

Overview

KEMET's ALS30/31 Series of screw terminal capacitors covers a wide range of case sizes and voltage ratings featuring high ripple currents and long-life performance. They are ideally suited for industrial and commercial applications demanding high reliability and long-life expectancy such as frequency converters, uninterruptible power supply (UPS) systems and switch mode power supplies (SMPS).

Applications

Typical applications for KEMET's ALS30/31 capacitors include smoothing, energy storage or pulse operation in telecommunication demanding power supplies, process control, AC motor control, traction, welding, and measuring.

Benefits

- Compact size
- Long life, up to 20,000 hours at +85°C (V_R, I_R applied)
- High ripple current
- Excellent surge voltage capability
- Optimized designs available upon request



Part Number System

ALS3	0	A	153	DA	025	
Series	Stud Option	Termination	Capacitance Code (µF)	Size Code	Rated Voltage (VDC)	
Screw Terminal Aluminum Electrolytic	0 = Plain can 1 = Threaded mounting stud	See Termination Table	First two digits represent significant figures. Third digit specifies number of zeros.	See Dimension Table	025 = 25 040 = 40 063 = 63 100 = 100 200 = 200 250 = 250	350 = 350 400 = 400 415 = 415 450 = 450 500 = 500

Performance Characteristics

Item	Performance Characteristics		
Capacitance Range	100 – 680,000 μ F		
Rated Voltage	25 – 500 VDC		
Operating Temperature	-40 to +85°C		
Storage Temperature Range	-55 to +85°C		
Capacitance Tolerance	\pm 20% at 100 Hz/+20°C		
Operational Lifetime	D (mm)	Rated Voltage and Ripple Current at +85°C (hours)	Rated Voltage at +85°C (hours)
	36	11,000	22,000
	51	18,000	36,000
	63.5, 66	19,000	38,000
	77, 90	20,000	40,000
End of Life Requirement	Δ C/C < \pm 10%, ESR < 2 x initial ESR value, IL < initial specified limit		
Shelf Life	2,000 hours at +85°C or 30,000 hours at +40°C 0 VDC		
Leakage Current	I = 0.006 CV or 6,000 (μ A, whichever is smaller)		
	C = rated capacitance (μ F), V = rated voltage (VDC). Voltage applied for 5 minutes at +20°C.		
Vibration Test Specifications	Case Length < 220 mm	Procedure 0.75 mm displacement amplitude or 10 G maximum acceleration. Vibration applied for three 2-hour sessions at 10 – 55 Hz (Capacitor clamped by body).	Requirements No leakage of electrolyte or other visible damage. Deviations in capacitance from initial measurements must not exceed: Δ C/C < 5%
	Case Length \geq 220 mm	0.35 mm displacement amplitude or 5 G maximum acceleration. Vibration applied for three 0.5 hour sessions at 10 – 55 Hz (Capacitor clamped by body).	
Standards	IEC 60384-4 long life grade 40/85/56		

Surge Voltage

Test Condition	Voltage (VDC)									
	25	40	63	100	200	250	350	400	450	500
\leq 30s Surge followed by a no load period of 330s, 1,000 cycles at +85°C	28.75	46	72.5	115	230	288	385	440	495	550

Test Method & Performance

Endurance Life Test		
Conditions	Performance	
Temperature	+85°C	
Test Duration	5,000 hours	
Ripple Current	Rated ripple current specified in table	
Voltage	The sum of DC voltage and the peak AC voltage must not exceed the rated voltage of the capacitor	
Performance	The following specifications will be satisfied when the capacitor is tested at +20°C:	
Capacitance Change	≤ 160 V	Within 15% of the initial value
	> 160 V	Within 10% of the initial value
Equivalent Series Resistance	Does not exceed 200% of the initial value	
Leakage Current	Does not exceed leakage current limit	

Dimensions – Millimeters

Size Code	Dimensions in mm						Approximate Weight Grams	Mounting Clamps
	D	L	LT	S	V	Mounting Stud (M x H)		
	±1	±2	±1	±0.5	Nominal	±1		
DA	36	52	58.5	12.8	8.0	M8 x 12	75	V3/H2/2736
DB	36	62	67.5	12.8	8.0	M8 x 12	90	V3/H2/2736
DE	36	82	87.5	12.8	8.0	M8 x 12	115	V3/H2/2736
DF	36	105	111.5	12.8	8.0	M8 x 12	140	V3/H2/2736
KE	51	82	86.5	22.2	13.7	M12 x 16	220	V4/2737
KF	51	105	110.5	22.2	13.7	M12 x 16	300	V4/2737
LF	63.5	105	110.5	28.5	15.8	M12 x 16	485	V8
MF	66	105	110.5	28.5	15.8	M12 x 16	505	V10/2738
MJ	66	115	119	28.5	15.8	M12 x 16	540	V10/2738
ND	77	75	79.5	31.8	19.0	M12 x 16	495	V11
NF	77	105	110.5	31.8	19.0	M12 x 16	690	V11
NJ	77	115	119	31.8	19.0	M12 x 16	766	V11
NP	77	146	150.5	31.8	19.0	M12 x 16	960	V11
NT	77	220	224.5	31.8	19.0	M12 x 16	1450	V11
QC	90	67	71.5	31.8	25.0	M12 x 16	615	V90N
QD	90	75	79.5	31.8	25.0	M12 x 16	690	V90N
QH	90	98	103.5	31.8	25.0	M12 x 16	900	V90N
QP	90	146	149.5	31.8	25.0	M12 x 16	1345	V90N
QT	90	220	223.5	31.8	25.0	M12 x 16	2000	V90N

Note: Dimensions include sleeving. LT listed is for A-type termination code. Information for other termination codes is available upon request.

Table 1 – Ratings & Part Number Reference cont.

VDC	Rated Capacitance	Size Code	Case Size	Ripple Current		ESR Maximum	Impedance Maximum	Part Number
	100 Hz 20°C (µF)		D x L (mm)	100 Hz 85°C (A)	10 kHz 85°C (A)	100 Hz 20°C (mΩ)	10 kHz 20°C (mΩ)	
450	4700	QP	90 x 146	21	31.8	29	19	ALS3(1)(2)472QP450
450	6800	NT	77 x 220	27.4	38.8	21	14	ALS3(1)(2)682NT450
450	10000	QT	90 x 220	33.4	46.5	18	13	ALS3(1)(2)103QT450
500	100	DA	36 x 52	1.6	2.9	1385	847	ALS3(1)(2)101DA500
500	150	DB	36 x 62	2	3.7	930	566	ALS3(1)(2)151DB500
500	220	DE	36 x 82	2.7	4.8	635	386	ALS3(1)(2)221DE500
500	330	DE	36 x 82	3.2	5.7	450	350	ALS3(1)(2)331DE500
500	330	DF	36 x 105	3.5	6.2	420	258	ALS3(1)(2)331DF500
500	470	KE	51 x 82	4.4	7.5	365	194	ALS3(1)(2)471KE500
500	680	KF	51 x 105	5.7	9.6	255	133	ALS3(1)(2)681KF500
500	1000	ND	77 x 75	7.6	12.2	173	109	ALS3(1)(2)102ND500
500	1000	MF	66 x 105	8.1	13.8	175	96	ALS3(1)(2)102MF500
500	1500	NF	77 x 105	10.6	17	120	65	ALS3(1)(2)152NF500
500	1500	QC	90 x 67	9.5	14.3	110	87	ALS3(1)(2)152QC500
500	1500	QD	90 x 75	10.1	15.9	119	76	ALS3(1)(2)152QD500
500	2200	QH	90 x 98	13.7	21.1	80	50	ALS3(1)(2)222QH500
500	2200	NP	77 x 146	14.3	21.8	80	44	ALS3(1)(2)222NP500
500	3300	NP	77 x 146	15.3	22.6	54	39	ALS3(1)(2)332NP500
500	3300	QP	90 x 146	19	28.3	51	32	ALS3(1)(2)332QP500
500	4700	NT	77 x 220	24.3	33.3	37	24	ALS3(1)(2)472NT500
500	6800	NT	77 x 220	26.7	40.3	34	27	ALS3(1)(2)682NT500
500	6800	QT	90 x 220	26.5	41.3	27	22	ALS3(1)(2)682QT500
VDC	Rated Capacitance	Size Code	Case Size	Ripple Current		ESR	Impedance	Part Number

(1) Mounting Code: 0 = plain can, 1 = threaded mounting stud

(2) Termination Code: See Termination Tables for available options