



**THE DATASHEET OF  
ULH2W3R9MNL1GS**



# ALUMINUM ELECTROLYTIC CAPACITORS

## ULH

Chip Type, High Voltage.  
High Reliability.



- Chip type, High voltage and High Reliability.
- Load life of 4000 hours at +125°C.
- Applicable to automatic mounting machine using carrier tape.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- AEC-Q200 Qualified. Please contact us for details.

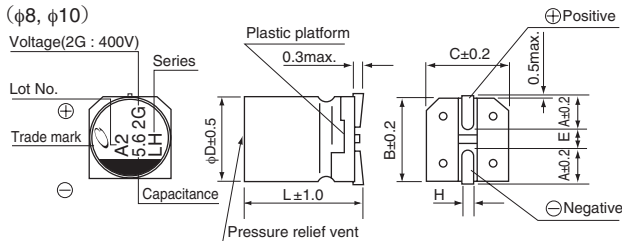


### Specifications

Item	Performance Characteristics						
Category Temperature Range	-40 to +125°C						
Rated Voltage Range	160 to 450V						
Rated Capacitance Range	2.2 to 27μF						
Capacitance Tolerance	±20% at 120Hz, 20°C						
Leakage Current ※	After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.04CV+100 (μA).						
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C						
	Rated voltage (V)	160	200	250	400	450	
	tan δ (max.)	0.20	0.20	0.25	0.25	0.30	
Stability at Low Temperature	Measurement frequency : 120Hz						
	Rated voltage (V)	160	200	250	400	450	
	Impedance ratio Z(-40°C) / Z(+20°C)	6	6	10	10	15	
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 4000 hours at 125°C.					Capacitance change	Within ±30% of the initial capacitance value
						tan δ	300% or less than the initial specified value
Shelf Life	After storing the capacitors under no load at 125°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.					Leakage current	Less than or equal to the initial specified value
Resistance to soldering heat	The capacitors are kept on a hot plate for 30 seconds, which is maintained at 250°C and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the characteristic requirements listed at right when they are removed from the plate.					Capacitance change	Within ±10% of the initial capacitance value
						tan δ	Less than or equal to the initial specified value
Marking	Black print on the case top.					Leakage current	Less than or equal to the initial specified value

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

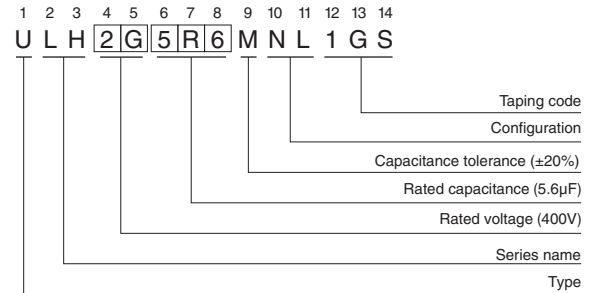
### Chip Type



φD×L (mm)	8×10	10×10	10×13.5
A	2.9	3.2	3.2
B	8.3	10.3	10.3
C	8.3	10.3	10.3
E	3.1	4.5	4.5
L	10	10	13.5
H	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1

Voltage	160	200	250	400	450
Code	2C	2D	2E	2G	2W

### Type numbering system (Example : 400V 5.6μF)



### Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
Coefficient	0.70	1.00	1.17	1.36	1.50

● Dimension table in next page.

ULH

## ■ Dimensions

Rated Voltage (V) (code)	Rated Capacitance ( $\mu$ F)	Case Size $\phi$ D $\times$ L (mm)	tan $\delta$	Leakage Current ( $\mu$ A) (at 20°C after 1 minute)	Rated Ripple (mArms) (125°C/120Hz)	Part Number
160 (2C)	12	8 $\times$ 10	0.20	176.8	45	ULH2C120MNL1GS
	18	10 $\times$ 10	0.20	215.2	60	ULH2C180MNL1GS
	27	10 $\times$ 13.5	0.20	272.8	65	ULH2C270MNL1GS
200 (2D)	10	8 $\times$ 10	0.20	180	45	ULH2D100MNL1GS
	15	10 $\times$ 10	0.20	220	60	ULH2D150MNL1GS
	22	10 $\times$ 13.5	0.20	276	65	ULH2D220MNL1GS
250 (2E)	7.5	8 $\times$ 10	0.25	175	30	ULH2E7R5MNL1GS
	12	10 $\times$ 10	0.25	220	45	ULH2E120MNL1GS
	15	10 $\times$ 13.5	0.25	250	50	ULH2E150MNL1GS
400 (2G)	3.3	8 $\times$ 10	0.25	152.8	30	ULH2G3R3MNL1GS
	5.6	10 $\times$ 10	0.25	189.6	45	ULH2G5R6MNL1GS
	7.5	10 $\times$ 13.5	0.25	220	50	ULH2G7R5MNL1GS
450 (2W)	2.2	8 $\times$ 10	0.30	139.6	20	ULH2W2R2MNL1GS
	3.9	10 $\times$ 10	0.30	170.2	35	ULH2W3R9MNL1GS
	5.6	10 $\times$ 13.5	0.30	200.8	40	ULH2W5R6MNL1GS

- For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

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