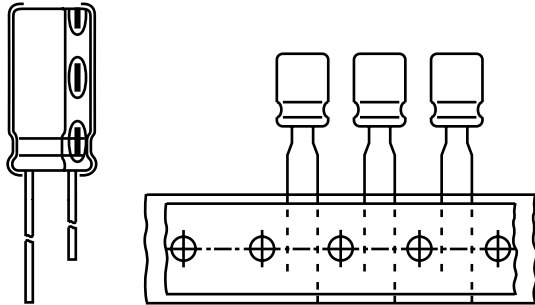


Aluminum Capacitors Radial Style



Component outlines

FEATURES

- Polarized aluminum electrolytic capacitor
- High ripple current
- High reliability
- High load life up to 10 000 h



RoHS
COMPLIANT

APPLICATIONS

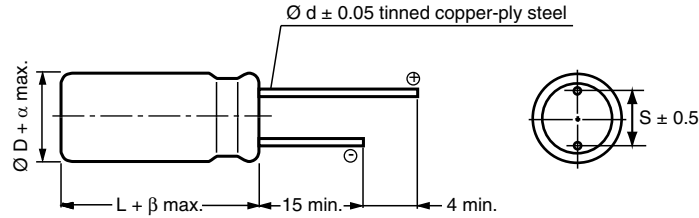
- For electronic lighting ballast
- Power supply

QUICK REFERENCE DATA

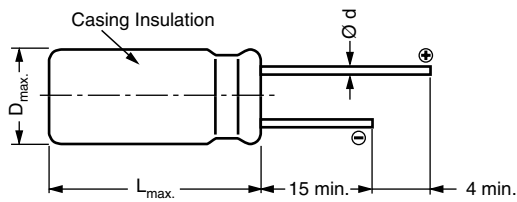
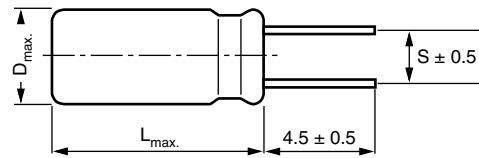
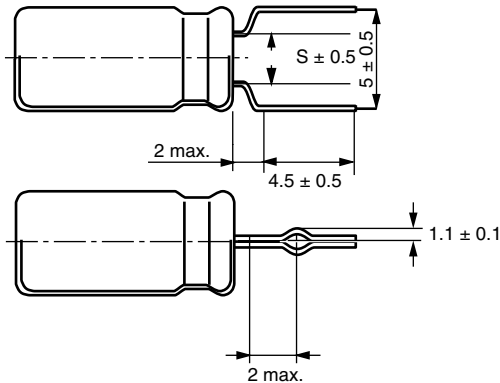
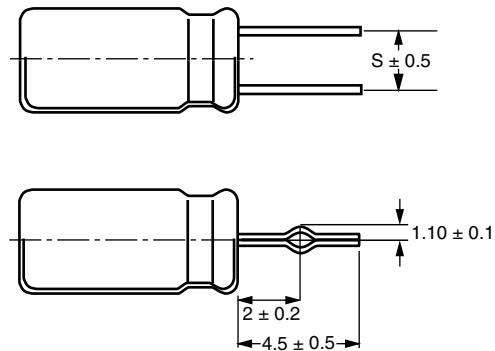
DESCRIPTION	UNIT	VALUE
Nominal case size (\varnothing D x L)	mm	10 x 12.5 to 18 x 31.5
Rated capacitance range C_R	μ F	1.0 to 150
Capacitance tolerance	%	\pm 20
Rated voltage range	V	200 to 450
Category temperature range	$^{\circ}$ C	- 25 to 105
Load life	h	10 000
Based on sectional specification		IEC 60384-4/EN130300
Climatic category IEC 60 068		25/105/56

SELECTION CHART FOR C_R , U_R AND RELEVANT NOMINAL CASE SIZES (\varnothing D x L in mm)

C_R (μ F)	RATED VOLTAGE (V)				
	200	250	350	400	450
1.0	→	→	→	10 x 12.5	-
2.2	→	→	→	10 x 12.5	10 x 16
3.3	→	→	10 x 12.5	→	10 x 16
4.7	→	→	→	10 x 16	10 x 20
6.8	→	10 x 12.5	→	10 x 16	10 x 20
10	10 x 16	→	→	10 x 20	12.5 x 20
22	10 x 20	→	12.5 x 20	12.5 x 25	16 x 25
33	→	12.5 x 20	16 x 20	16 x 25	18 x 25
47	12.5 x 20	12.5 x 25	16 x 25	18 x 25	18 x 31.5
68	12.5 x 25	16 x 25	18 x 25	-	-
100	16 x 25	18 x 25	-	-	-
150	18 x 25	-	-	-	-

RADIAL STYLE: DIMENSIONS in millimeters


$\varnothing D$	5	6.3	8	10	12.5	16	18	22	25
S	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	12.5
$\varnothing d$	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
β	1.5			2.0					
α	0.5							1.0	

DIMENSIONS in millimeters **AND AVAILABLE FORMS**

 $\varnothing D \leq 18$ long leads MALREKV00...

 $\varnothing D \leq 18$ shortened leads MALREKV05...
 (S = 2/2.5/3.5/5/7.5 mm)

 $\varnothing D \leq 8$ leads shortened and formed MALREKV09...
 (S = 2.0/2.5/3.5 mm)

 $10 \leq \varnothing D \leq 18$ leads shortened and formed MALREKV06...
 (S = 5/7.5 mm)

GENERAL NOTE

- For Standard Packaging Quantity (SPQ) and Minimum Order Quantity (MOQ) please refer to our price list or contact customer service
- For other packaging forms please refer to Vishay Roederstein General Information

ELECTRICAL DATA	
SYMBOL	DESCRIPTION
U_R	rated voltage
C_R	rated capacitance at 120 Hz
$\tan \delta$	max. dissipation factor at 120 Hz
R_{ESR}	max. equivalent series resistance at 120 Hz
I_R	rated alternating current (rms) at 120 Hz and upper category temperature

Note

Unless otherwise specified, all electrical values apply at
 $T_{amb} = 20\text{ }^\circ\text{C}$, $P = 80$ to 120 kPa , $RH = 45$ to 75% .

ORDERING EXAMPLE

EKV 22 $\mu\text{F}/450\text{ V}$, $\pm 20\%$, size: 16 x 25 mm
 Leads: Long
 Ordering code: MALREKV00JG222P00K

Leads: Short
 Ordering code: MALREKV05...

For $5 \leq \varnothing D \leq 8\text{ mm}$

Leads: Bent open, shortened and formed
 Ordering code: MALREKV09...

For $10 \leq \varnothing D \leq 18\text{ mm}$

Leads: Shortened and formed
 Ordering code: MALREKV06 ...

ELECTRICAL DATA AND ORDERING INFORMATION							
U_R (V)	C_R 120 Hz (μF)	DIMENSIONS $\varnothing D \times L$ (mm)	$\tan \delta$ 120 Hz	R_{ESR} 120 Hz (Ω)	I_R 100 kHz/105 $^\circ\text{C}$ (mA)	WEIGHT (g)	CATALOG NUMBER (Long Leads)
200	10	10 x 16	0.15	19.9	250	2.3	MALREKV00DD210S00K
	22	10 x 20	0.15	9.04	500	2.8	MALREKV00DE222S00K
	47	12.5 x 20	0.15	4.23	660	3.8	MALREKV00FE247S00K
	68	12.5 x 25	0.15	2.93	760	5.1	MALREKV00FG268S00K
	100	16 x 25	0.15	1.99	1120	7.1	MALREKV00JG310S00K
	150	18 x 25	0.15	1.33	1360	9.5	MALREKV00KG315S00K
250	6.8	10 x 12.5	0.15	29.3	120	1.9	MALREKV00DC168N00K
	33	12.5 x 20	0.15	6.03	600	3.8	MALREKV00FE233N00K
	47	12.5 x 25	0.15	4.23	720	5.1	MALREKV00FG247N00K
	68	16 x 25	0.15	2.93	920	7.1	MALREKV00JG268N00K
	100	18 x 25	0.15	1.99	1200	9.5	MALREKV00KG310N00K
350	3.3	10 x 12.5	0.20	80.4	100	1.9	MALREKV00DC133O00K
	22	12.5 x 20	0.20	12.1	350	3.8	MALREKV00FE222O00K
	33	16 x 20	0.20	8.04	500	6.3	MALREKV00JE233O00K
	47	16 x 25	0.20	5.64	660	7.1	MALREKV00JG247O00K
	68	18 x 25	0.20	3.90	840	9.5	MALREKV00KG268O00K
400	1.0	10 x 12.5	0.24	318	90	1.9	MALREKV00DC110X00K
	2.2	10 x 12.5	0.24	145	100	1.9	MALREKV00DC122X00K
	4.7	10 x 16	0.24	67.7	180	2.3	MALREKV00DD147X00K
	6.8	10 x 16	0.24	46.8	200	2.3	MALREKV00DD168X00K
	10	10 x 20	0.20	26.5	280	2.8	MALREKV00DE210X00K
	22	12.5 x 25	0.20	12.1	430	5.1	MALREKV00FG222X00K
	33	16 x 25	0.20	8.04	640	7.1	MALREKV00JG233X00K
	47	18 x 25	0.20	5.64	840	9.5	MALREKV00KG247X00K
450	2.2	10 x 16	0.24	145	120	2.3	MALREKV00DD122P00K
	3.3	10 x 16	0.24	96.5	140	2.3	MALREKV00DD133P00K
	4.7	10 x 20	0.24	67.7	180	2.8	MALREKV00DE147P00K
	6.8	10 x 20	0.24	46.8	200	2.8	MALREKV00DE168P00K
	10	12.5 x 20	0.20	26.5	320	3.8	MALREKV00FE210P00K
	22	16 x 25	0.20	12.1	560	7.1	MALREKV00JG222P00K
	33	18 x 25	0.20	8.04	700	9.5	MALREKV00KG233P00K
	47	18 x 31.5	0.20	5.64	880	12.0	MALREKV00KS247P00K



Aluminum Capacitors
Radial Style

Vishay Roederstein

LOW TEMPERATURE BEHAVIOUR (AT 120 Hz)					
IMPEDANCE RATIO Z(T2) Z(T1) AT 120 Hz	RATED VOLTAGE (V)				
	200	250	350	400	450
T2/T1	3	3	4	6	6
- 25 °C/+ 20 °C	3	3	4	6	6

ADDITIONAL ELECTRICAL DATA		
PARAMETER	CONDITIONS	VALUE
Current		
Leakage current (Test conditions: U_R , 20 °C)	After 5 minutes at U_R	$I_{L5} \leq 0.02 \times C_R \times U_R + 25 \mu A$
Resistance		
Equivalent series resistance (ESR)	Calculated from $\tan \delta_{max}$.	$ESR = \tan \delta / 2 \pi f C_R$

MULTIPLIER OF RIPPLE CURRENT (I_R) AS A FUNCTION OF FREQUENCY		
FREQUENCY (Hz)	I_R MULTIPLIER	
	1.0 ~ 4.7 μF	6.8 ~ 150 μF
60	0.25	0.35
120	0.30	0.50
300	0.45	0.60
1000	0.60	0.80
10 000	0.80	0.90
$\geq 100\ 000$	1.00	1.00

TEST PROCEDURES AND REQUIREMENTS		
TEST	PROCEDURE (quick reference)	REQUIREMENTS
Load life	$T_{amb} = 105\ ^\circ C$ U_R and I_R applied After 5000 hours $\leq 6.8\ \mu F$ After 10 000 hours $\geq 10\ \mu F$	$\Delta C/C: \pm 20\ %$ of initial value $I_L \leq spec. limit$ $\tan \delta \leq 2 \times spec. limit$
Shelf life	No voltage applied After 1000 hours After test: U_R to be applied for 30 minutes 24 to 48 hours before measurement	$\Delta C/C: \pm 20\ %$ of initial value $I_L \leq spec. limit$ $\tan \delta \leq 2 \times spec. limit$



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