WEET®
We Enhance Efficiency

WKH Series

125°C SMD Aluminum Electrolytic Capacitor

FEATURES

- High temperature range up to +125°C
- Suitable for automotive equipment
- Load life of 1000~5000 hours
- Comply with the RoHS directive

VE → Higher Reliability → KH

SPECIFICATIONS

Item	Characteristics
Operation Temperature Rang	-55 ~ +125°C
Voltage Range	10~ 450V
Capacitance Rang	3.3~2200μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Leakage Current	Leakage current (10V~100V) ≤0.03CV or 4μA, whichever is greater (after 2 minutes application of rated voltage) Leakage current (160V~450V) ≤0.04CV +100μA, whichever is greater (after 2 minutes application of rated voltage)
Dissipation Factor (tan)	Measurement frequency: 120Hz, Temperature: 20°C

Rated Voltage (V)		10	16	25	35	50	63	100	160~250	400,450
tan δ (max.)	∅4~∅10	0.24	0.20	0.16	0.14	0.14	0.18	0.18	0.20	0.20
	∅12.5~∅16									

Stability at Low Temperature

Measurement frequence: 120Hz

Rated Voltage (V)			10	16	25	35~100	160~250	400,450
Impedance Ratio ZT/Z20 (max.)	∅4~∅10	Z(-25°C) / Z(20°C)	4	3	2	2	-	-
		Z(-55°C) / Z(20°C)	10	8	6	4	-	-
	∅12.5~∅16	Z(-25°C) / Z(20°C)	4	3	2	2	3	6
		Z(-55°C) / Z(20°C)	8	6	4	3	6	10

Load Life

After 5000 hrs. application of the rated voltage for ∅12.5~16 (10~100V) , and 2000 hrs. for ∅8X10.5~∅10 (10~100V) , and 1000 hrs for ∅6.3, as well as 2000 hrs. application of rated voltage for ∅12.5~16 (160~450V) at 125°C, they meet the characteristics listed below.

Capacitance Change	Within ±30% of initial value
Dissipation Factor	300% or less of initial specified value
Leakage Current	initial specified value or less

Shelf Life

After leaving capacitors under no load at 125°C for 1000 hours, they meet the specified value for load life characteristics listed above.

Resistance to Soldering Heat

After reflow soldering and restored at room temperature, they meet the characteristics listed below.

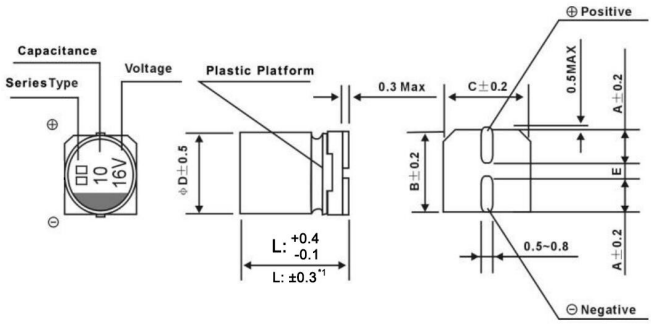
Capacitance Change	Within ±10% of initial value
Dissipation Factor	initial specified value or less
Leakage Current	initial specified value or less

Marking

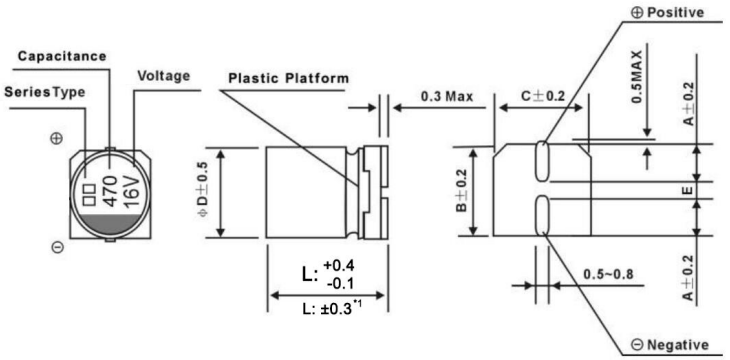
Black print on the case top.

DRAWING (mm)

(⌀4 ~⌀8x6.2)



(⌀8x10.5 ~ ⌀16)



*1. Applicable to ∅6.3×7.7
*2. Applicable to ∅8×10.5~∅10
*3. Applicable to ∅12.5~∅16

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DIMENSIONS (mm)

ØD x L	4x5.8	5x5.8	6.3x5.8	6.3x7.7	8x10.5	10x10.5	10x12.5	12.5x13.5	12.5x16	16x16.5
A	2.0	2.2	2.6	2.6	3.0	3.2	3.2	4.6	4.6	5.8
B	4.3	5.3	6.6	6.6	8.3	10.3	10.3	12.8	12.8	17.0
C	4.3	5.3	6.6	6.6	8.3	10.3	10.3	12.8	12.8	17.0
E ± 0.2	1.0	1.5	2.1	2.1	3.1	4.6	4.6	4.6	4.6	6.4
L	5.8	5.8	5.8	7.7	10.5	10.5	12.5	13.5	16.0	16.5

DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT&ESR

WV / Parameter / µF		10 (1A)				16 (1C)				25 (1E)			
		Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz	Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz	Case size ØDxL (mm	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz
33	330									6.3x5.8	3.3	66	45
47	470					6.3x5.8	3.3	66	43	6.3x7.7	2.3	46	68
100	101	6.3x7.7	2.3	46	72	8x10.5	1.0	20	115	8x10.5	1.0	20	126
220	221	8x10.5	1.0	20	136	10x10.5	0.7	13.4	175	10x10.5	0.7	13.4	211
330	331	10x10.5	0.7	13.4	188	10x12.5	0.5	9.5	280	12.5× 13.5	0.14	2.1	750
										(10 ×12.5)	(0.5)	(9.5)	(270)
470	471	10x12.5	0.5	9.5	300	12.5x13.5	0.14	2.1	750	12.5x13.5	0.14	2.1	750
680	681					16× 16.5	0.10	1.5	1000	16x16.5	0.10	1.5	1000
						(12.5 ×13.5)	(0.14)	(2.1)	(750)				
1000	102	12.5× 16	0.11	1.5	900								
		(12.5 ×13.5)	(0.14)	(2.1)	(750)								
2200	222	16x16.5	0.10	1.5	1000								

WV / Parameter / µF		35 (1V)				50 (1H)			
		Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz	Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz
10	100	6.3x5.8	3.3	66	38	6.3× 7.7	2.3	46	50
						(6.3× 5.8)	(3.3)	(66)	(38)
22	220	6.3x5.8	3.3	66	39	6.3× 7.7	2.3	46	50
33	330	6.3x7.7	2.3	46	62	8x10.5	1.0	20	83
47	470	8x10.5	1.0	20	92	10x10.5	0.7	13.4	111
68	680	8x10.5	1.0	20	92				
100	101	10x10.5	0.7	13.4	151	12.5x13.5	0.23	3.5	550
220	221	12.5× 13.5	0.14	2.1	750	16× 16.5	0.15	2.3	800
		(10 ×12.5)	(0.5)	(9.5)	(260)	(12.5 ×13.5)	(0.23)	(3.5)	(550)
330	331	12.5x13.5	0.14	2.1	750	16× 16.5	0.15	2.3	850
						(12.5 ×16)	(0.18)	(2.7)	(700)
470	471	16× 16.5	0.10	1.5	1000				
		(12.5 ×16)	(0.11)	(1.5)	(900)				

WV / Parameter / µF		63 (1J)				100 (2A)			
		Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz	Case size ØDxL (mm)	E.S.R.(Ω) 20°C	E.S.R.(Ω) -40°C	Ripple current (mA rms) at 125°C 100KHz
10	100	6.3x7.7	2.3	115	42	8x10.5	1.00	50	53
22	220	8x10.5	1.0	50	56	10x10.5	0.70	35	63
33	330	8x10.5	1.0	50	65	10x12.5	0.45	22.5	130
		10x10.5	0.7	35	77				
47	470	8x10.5	1.0	50	100	12.5x13.5	0.33	16.5	450
		10x12.5	0.45	22.5	150				
68	680					12.5x16	0.26	13	550
100	101	12.5x13.5	0.25	12.5	500	16x16.5	0.24	12	650
220	221	12.5x16	0.20	10	600				
330	331	16x16.5	0.18	9	820				

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DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV / Code / μF		160		200		250		400		450	
		2C		2D		2E		2G		2W	
3.3	3R3									12.5 ×16	65
4.7	4R7							12.5 × 13.5	70	16× 16.5	85
6.8	6R8							16× 16.5	100		
10	100	12.5 × 13.5	100	12.5 × 13.5	100	12.5 ×16	110			Case size	Ripple current
22	220	16× 16.5	180	16× 16.5	180						

• Case size ∅D×L(mm), ripple current (mA rms) at 125 C, 120Hz

FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency			50Hz	120Hz	1KHz	10KHz~	100KHz~
Coefficient	10~100V	10 ~100μF	0.35	0.40	0.75	0.90	1.00
		220 ~ 470μF	0.35	0.50	0.85	0.94	1.00
		680 ~ 2200μF	0.40	0.60	0.85	0.95	1.00

Frequency		50Hz	120Hz	300Hz	1KHz	10KHz	100KHz~
Coefficient	160 ~ 450V	0.75	1.00	1.25	1.50	1.75	1.80

PN Structure

WKH	1A	101	M	063077	T	R
Series	Rated Voltage 1.	Capacitance 2.	Capacitance Tolerance 3.	Dimension 4.	Packing 5.	Pb 6.

1. Rated Voltage

Code	1A	1C	1E	1V	1H	1J	2A	2C	2D	2E	2G	2W
Voltage	10V	16V	25V	35V	50V	63	100V	160V	200V	250V	400V	450V

2. Capacitance

Code	0R1	R22	R33	R47	010	2R2	3R3	4R7	100	220	330	470	101
Capacitance (μF)	0.1	0.22	0.33	0.47	1	2.2	3.3	4.7	10	22	33	47	100

3. Capacitance Tolerance

Code	K	L	M
Tolerance	±10%	±15%	±20%

4. Dimension

Code	040054	050054	063054	080105	100105	160165
Dimension (mm)	4x5.4	5×5.4	6.3×5.4	8x10.5	10x10.5	16x16.5

5. Packing

Code	T
Packing	Tape & Reel

6. Pb

Code	L	R
Pb	Leaded	RoHS

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