



**THE DATASHEET OF
UHE1H471MHD3**



ALUMINUM ELECTROLYTIC CAPACITORS

UHE Miniature Sized, Low Impedance,
High Reliability



- Low impedance and high reliability withstanding 6000 hours to 10000 hours.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).



Specifications

Item	Performance Characteristics										
Category Temperature Range	-40 to +105°C										
Rated Voltage Range	6.3 to 100V										
Rated Capacitance Range	27 to 18000μF										
Capacitance Tolerance	±20% at 120Hz, 20°C										
Leakage Current ※	After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01CV (μA).										
Tangent of loss angle (tan δ)	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz 20°C	
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08		
For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF.											
Stability at Low Temperature	Rated voltage (V)	6.3	10	16	25	35	50	63	100	120Hz	
	Impedance ratio (max.)	Z(-25°C) / Z(+20°C)	4	3	2	2	2	2	2		2
		Z(-40°C) / Z(+20°C)	8	6	4	3	3	3	3	3	
Endurance	The following specifications shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied at 105°C, the peak voltage shall not exceed the rated voltage.										
	Case size	φD = 8, 10			φD ≥ 12.5						
	Rated voltage	6.3 to 10V	6000 hours			8000 hours					
		16 to 100V	7000 hours			10000 hours					
	Capacitance change	Within ±25% of the initial capacitance value									
	tan δ	200% or less than the initial specified value									
Leakage current	Less than or equal to the initial specified value										
Marking	Printed with white color letter on black sleeve.										

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

Radial Lead Type



- Please refer to the Guidelines for Aluminum Electrolytic Capacitors for end seal configuration information.

Type numbering system (Example : 10V 1000μF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
8 - 10	PD
12.5 to 18	HD

Frequency coefficient of rated ripple current

Cap. (μF)	Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
27		0.45	0.55	0.70	0.90	1.00
39 to 330		0.60	0.70	0.85	0.95	1.00
390 to 1000		0.65	0.75	0.90	0.98	1.00
1200 to 18000		0.75	0.80	0.95	1.00	1.00

• Dimension table in next page.

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■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D×L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
6.3 (0J)	680	8×11.5	0.22	42.84	0.13	0.52	640	UHE0J681MPD
	820	10×12.5	0.22	51.66	0.080	0.32	865	UHE0J821MPD
	1000	8×15	0.22	63	0.087	0.35	840	UHE0J102MPD
	1200	8×20	0.22	75.6	0.069	0.27	1050	UHE0J122MPD
	1200	10×16	0.22	75.6	0.060	0.24	1210	UHE0J122MPD6
	1500	10×20	0.22	94.5	0.046	0.18	1400	UHE0J152MPD
	1800	12.5×15	0.22	113.4	0.049	0.16	1450	UHE0J182MHD
	2200	10×25	0.24	138.6	0.042	0.17	1650	UHE0J222MPD
	2700	10×30.5	0.24	170.1	0.031	0.12	1910	UHE0J272MPD6
	2700	16×15	0.24	170.1	0.042	0.12	1940	UHE0J272MHD
	3300	12.5×20	0.26	207.9	0.035	0.12	1900	UHE0J332MHD
	3900	12.5×25	0.26	245.7	0.027	0.089	2230	UHE0J392MHD
	3900	18×15	0.26	245.7	0.043	0.11	2210	UHE0J392MHD6
	4700	12.5×30.5	0.28	296.1	0.024	0.078	2650	UHE0J472MHD
	5600	12.5×35.5	0.30	352.8	0.020	0.065	2880	UHE0J562MHD
	5600	16×20	0.30	352.8	0.027	0.078	2530	UHE0J562MHD6
	6800	12.5×40	0.32	428.4	0.017	0.056	3350	UHE0J682MHD
	6800	16×25	0.32	428.4	0.021	0.060	2930	UHE0J682MHD6
	6800	18×20	0.32	428.4	0.026	0.067	2860	UHE0J682MHD3
	8200	16×30.5	0.36	516.6	0.017	0.050	3450	UHE0J822MHD
10000	16×35.5	0.40	630	0.015	0.044	3610	UHE0J103MHD	
10000	18×25	0.40	630	0.019	0.049	3140	UHE0J103MHD6	
12000	16×40	0.44	756	0.013	0.038	4080	UHE0J123MHD	
12000	18×30.5	0.44	756	0.015	0.040	4170	UHE0J123MHD6	
15000	18×35.5	0.50	945	0.014	0.038	4220	UHE0J153MHD	
18000	18×40	0.56	1134	0.012	0.032	4280	UHE0J183MHD	
10 (1A)	470	8×11.5	0.19	47	0.13	0.52	640	UHE1A471MPD
	680	8×15	0.19	68	0.087	0.35	840	UHE1A681MPD
	680	10×12.5	0.19	68	0.080	0.32	865	UHE1A681MPD6
	1000	8×20	0.19	100	0.069	0.27	1050	UHE1A102MPD
	1000	10×16	0.19	100	0.060	0.24	1210	UHE1A102MPD6
	1200	10×20	0.19	120	0.046	0.18	1400	UHE1A122MPD
	1500	10×25	0.19	150	0.042	0.17	1650	UHE1A152MPD
	1500	12.5×15	0.19	150	0.049	0.16	1450	UHE1A152MHD6
	2200	10×30.5	0.21	220	0.031	0.12	1910	UHE1A222MPD
	2200	12.5×20	0.21	220	0.035	0.12	1900	UHE1A222MHD6
	2200	16×15	0.21	220	0.042	0.12	1940	UHE1A222MHD3
	2700	18×15	0.21	270	0.043	0.11	2210	UHE1A272MHD
	3300	12.5×25	0.23	330	0.027	0.089	2230	UHE1A332MHD
	3900	12.5×30.5	0.23	390	0.024	0.078	2650	UHE1A392MHD
	3900	16×20	0.23	390	0.027	0.078	2530	UHE1A392MHD6
	4700	12.5×35.5	0.25	470	0.020	0.065	2880	UHE1A472MHD
	5600	12.5×40	0.27	560	0.017	0.056	3350	UHE1A562MHD
	5600	16×25	0.27	560	0.021	0.060	2930	UHE1A562MHD6
	5600	18×20	0.27	560	0.026	0.067	2860	UHE1A562MHD3

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).

If there is no size code in the part number, please add size code "1" and then add the appropriate code.

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■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
10 (1A)	6800	16×30.5	0.29	680	0.017	0.050	3450	UHE1A682MHD
	6800	18×25	0.29	680	0.019	0.049	3140	UHE1A682MHD6
	8200	16×35.5	0.33	820	0.015	0.044	3610	UHE1A822MHD
	8200	18×30.5	0.33	820	0.015	0.040	4170	UHE1A822MHD6
	10000	16×40	0.37	1000	0.013	0.038	4080	UHE1A103MHD
	10000	18×35.5	0.37	1000	0.014	0.038	4220	UHE1A103MHD6
	12000	18×40	0.41	1200	0.012	0.032	4280	UHE1A123MHD
16 (1C)	330	8×11.5	0.16	52.8	0.13	0.52	640	UHE1C331MPD
	470	8×15	0.16	75.2	0.087	0.35	840	UHE1C471MPD
	470	10×12.5	0.16	75.2	0.080	0.32	865	UHE1C471MPD6
	680	8×20	0.16	108.8	0.069	0.27	1050	UHE1C681MPD
	680	10×16	0.16	108.8	0.060	0.24	1210	UHE1C681MPD6
	1000	10×20	0.16	160	0.046	0.18	1400	UHE1C102MPD
	1000	12.5×15	0.16	160	0.049	0.16	1450	UHE1C102MHD6
	1200	10×25	0.16	192	0.042	0.17	1650	UHE1C122MPD
	1500	10×30.5	0.16	240	0.031	0.12	1910	UHE1C152MPD
	1500	12.5×20	0.16	240	0.035	0.12	1900	UHE1C152MHD6
	1500	16×15	0.16	240	0.042	0.12	1940	UHE1C152MHD3
	2200	12.5×25	0.18	352	0.027	0.089	2230	UHE1C222MHD
	2200	18×15	0.18	352	0.043	0.11	2210	UHE1C222MHD6
	2700	12.5×30.5	0.18	432	0.024	0.078	2650	UHE1C272MHD
	2700	16×20	0.18	432	0.027	0.078	2530	UHE1C272MHD6
	3300	12.5×35.5	0.20	528	0.020	0.065	2880	UHE1C332MHD
	3900	12.5×40	0.20	624	0.017	0.056	3350	UHE1C392MHD
	3900	16×25	0.20	624	0.021	0.060	2930	UHE1C392MHD6
	3900	16×20	0.20	624	0.026	0.067	2860	UHE1C392MHD3
	4700	16×30.5	0.22	752	0.017	0.050	3450	UHE1C472MHD
	4700	18×25	0.22	752	0.019	0.049	3140	UHE1C472MHD6
	5600	16×35.5	0.24	896	0.015	0.044	3610	UHE1C562MHD
	5600	18×30.5	0.24	896	0.015	0.040	4170	UHE1C562MHD6
6800	16×40	0.26	1088	0.013	0.038	4080	UHE1C682MHD	
8200	18×35.5	0.30	1312	0.014	0.038	4220	UHE1C822MHD	
10000	18×40	0.34	1600	0.012	0.032	4280	UHE1C103MHD	
25 (1E)	220	8×11.5	0.14	55	0.13	0.52	640	UHE1E221MPD
	330	8×15	0.14	82.5	0.087	0.35	840	UHE1E331MPD
	330	10×12.5	0.14	82.5	0.080	0.32	865	UHE1E331MPD6
	470	8×20	0.14	117.5	0.069	0.27	1050	UHE1E471MPD
	470	10×16	0.14	117.5	0.060	0.24	1210	UHE1E471MPD6
	680	10×20	0.14	170	0.046	0.18	1400	UHE1E681MPD
	680	12.5×15	0.14	170	0.049	0.16	1450	UHE1E681MHD6
	820	10×25	0.14	205	0.042	0.17	1650	UHE1E821MPD
	1000	10×30.5	0.14	250	0.031	0.12	1910	UHE1E102MPD
	1000	12.5×20	0.14	250	0.035	0.12	1900	UHE1E102MHD6
	1000	16×15	0.14	250	0.042	0.12	1940	UHE1E102MHD3
	1200	18×15	0.14	300	0.043	0.11	2210	UHE1E122MHD

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■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mA _{rms}) (105°C/100kHz)	Part Number
					20°C/100kHz	-10°C/100kHz		
25 (1E)	1500	12.5×25	0.14	375	0.027	0.089	2230	UHE1E152MHD
	1800	12.5×30.5	0.14	450	0.024	0.078	2650	UHE1E182MHD
	1800	16×20	0.14	450	0.027	0.078	2530	UHE1E182MHD6
	2200	12.5×35.5	0.16	550	0.020	0.065	2880	UHE1E222MHD
	2200	18×20	0.16	550	0.026	0.067	2860	UHE1E222MHD6
	2700	12.5×40	0.16	675	0.017	0.056	3350	UHE1E272MHD
	2700	16×25	0.16	675	0.021	0.060	2930	UHE1E272MHD6
	3300	16×30.5	0.18	825	0.017	0.050	3450	UHE1E332MHD
	3300	18×25	0.18	825	0.019	0.049	3140	UHE1E332MHD6
	3900	16×35.5	0.18	975	0.015	0.044	3610	UHE1E392MHD
	3900	18×30.5	0.18	975	0.015	0.040	4170	UHE1E392MHD6
	4700	16×40	0.20	1175	0.013	0.038	4080	UHE1E472MHD
	4700	18×35.5	0.20	1175	0.014	0.038	4220	UHE1E472MHD6
	5600	18×40	0.22	1400	0.012	0.032	4280	UHE1E562MHD
35 (1V)	100	8×11.5	0.12	35	0.13	0.52	640	UHE1V101MPD
	150	8×11.5	0.12	52.5	0.13	0.52	640	UHE1V151MPD
	220	8×15	0.12	77	0.087	0.35	840	UHE1V221MPD
	220	10×12.5	0.12	77	0.080	0.32	865	UHE1V221MPD6
	270	8×20	0.12	94.5	0.069	0.27	1050	UHE1V271MPD
	330	10×16	0.12	115.5	0.060	0.24	1210	UHE1V331MPD
	470	10×20	0.12	164.5	0.046	0.18	1400	UHE1V471MPD
	470	12.5×15	0.12	164.5	0.049	0.16	1450	UHE1V471MHD6
	560	10×25	0.12	196	0.042	0.17	1650	UHE1V561MPD
	680	10×30.5	0.12	238	0.031	0.12	1910	UHE1V681MPD
	680	12.5×20	0.12	238	0.035	0.12	1900	UHE1V681MHD6
	680	16×15	0.12	238	0.042	0.12	1940	UHE1V681MHD3
	1000	12.5×25	0.12	350	0.027	0.089	2230	UHE1V102MHD
	1000	18×15	0.12	350	0.043	0.11	2210	UHE1V102MHD6
	1200	12.5×30.5	0.12	420	0.024	0.078	2650	UHE1V122MHD
	1200	16×20	0.12	420	0.027	0.078	2530	UHE1V122MHD6
	1500	12.5×35.5	0.12	525	0.020	0.065	2880	UHE1V152MHD
	1800	12.5×40	0.12	630	0.017	0.056	3350	UHE1V182MHD
	1800	16×25	0.12	630	0.021	0.060	2930	UHE1V182MHD6
	1800	18×20	0.12	630	0.026	0.067	2860	UHE1V182MHD3
	2200	16×30.5	0.14	770	0.017	0.050	3450	UHE1V222MHD
	2200	18×25	0.14	770	0.019	0.049	3140	UHE1V222MHD6
	2700	16×35.5	0.14	945	0.015	0.044	3610	UHE1V272MHD
	2700	18×30.5	0.14	945	0.015	0.040	4170	UHE1V272MHD6
	3300	16×40	0.16	1155	0.013	0.038	4080	UHE1V332MHD
	3300	18×35.5	0.16	1155	0.014	0.038	4220	UHE1V332MHD6
	3900	18×40	0.16	1365	0.012	0.032	4280	UHE1V392MHD

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).
 If there is no size code in the part number, please add size code "1" and then add the appropriate code.

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■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D×L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
50 (1H)	100	8×11.5	0.10	50	0.17	0.68	555	UHE1H101MPD
	120	8×15	0.10	60	0.12	0.48	730	UHE1H121MPD
	150	10×12.5	0.10	75	0.12	0.48	760	UHE1H151MPD
	180	8×20	0.10	90	0.091	0.36	910	UHE1H181MPD
	220	10×16	0.10	110	0.084	0.34	1050	UHE1H221MPD
	270	10×20	0.10	135	0.060	0.24	1220	UHE1H271MPD
	270	12.5×15	0.10	135	0.061	0.20	1260	UHE1H271MHD6
	330	10×25	0.10	165	0.055	0.22	1440	UHE1H331MPD
	330	10×20	0.10	165	0.060	0.24	1220	UHE1H331MPD6
	470	10×30.5	0.10	235	0.043	0.17	1690	UHE1H471MPD
	470	12.5×20	0.10	235	0.045	0.15	1660	UHE1H471MHD6
	470	16×15	0.10	235	0.055	0.17	1690	UHE1H471MHD3
	560	12.5×25	0.10	280	0.034	0.11	1950	UHE1H561MHD
	560	18×15	0.10	280	0.054	0.15	1930	UHE1H561MHD6
	680	12.5×30.5	0.10	340	0.030	0.10	2310	UHE1H681MHD
	820	12.5×35.5	0.10	410	0.025	0.083	2510	UHE1H821MHD
	820	16×20	0.10	410	0.034	0.10	2210	UHE1H821MHD6
	1000	12.5×40	0.10	500	0.021	0.069	2920	UHE1H102MHD
	1000	16×25	0.10	500	0.025	0.075	2555	UHE1H102MHD6
	1000	18×20	0.10	500	0.036	0.097	2490	UHE1H102MHD3
	1200	16×30.5	0.10	600	0.022	0.066	3010	UHE1H122MHD
	1200	18×25	0.10	600	0.026	0.070	2740	UHE1H122MHD6
	1500	16×35.5	0.10	750	0.019	0.057	3150	UHE1H152MHD
	1800	16×40	0.10	900	0.016	0.048	3710	UHE1H182MHD
1800	18×30.5	0.10	900	0.021	0.057	3635	UHE1H182MHD6	
2200	18×35.5	0.12	1100	0.017	0.046	3680	UHE1H222MHD6	
2700	18×40	0.12	1350	0.014	0.038	3800	UHE1H272MHD	
63 (1J)	47	8×11.5	0.09	29.61	0.63	2.80	260	UHE1J470MPD
	56	8×11.5	0.09	35.28	0.63	2.80	260	UHE1J560MPD
	82	8×15	0.09	51.66	0.45	2.10	335	UHE1J820MPD
	82	10×12.5	0.09	51.66	0.43	1.80	325	UHE1J820MPD6
	120	8×20	0.09	75.6	0.33	1.60	408	UHE1J121MPD
	120	10×16	0.09	75.6	0.31	1.50	400	UHE1J121MPD6
	180	10×20	0.09	113.4	0.21	0.94	518	UHE1J181MPD
	180	12.5×15	0.09	113.4	0.23	1.10	527	UHE1J181MHD6
	220	10×25	0.09	138.6	0.20	0.84	595	UHE1J221MPD
	270	10×30.5	0.09	170.1	0.15	0.71	740	UHE1J271MPD
	270	12.5×20	0.09	170.1	0.16	0.64	765	UHE1J271MHD6
	270	16×15	0.09	170.1	0.14	0.66	895	UHE1J271MHD3
	330	12.5×25	0.09	207.9	0.12	0.45	875	UHE1J331MHD
	390	18×15	0.09	245.7	0.12	0.50	1030	UHE1J391MHD
	470	12.5×30.5	0.09	296.1	0.10	0.42	1010	UHE1J471MHD
	470	16×20	0.09	296.1	0.091	0.38	1130	UHE1J471MHD6
	560	12.5×35.5	0.09	352.8	0.083	0.35	1140	UHE1J561MHD
	560	16×25	0.09	352.8	0.073	0.27	1350	UHE1J561MHD6

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).

If there is no size code in the part number, please add size code "1" and then add the appropriate code.

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■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance (μ F)	Case Size ϕ D \times L (mm)	tan δ	Leakage Current (μ A) (at 20°C after 2 minutes)	Impedance (Ω) max.		Rated Ripple (mArms) (105°C/100kHz)	Part Number
					20°C/ 100kHz	-10°C/ 100kHz		
63 (1J)	680	12.5 \times 40	0.09	428.4	0.071	0.30	1280	UHE1J681MHD
	680	18 \times 20	0.09	428.4	0.080	0.30	1300	UHE1J681MHD6
	820	16 \times 30.5	0.09	516.6	0.054	0.20	1650	UHE1J821MHD
	820	18 \times 25	0.09	516.6	0.057	0.21	1560	UHE1J821MHD6
	1000	16 \times 35.5	0.09	630	0.045	0.17	1900	UHE1J102MHD
	1000	18 \times 30.5	0.09	630	0.047	0.17	1720	UHE1J102MHD6
	1200	16 \times 40	0.09	756	0.040	0.15	2130	UHE1J122MHD
	1200	18 \times 35.5	0.09	756	0.040	0.15	1890	UHE1J122MHD6
	1500	18 \times 40	0.09	945	0.036	0.13	2470	UHE1J152MHD
100 (2A)	27	8 \times 11.5	0.08	27	0.63	2.80	260	UHE2A270MPD
	39	8 \times 15	0.08	39	0.45	2.10	335	UHE2A390MPD
	47	10 \times 12.5	0.08	47	0.43	1.80	325	UHE2A470MPD
	56	8 \times 20	0.08	56	0.33	1.60	408	UHE2A560MPD
	68	10 \times 16	0.08	68	0.31	1.50	400	UHE2A680MPD
	82	10 \times 20	0.08	82	0.21	0.94	518	UHE2A820MPD
	82	12.5 \times 15	0.08	82	0.23	1.10	527	UHE2A820MHD6
	100	10 \times 25	0.08	100	0.20	0.84	595	UHE2A101MPD
	100	12.5 \times 20	0.08	100	0.20	0.84	740	UHE2A101MHD6
	120	10 \times 30.5	0.08	120	0.15	0.71	740	UHE2A121MPD
	120	12.5 \times 20	0.08	120	0.16	0.64	765	UHE2A121MHD6
	150	16 \times 15	0.08	150	0.14	0.66	895	UHE2A151MHD
	180	12.5 \times 25	0.08	180	0.12	0.45	875	UHE2A181MHD
	180	18 \times 15	0.08	180	0.12	0.50	1030	UHE2A181MHD6
	220	12.5 \times 30.5	0.08	220	0.10	0.42	1010	UHE2A221MHD
	220	16 \times 20	0.08	220	0.091	0.38	1130	UHE2A221MHD6
	270	12.5 \times 35.5	0.08	270	0.083	0.35	1140	UHE2A271MHD
	270	16 \times 25	0.08	270	0.073	0.27	1350	UHE2A271MHD6
	330	12.5 \times 40	0.08	330	0.071	0.30	1280	UHE2A331MHD
	330	18 \times 20	0.08	330	0.080	0.30	1300	UHE2A331MHD6
	390	16 \times 30.5	0.08	390	0.054	0.20	1650	UHE2A391MHD
	390	18 \times 25	0.08	390	0.057	0.21	1560	UHE2A391MHD6
	470	16 \times 35.5	0.08	470	0.045	0.17	1900	UHE2A471MHD
	470	18 \times 30.5	0.08	470	0.047	0.17	1720	UHE2A471MHD6
560	16 \times 40	0.08	560	0.040	0.15	2130	UHE2A561MHD	
680	18 \times 35.5	0.08	680	0.040	0.15	1890	UHE2A681MHD	
820	18 \times 40	0.08	820	0.036	0.13	2470	UHE2A821MHD	

For cut leads, formed leads or taped parts, please add the appropriate code after the size code (12th digit).
If there is no size code in the part number, please add size code "1" and then add the appropriate code.

- For formed lead or taped product specifications and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

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