Dissipation factor (max.) (20 °C, 120 Hz)	V_R (V DC)	6.3	10	16	25	35	50
	tan δ	0.22	0.19	0.16	0.14	0.12	0.10
	For capacitance higher than 1000 µF add 0.02 for every increase of 1000 µF.						
Low temperature stability (impedance ratio) (120 Hz)	V_R (V DC)	6.3	10	16	25	35	50
	$\frac{Z(-55\ °C)}{Z(+20\ °C)}$	4	4	3	3	3	2
Shelf life	After storage for 1000 h at 105 °C, the capacitors shall meet the requirement of load life test after reforming process. After test: V_R to be applied for 30 minutes, 24 to 48 hours before measurement.						
Frequency multiplier for rated ripple current		50 Hz	120 Hz	500 Hz	1 kHz	10 kHz	100 kHz
	0.47 … 27 µF	0.40	0.55	0.65	0.80	0.90	1.00
	33 … 330 µF	0.60	0.70	0.80	0.90	0.95	1.00
	390 … 1000 µF	0.65	0.80	0.85	0.98	1.00	1.00
	1200 µF	0.80	0.90	0.95	0.98	1.00	1.00
Temperature multiplier for rated ripple current	+70 °C		+85 °C		+105 °C		
	1.96		1.68		1.00		

Dimensional drawing



Safety vent for diameter ≥ 8 mm.

Case dimensions

d × l mm	$d_{max} \times l_{max}$ mm	a mm	b mm
5 × 11	5.5 × 12.5	2.0 ±0.5	0.5 ±0.1
6.3 × 11	6.8 × 12.5	2.5 ±0.5	0.5 ±0.1
6.3 × 15	6.8 × 16.5	2.5 ±0.5	0.5 ±0.1
8 × 11.5	8.5 × 13.0	3.5 ±0.5	0.6 ±0.1
10 × 12.5	11.0 × 14.0	5.0 ±0.5	0.6 ±0.1
10 × 16	11.0 × 17.5	5.0 ±0.5	0.6 ±0.1
10 × 20	11.0 × 21.5	5.0 ±0.5	0.6 ±0.1
10 × 25	11.0 × 27.0	5.0 ±0.5	0.6 ±0.1
10 × 31.5	11.0 × 33.5	5.0 ±0.5	0.6 ±0.1
12.5 × 20	13.5 × 22.0	5.0 ±0.5	0.6 ±0.1
12.5 × 25	13.5 × 27.0	5.0 ±0.5	0.6 ±0.1
12.5 × 31.5	13.5 × 33.5	5.0 ±0.5	0.6 ±0.1
12.5 × 35.5	13.5 × 37.5	5.0 ±0.5	0.6 ±0.1
12.5 × 40	13.5 × 42.0	5.0 ±0.5	0.6 ±0.1
16 × 31.5	17.0 × 33.5	7.5 ±0.5	0.8 ±0.1
16 × 35.5	17.0 × 37.5	7.5 ±0.5	0.8 ±0.1
16 × 40	17.0 × 42.0	7.5 ±0.5	0.8 ±0.1
18 × 35.5	19.0 × 37.5	7.5 ±0.5	0.8 ±0.1
18 × 40	19.0 × 42.0	7.5 ±0.5	0.8 ±0.1

Overview of available types

V_R (V DC)	6.3	10	16
	Case dimensions d × l (mm)		
C_R (µF)			
47			5 × 11
56			5 × 11
68		5 × 11	6.3 × 11
82		5 × 11	6.3 × 11
100	5 × 11	6.3 × 11	6.3 × 11
120	5 × 11	6.3 × 11	6.3 × 11
150	6.3 × 11	6.3 × 11	6.3 × 15
180	6.3 × 11	6.3 × 11	6.3 × 15
220	6.3 × 11	6.3 × 15	8 × 11.5
270	6.3 × 15	6.3 × 15	8 × 15
330	6.3 × 15	8 × 11.5	8 × 15
390	8 × 11.5	8 × 15	8 × 20
470	8 × 15	8 × 15	8 × 20
560	8 × 15	8 × 20	10 × 20
680	8 × 20	8 × 20	10 × 20
820	8 × 20	10 × 20	10 × 25
1000	10 × 20	10 × 20	10 × 31.5
1200	10 × 20	10 × 25	12.5 × 20
1500	10 × 25	10 × 31.5	12.5 × 25
1800	10 × 31.5	12.5 × 20	12.5 × 31.5
2200	10 × 31.5	12.5 × 25	12.5 × 31.5
2700	12.5 × 25	12.5 × 31.5	12.5 × 35.5
3300	12.5 × 25	12.5 × 35.5	12.5 × 40
3900	12.5 × 31.5	12.5 × 40	16 × 31.5
4700	12.5 × 35.5	16 × 31.5	16 × 35.5
5600	12.5 × 40	16 × 35.5	16 × 40
6800	16 × 31.5	16 × 35.5	18 × 35.5
8200	16 × 35.5	16 × 40	18 × 40
10000	16 × 40	18 × 40	
12000	18 × 35.5		
15000	18 × 40		

Overview of available types

V_R (V DC)	25	35	50
	Case dimensions d × l (mm)		
C_R (µF)			
0.47			5 × 11
0.68			5 × 11
1.0			5 × 11
1.5			5 × 11
2.2			5 × 11
3.3			5 × 11
4.7			5 × 11
6.8			5 × 11
10			5 × 11
12			5 × 11
15			5 × 11
18			5 × 11
22		5 × 11	6.3 × 11
27		5 × 11	6.3 × 11
33	5 × 11	6.3 × 11	6.3 × 11
39	5 × 11	6.3 × 11	6.3 × 11
47	6.3 × 11	6.3 × 11	6.3 × 15
56	6.3 × 11	6.3 × 11	6.3 × 15
68	6.3 × 11	6.3 × 15	8 × 11.5
82	6.3 × 11	6.3 × 15	8 × 15
100	6.3 × 15	8 × 11.5	8 × 20
120	6.3 × 15	8 × 15	8 × 20
150	8 × 11.5	8 × 15	10 × 20
180	8 × 15	8 × 20	10 × 20
220	8 × 15	8 × 20	10 × 25
270	8 × 20	10 × 20	10 × 31.5
330	8 × 20	10 × 20	10 × 31.5
390	10 × 20	10 × 25	12.5 × 25
470	10 × 20	10 × 31.5	12.5 × 25
560	10 × 25	12.5 × 20	12.5 × 31.5
680	10 × 31.5	12.5 × 25	12.5 × 35.5
820	12.5 × 20	12.5 × 25	12.5 × 40
1000	12.5 × 25	12.5 × 31.5	16 × 31.5
1200	12.5 × 25	12.5 × 35.5	16 × 35.5

Overview of available types

V_R (V DC)	25	35	50
	Case dimensions d × l (mm)		
C_R (µF)			
1500	12.5 × 31.5	12.5 × 40	16 × 40
1800	12.5 × 35.5	16 × 31.5	18 × 35.5
2200	12.5 × 40	16 × 35.5	18 × 40
2700	16 × 31.5	16 × 40	
3300	16 × 35.5	18 × 40	
3900	16 × 40		
4700	18 × 40		

Technical data and ordering codes

V_R V DC	C_R 120 Hz 20 °C µF	Case dimensions d × l mm	Z_{max} 100 kHz 20 °C Ω	$I_{AC,R}$ 100 kHz 105 °C mA	Ordering code (composition see below)
6.3	100	5 × 11	0.850	99	B41043A2107M***
	120	5 × 11	0.650	115	B41043A2127M***
	150	6.3 × 11	0.490	155	B41043A2157M***
	180	6.3 × 11	0.390	175	B41043A2187M***
	220	6.3 × 11	0.300	205	B41043A2227M***
	270	6.3 × 15	0.240	275	B41043A2277M***
	330	6.3 × 15	0.200	310	B41043A2337M***
	390	8 × 11.5	0.170	345	B41043A2397M***
	470	8 × 15	0.140	435	B41043A2477M***
	560	8 × 15	0.120	480	B41043A2567M***
	680	8 × 20	0.100	605	B41043A2687M***
	820	8 × 20	0.085	670	B41043A2827M***
	1000	10 × 20	0.070	820	B41043A2108M***
	1200	10 × 20	0.060	895	B41043A2128M***
	1500	10 × 25	0.050	1090	B41043A2158M***
	1800	10 × 31.5	0.045	1230	B41043A2188M***
	2200	10 × 31.5	0.035	1320	B41043A2228M***
	2700	12.5 × 25	0.032	1430	B41043A2278M***
	3300	12.5 × 25	0.030	1530	B41043A2338M***
	3900	12.5 × 31.5	0.028	1710	B41043A2398M***
	4700	12.5 × 35.5	0.027	1890	B41043A2478M***
	5600	12.5 × 40	0.026	2040	B41043A2568M***
	6800	16 × 31.5	0.024	2130	B41043A2688M***
	8200	16 × 35.5	0.022	2290	B41043A2828M***
	10000	16 × 40	0.020	2470	B41043A2109M***
	12000	18 × 35.5	0.019	2530	B41043A2129M***
	15000	18 × 40	0.018	2660	B41043A2159M***
10	68	5 × 11	0.800	97	B41043A3686M***
	82	5 × 11	0.650	110	B41043A3826M***
	100	6.3 × 11	0.550	135	B41043A3107M***
	120	6.3 × 11	0.440	160	B41043A3127M***
	150	6.3 × 11	0.350	185	B41043A3157M***
	180	6.3 × 11	0.290	205	B41043A3187M***
	220	6.3 × 15	0.240	270	B41043A3227M***

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007 = for taped leads, Ammo pack, lead spacing a = 2.5 mm
006 = for taped leads, Ammo pack, lead spacing a = 3.5 mm
008 = for taped leads, Ammo pack, lead spacing a = 5.0 mm

Technical data and ordering codes

V_R V DC	C_R 120 Hz 20 °C µF	Case dimensions d × l mm	Z_{max} 100 kHz 20 °C Ω	$I_{AC,R}$ 100 kHz 105 °C mA	Ordering code (composition see below)
10	270	6.3 × 15	0.200	300	B41043A3277M***
	330	8 × 11.5	0.160	350	B41043A3337M***
	390	8 × 15	0.140	430	B41043A3397M***
	470	8 × 15	0.120	475	B41043A3477M***
	560	8 × 20	0.100	590	B41043A3567M***
	680	8 × 20	0.078	660	B41043A3687M***
	820	10 × 20	0.070	835	B41043A3827M***
	1000	10 × 20	0.060	915	B41043A3108M***
	1200	10 × 25	0.050	1120	B41043A3128M***
	1500	10 × 31.5	0.040	1290	B41043A3158M***
	1800	12.5 × 20	0.037	1320	B41043A3188M***
	2200	12.5 × 25	0.034	1530	B41043A3228M***
	2700	12.5 × 31.5	0.030	1740	B41043A3278M***
	3300	12.5 × 35.5	0.026	1960	B41043A3338M***
	3900	12.5 × 40	0.024	2120	B41043A3398M***
	4700	16 × 31.5	0.023	2170	B41043A3478M***
	5600	16 × 35.5	0.021	2340	B41043A3568M***
	6800	16 × 35.5	0.020	2410	B41043A3688M***
	8200	16 × 40	0.019	2530	B41043A3828M***
	10000	18 × 40	0.017	2730	B41043A3109M***
16	47	5 × 11	0.800	92	B41043A4476M***
	56	5 × 11	0.650	105	B41043A4566M***
	68	6.3 × 11	0.500	135	B41043A4686M***
	82	6.3 × 11	0.420	155	B41043A4826M***
	100	6.3 × 11	0.350	175	B41043A4107M***
	120	6.3 × 11	0.290	195	B41043A4127M***
	150	6.3 × 15	0.230	260	B41043A4157M***
	180	6.3 × 15	0.200	285	B41043A4187M***
	220	8 × 11.5	0.160	335	B41043A4227M***
	270	8 × 15	0.140	410	B41043A4277M***
	330	8 × 15	0.120	455	B41043A4337M***
	390	8 × 20	0.100	570	B41043A4397M***
	470	8 × 20	0.085	615	B41043A4477M***
	560	10 × 20	0.070	770	B41043A4567M***

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006 = for taped leads, Ammo pack, lead spacing a = 3.5 mm
008 = for taped leads, Ammo pack, lead spacing a = 5.0 mm

Technical data and ordering codes

V_R V DC	C_R 120 Hz 20 °C µF	Case dimensions d × l mm	Z_{max} 100 kHz 20 °C Ω	$I_{AC,R}$ 100 kHz 105 °C mA	Ordering code (composition see below)
16	680	10 × 20	0.060	845	B41043A4687M***
	820	10 × 25	0.050	1030	B41043A4827M***
	1000	10 × 31.5	0.042	1210	B41043A4108M***
	1200	12.5 × 20	0.040	1250	B41043A4128M***
	1500	12.5 × 25	0.036	1490	B41043A4158M***
	1800	12.5 × 31.5	0.032	1690	B41043A4188M***
	2200	12.5 × 31.5	0.028	1800	B41043A4228M***
	2700	12.5 × 35.5	0.025	1990	B41043A4278M***
	3300	12.5 × 40	0.023	2160	B41043A4338M***
	3900	16 × 31.5	0.022	2220	B41043A4398M***
	4700	16 × 35.5	0.020	2410	B41043A4478M***
	5600	16 × 40	0.019	2530	B41043A4568M***
	6800	18 × 35.5	0.018	2610	B41043A4688M***
	8200	18 × 40	0.017	2730	B41043A4828M***
25	33	5 × 11	0.800	88	B41043A5336M***
	39	5 × 11	0.650	100	B41043A5396M***
	47	6.3 × 11	0.550	125	B41043A5476M***
	56	6.3 × 11	0.440	140	B41043A5566M***
	68	6.3 × 11	0.360	160	B41043A5686M***
	82	6.3 × 11	0.300	180	B41043A5826M***
	100	6.3 × 15	0.240	245	B41043A5107M***
	120	6.3 × 15	0.200	275	B41043A5127M***
	150	8 × 11.5	0.160	320	B41043A5157M***
	180	8 × 15	0.140	390	B41043A5187M***
	220	8 × 15	0.110	455	B41043A5227M***
	270	8 × 20	0.095	560	B41043A5277M***
	330	8 × 20	0.085	610	B41043A5337M***
	390	10 × 20	0.070	770	B41043A5397M***
	470	10 × 20	0.065	810	B41043A5477M***
	560	10 × 25	0.055	990	B41043A5567M***
	680	10 × 31.5	0.046	1180	B41043A5687M***
	820	12.5 × 20	0.041	1210	B41043A5827M***
	1000	12.5 × 25	0.036	1430	B41043A5108M***
	1200	12.5 × 25	0.032	1550	B41043A5128M***
	1500	12.5 × 31.5	0.029	1780	B41043A5158M***

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008 = for taped leads, Ammo pack, lead spacing a = 5.0 mm

Technical data and ordering codes

V_R V DC	C_R 120 Hz 20 °C µF	Case dimensions d × l mm	Z_{max} 100 kHz 20 °C Ω	$I_{AC,R}$ 100 kHz 105 °C mA	Ordering code (composition see below)
25	1800	12.5 × 35.5	0.026	1960	B41043A5188M***
	2200	12.5 × 40	0.024	2120	B41043A5228M***
	2700	16 × 31.5	0.022	2220	B41043A5278M***
	3300	16 × 35.5	0.020	2410	B41043A5338M***
	3900	16 × 40	0.019	2530	B41043A5398M***
	4700	18 × 40	0.018	2260	B41043A5478M***
35	22	5 × 11	0.750	85	B41043A7226M***
	27	5 × 11	0.600	99	B41043A7276M***
	33	6.3 × 11	0.490	125	B41043A7336M***
	39	6.3 × 11	0.410	140	B41043A7396M***
	47	6.3 × 11	0.340	160	B41043A7476M***
	56	6.3 × 11	0.280	180	B41043A7566M***
	68	6.3 × 15	0.240	230	B41043A7686M***
	82	6.3 × 15	0.190	265	B41043A7826M***
	100	8 × 11.5	0.160	305	B41043A7107M***
	120	8 × 15	0.140	370	B41043A7127M***
	150	8 × 15	0.120	415	B41043A7157M***
	180	8 × 20	0.100	520	B41043A7187M***
	220	8 × 20	0.085	580	B41043A7227M***
	270	10 × 20	0.070	735	B41043A7277M***
	330	10 × 20	0.060	810	B41043A7337M***
	390	10 × 25	0.055	955	B41043A7397M***
	470	10 × 31.5	0.046	1130	B41043A7477M***
	560	12.5 × 20	0.041	1160	B41043A7567M***
	680	12.5 × 25	0.036	1370	B41043A7687M***
	820	12.5 × 25	0.032	1490	B41043A7827M***
	1000	12.5 × 31.5	0.029	1710	B41043A7108M***
	1200	12.5 × 35.5	0.026	1920	B41043A7128M***
	1500	12.5 × 40	0.024	2120	B41043A7158M***
	1800	16 × 31.5	0.022	2220	B41043A7188M***
	2200	16 × 35.5	0.020	2410	B41043A7228M***
	2700	16 × 40	0.018	2610	B41043A7278M***
	3300	18 × 40	0.017	2730	B41043A7338M***

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006 = for taped leads, Ammo pack, lead spacing a = 3.5 mm
008 = for taped leads, Ammo pack, lead spacing a = 5.0 mm

Technical data and ordering codes

V_R	C_R 120 Hz 20 °C	Case dimensions d × l	Z_{max} 100 kHz 20 °C	$I_{AC,R}$ 100 kHz 105 °C	Ordering code (composition see below)
V DC	µF	mm	Ω	mA	
50	0.47	5 × 11	12.300	11	B41043A6474M***
	0.68	5 × 11	16.000	14	B41043A6684M***
	1.0	5 × 11	11.000	18	B41043A6105M***
	1.5	5 × 11	7.500	22	B41043A6155M***
	2.2	5 × 11	5.000	27	B41043A6225M***
	3.3	5 × 11	3.300	33	B41043A6335M***
	4.7	5 × 11	2.200	40	B41043A6475M***
	6.8	5 × 11	1.800	45	B41043A6685M***
	10	5 × 11	1.400	57	B41043A6106M***
	12	5 × 11	1.200	62	B41043A6126M***
	15	5 × 11	0.930	72	B41043A6156M***
	18	5 × 11	0.800	79	B41043A6186M***
	22	6.3 × 11	0.650	100	B41043A6226M***
	27	6.3 × 11	0.530	115	B41043A6276M***
	33	6.3 × 11	0.430	135	B41043A6336M***
	39	6.3 × 11	0.360	150	B41043A6396M***
	47	6.3 × 15	0.300	195	B41043A6476M***
	56	6.3 × 15	0.250	220	B41043A6566M***
	68	8 × 11.5	0.200	255	B41043A6686M***
	82	8 × 15	0.170	320	B41043A6826M***
	100	8 × 20	0.140	410	B41043A6107M***
	120	8 × 20	0.120	455	B41043A6127M***
	150	10 × 20	0.100	570	B41043A6157M***
	180	10 × 20	0.085	635	B41043A6187M***
	220	10 × 25	0.075	760	B41043A6227M***
	270	10 × 31.5	0.065	900	B41043A6277M***
	330	10 × 31.5	0.055	995	B41043A6337M***
	390	12.5 × 25	0.048	1120	B41043A6397M***
	470	12.5 × 25	0.044	1190	B41043A6477M***
	560	12.5 × 31.5	0.040	1360	B41043A6567M***
	680	12.5 × 35.5	0.036	1530	B41043A6687M***
	820	12.5 × 40	0.033	1700	B41043A6827M***
	1000	16 × 31.5	0.030	1830	B41043A6108M***
	1200	16 × 35.5	0.028	1990	B41043A6128M***
	1500	16 × 40	0.026	2170	B41043A6158M***
	1800	18 × 35.5	0.025	2210	B41043A6188M***
	2200	18 × 40	0.024	2300	B41043A6228M***

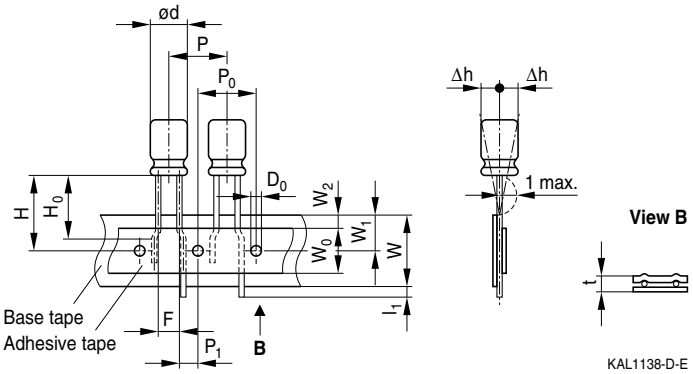
*** = Version
000 = for standard leads, bulk
001 = for kinked leads, bulk
002 = for cut leads, bulk
016 = for taped leads, Ammo pack, lead spacing a = 2.0 mm
007 = for taped leads, Ammo pack, lead spacing a = 2.5 mm
006 = for taped leads, Ammo pack, lead spacing a = 3.5 mm
008 = for taped leads, Ammo pack, lead spacing a = 5.0 mm

Taping, packing and lead configurations of single-ended capacitors

Single-ended capacitors are available taped in Ammo pack from diameter 4 to 10 mm as follows:

Lead spacing 2.0 mm (∅ d = 4 ... 5 mm)

Last 3 digits of ordering code: 016

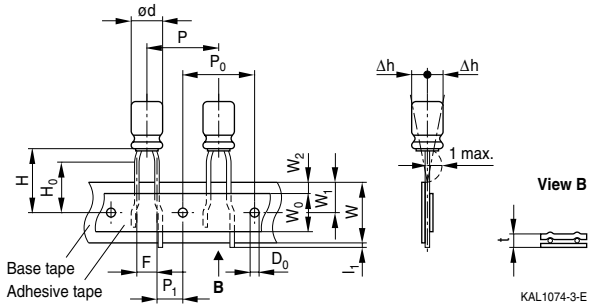


Dimensions in mm

∅ d	F	H	W	W_0	W_1	W_2	P	P_0	P_1	l_1	t	Δh	D_0
4 ... 5	2.0	18.5	18.0	7.0	9.0	3.0	12.7	12.7	5.10	1.0	0.7	1	4.0
	–0.2	±0.75	±0.5	min.	±0.5	max.	±1.0	±0.3	±0.7	max.	±0.2	±1.0	±0.2

Lead spacing 2.5 mm (∅ d = 4 ... 6.3 mm)

Last 3 digits of ordering code: 007

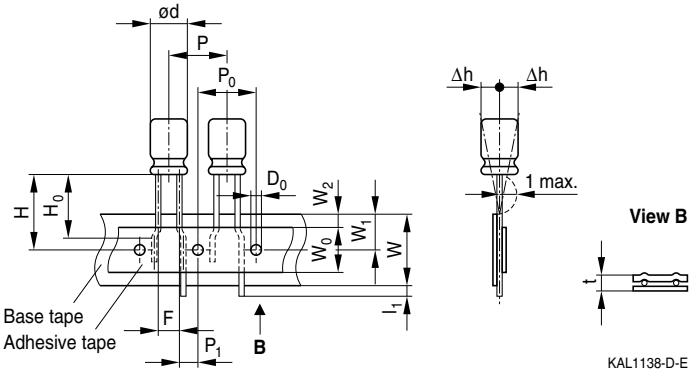


Dimensions in mm

∅ d	F	H	H_0	W	W_0	W_1	W_2	P	P_0	P_1	l_1	t	Δh	D_0
4 ... 6.3	2.5	18.5	16.0	18.0	7.0	9.0	3.0	12.7	12.7	5.10	1.0	0.7	0	4.0
Tolerance	–0.2	±0.75	±0.5	±0.5	min.	±0.5	max.	±1.0	±0.3	±0.7	max.	±0.2	±1.0	±0.2

Lead spacing 3.5 mm (∅ d = 8 mm)

Last 3 digits of ordering code: 006

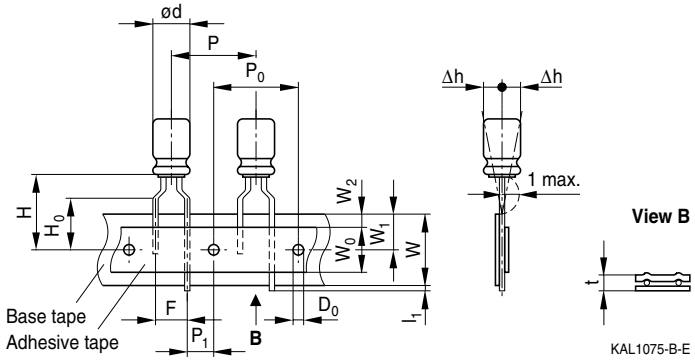


Dimensions in mm

∅ d	F	H	W	W_0	W_1	W_2	P	P_0	P_1	l_1	t	Δh	D_0
8	3.5	18.5	18.0	10	9.0	3.0	12.7	12.7	5.10	1.0	0.7	1	4.0
Tolerance	±0.5	±0.75	±0.5	min.	±0.5	max.	±1.0	±0.3	±0.7	max.	±0.2	max.	±0.2

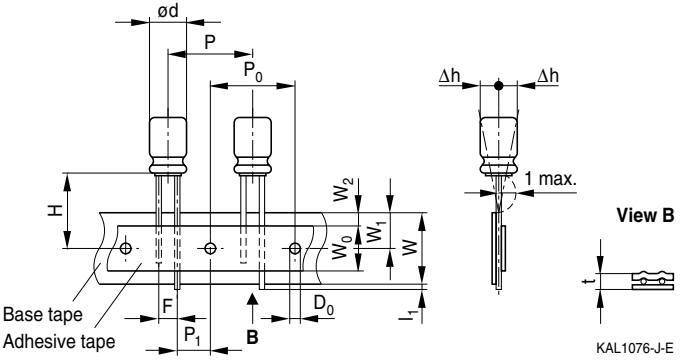
Lead spacing 5.0 mm (∅ d = 4 ... 8 mm)

Last 3 digits of ordering code: 008



Lead spacing 5.0 mm (∅ d = 10 mm)

Last 3 digits of ordering code: 008



Dimensions in mm

∅ d	F	H	H_0	W	W_0	W_1	W_2	P	P_0	P_1	L_1	t	Δh	D_0
4 ... 6.3	5.0	18.5	16	18.0	7.0	9.0	3.0	12.7	12.7	3.85	1.0	0.6	2.0	4.0
8	5.0	18.5	16	18.0	10	9.0	3.0	12.7	12.7	3.85	1.0	0.6	2.0	4.0
10	5.0	18.5	–	18.0	12.5	9.0	3.0	12.7	12.7	3.85	1.0	0.6	2.0	4.0
Tolerance	+0.6 −0.2	±0.75	±0.5	+1.0 −0.5	+1.0 −0	±0.5	max.	±0.5	±0.3	±0.7	max.	+0.3 −0.2	max.	±0.2

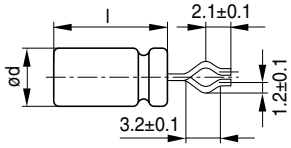
Taping is available up to dimensions d × l = 10 × 20 mm. For ∅ 12.5, 16 and 18 mm taping is not available.

Kinked or cut leads

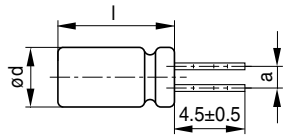
Single-ended capacitors are available with kinked or cut leads. Other lead configurations also available on request.

Kinked leads

Last 3 digits of ordering code: 001



KAL1137-5



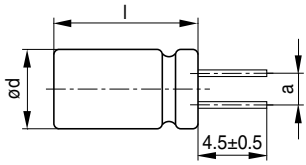
KAL1084-A

Case size d × l (mm)	a (mm)
4 × 7	1.5
5 × 7	2.0
5 × 11	2.0
6.3 × 7	2.5
6.3 × 11	2.5
6.3 × 15	2.5
8 × 7	3.5
8 × 11.5	3.5
8 × 15	3.5
8 × 20	3.5
10 × 12.5	5.0
10 × 16	5.0
10 × 20	5.0
10 × 25	5.0
10 × 31.5	5.0

Case size d × l (mm)	a (mm)
12.5 × 16	5.0
12.5 × 20	5.0
12.5 × 25	5.0
12.5 × 31.5	5.0
12.5 × 35.5	5.0
12.5 × 40	5.0
16 × 20	7.5
16 × 25	7.5
16 × 31.5	7.5
16 × 35.5	7.5
16 × 40	7.5
18 × 20	7.5
18 × 25	7.5
18 × 31.5	7.5
18 × 35.5	7.5
18 × 40	7.5

Cut leads

Last 3 digits of ordering code: 002



KAL1086-R

Case size d × l (mm)	a (mm)
4 × 7	1.5
5 × 7	2.0
5 × 11	2.0
6.3 × 7	2.5
6.3 × 11	2.5
6.3 × 15	2.5
8 × 7	3.5
8 × 11.5	3.5
8 × 15	3.5
8 × 20	5.0
10 × 12.5	5.0
10 × 16	5.0
10 × 20	5.0
10 × 25	5.0
10 × 31.5	5.0

Case size d × l (mm)	a (mm)
12.5 × 16	5.0
12.5 × 20	5.0
12.5 × 25	5.0
12.5 × 31.5	5.0
12.5 × 35.5	5.0
12.5 × 40	5.0
16 × 20	7.5
16 × 25	7.5
16 × 31.5	7.5
16 × 35.5	7.5
16 × 40	7.5
18 × 20	7.5
18 × 25	7.5
18 × 31.5	7.5
18 × 35.5	7.5
18 × 40	7.5

Cautions and warnings

General

Also see “Important notes” on page 20.

1 Aluminum electrolytic capacitors have a bi-polar structure. This is marked on the body of the capacitor. A capacitor must not be mounted with reversed polarity. The application of an AC or reverse voltage may cause a short circuit or damage the capacitor. Bi-polar capacitors must not be used in AC applications, where the polarity may be reversed in the circuits or is unknown.

2 The DC voltage applied to the capacitor terminal must not exceed its rated operating voltage, as this will result in a rapid increase of the leakage current and may damage the capacitor. It is recommended to operate the capacitor at 70–80% of its rated voltage to optimize its service life.

3 The ripple current applied to the capacitor must be within the permitted range. An excessive ripple current leads to impaired electrical properties and may damage the capacitor. Note that the sum of the peak values of the ripple voltage and the DC operating voltage must not exceed the rated DC voltage.

4 Capacitors must be used within their permitted range of operating temperature. Operation at room temperature optimizes their service life.

5 Capacitors with case diameter ≥8 mm are equipped with a safety vent. In capacitors fitted with a lead or soldering lug, the safety vent is usually located at the base of the case. It needs sufficient space around it to operate optimally. The following dimensions are recommended: for case diameter d = 8 to 16 mm, more than 2 mm; for d =18 to 35 mm, more than 3 mm; and for d = 42 mm or more, more than 5 mm.

6 Capacitors should not be mounted with the safety vent face down on the board. Do not locate any wire or copper trace near the safety vent. Do not reverse the voltage, as this may result in excess pressure and the leakage of electrolyte.

7 Gas is released through the safety vent when the pressure inside the capacitor is too high. A gaseous liquid around the safety vent does not indicate a leakage of electrolyte.

8 The capacitor should be stored under conditions of normal temperature and in a non-acid, non-alkali environment of normal humidity. Exposure to high temperatures, for example under direct sunlight, will reduce its operating life. If the capacitor is stored in an environment containing acids or alkalis, the solderability of the leads may be affected.

9 The leakage current of an aluminum electrolytic capacitor may increase after a long period of storage. After such storage, the capacitor must be aged by applying the rated operating voltage for 6–8 hours before use.

10 Manual soldering:

a Soldering must be performed within the specified conditions.
Bit temperature: 350 °C; application time of soldering iron: 3 seconds.

b Ensure that the soldering iron does not touch any part of the capacitor body.

11 Do not apply excessive force to the leads and terminals. Do not move the capacitor after soldering it onto the PC board and do not carry the PC board by gripping the capacitor. Observe the following rules to prevent undue stress to the capacitor:

a Do not tilt or bend the capacitor after soldering.
b Ensure that the terminal spacing matches the corresponding hole spacing on the PC board.

12 The aluminum case is not insulated from the cathode. Do not place a conductor under the aluminum capacitors on the PC board as this may cause a short circuit. The case and top of capacitors used in switched mode power supplies have a high-voltage-resistant heat shrink sleeve to ensure safe usage.

13 The leads of capacitors with a case diameter exceeding 14 mm cannot be used for fixing.

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.

2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.

3. **The warnings, cautions and product-specific notes must be observed.**

4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.

5. We constantly strive to improve our products. Consequently, **the products described in this publication may change from time to time**. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.

   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

6. Unless otherwise agreed in individual contracts, **all orders are subject to our General Terms and Conditions of Supply.**

7. **Our manufacturing sites serving the automotive business apply the IATF 16949 standard.** The IATF certifications confirm our compliance with requirements regarding the quality management system in the automotive industry. Referring to customer requirements and customer specific requirements (“CSR”) TDK always has and will continue to have the policy of respecting individual agreements. Even if IATF 16949 may appear to support the acceptance of unilateral requirements, we hereby like to emphasize that **only requirements mutually agreed upon can and will be implemented in our Quality Management System.** For clarification purposes we like to point out that obligations from IATF 16949 shall only become legally binding if individually agreed upon.

8. The trade names EPCOS, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, ExoCore, FilterCap, FormFit, LeaXield, MiniBlue, MiniCell, MKD, MKK, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

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