HUW Series

Features

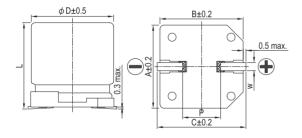
- 135°C, 2,000 ~ 4,000 hours assured
- · Low ESR and High ripple current
- RoHS compliant
- · AEC-Q200 compliant

Specifications

Marking color: Dark Green

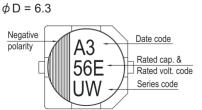
Items	Performance										
Category Temperature Range	-55°C ~ +135°C										
Capacitance Tolerance	±20% (at 120 Hz, 20°C										
Leakage Current (at 20°C)	I = 0.01CV or 3 (μ A) whichever is greater (after 2 minutes) Where, C = rated capacitance in μ F, V = rated DC working voltage in V										
Tanδ (at 120 Hz, 20°C)	See Standard Ratings										
	Impedance ratio shall not exceed the values given in the table below										
	Rated V			oltage	16	25	35	50	63		
Low Temperature Characteristics (at 100k Hz)		Impedan	ce Z (-2	25°C) / Z (+20°C)	1.5	1.5	1.5	1.5	1.5		
Griarastoristics (at 1551(112)		ratio	Z (-5	55°C) / Z (+20°C)	2.0	2.0	2.0	2.0	2.0		
	_				-0-						
					135℃			125			
		Test Tim	ie	· '	2,000 Hrs for $\phi D = 6.3 \text{ mm}$			4,000 Hrs			
	-	0	21	4,000 Hrs for $\phi D = 8 \sim 10 \text{ mm}$							
Endurance		Capacitance (Jnange	Within ±30% of initial value						_	
	-	Tanδ		Less than 200% of specified value							
	-	ESR		Less than 200% of specified value							
	Leakage Current Within specified value										
	* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2,000 / 4,000 hours at 125 or 135°C.										
	* After storage for 1,000 hours at 135 \pm 2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet										
Shelf Life Test	the limits specified in Endurance. (With voltage treatment)									onore enan meet	
Resistance to Soldering Heat (Please refer to page 15 for reflowsoldering conditions)		Capaci	tance Ch	ange	e Within ±10% of initial value						
			Tanδ	Within specified value							
			ESR	Within specified value							
,		Leak	age Curre	ent Within specified value							
5	Frequency (Hz) $120 \le f < 1k$ $1k \le f < 10k$ $10k \le f < 100k$ $100k \le f < 500k$, E00k		
Ripple Current and Frequency Multipliers		1 (N IK		. 1		TOOK		SOUK	
i requericy inditipliers	Multiplier 0.1				0.3 0.6 1.0			1.0			

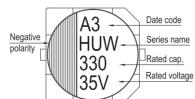
Diagram of Dimensions



Lead Sp	l	Jnit: mm				
ϕ D	L	Α	В	С	W	P ± 0.2
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	10.0 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10.0 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7
10	12.5 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7
10	16.5 ± 0.5	10.3	10.3	11.0	1.0 ~ 1.4	4.7

Marking





 $\phi D = 8 \sim 10$



Standard Ratings

Dimension: φD×L(mm)

Ripple Current: mA/rms at 100k Hz

(V) (V) (V) (µF)	Rated Voltage		Capacitance	Size	Tanδ	LC	ESR	Rated R. C. (mA/rms at 100k Hz)		
16V (IC) 18.4 270 8 × 10 470 10 × 10 10 ×	(V)	(V)	(μF)	φD×L (mm)	(120 Hz, 20°C)	(µA)				
16V (1C)			82	6.3 × 5.8	0.16	13.1	45	1,700	950	
25V (1E) 28.8 470 10 × 10 75.2 18 3.400 2.100		18.4	150	6.3 × 7.7		24.0	27	2,500	1,450	
Secondary Seco			270	8 × 10		43.2	20	3,050	1,700	
25V (TE) 28.8			470	10 × 10		75.2	18	3,400	2,100	
25V (1E) 28.8 100			560	10 × 12.5		89.6	15	4,200	2,550	
25V (1E) 28.8		28.8	56	6.3 × 5.8	0.14	14.0	50	1,400	900	
35V (1V) 40.3 330			100	6.3 × 7.7		25.0	30	2,100	1,400	
330 10 × 10 10 10 10 117 16 4,050 2,500 117 16 4,050 2,500 110 × 10,5 560 10 × 16,5 560 11,400 900 1,400 900 1,400 900 1,400 900 1,400 10 × 10,5 15,5 15,5 15,5 15,5 15,5 15,5 15,5	0E\/ (4E)		220	8 × 10		55.0	22	2,900	1,600	
Secondary Seco	25V (1E)		330	10 × 10		82.5	20	3,300	2,000	
35V (IV) 40.3 40			470	10 × 12.5		117	16	4,050	2,500	
35V (1V) 40.3 68 6.3 × 7.7 150 8 × 10 270 10 × 10 330 10 × 12.5 470 10 × 16.5 470 10 × 16.5 47 8 × 10 56 10 × 10 100 10 × 10 150 100 × 12.5 220 10 × 16.5 23.8 35 2,100 1,400 94.5 20 3,300 2,000 115 17 3,950 2,400 1164 14 4,300 2,500 2,500 2,400 1,250 23.5 30 2,400 1,250 28.0 25 2,900 1,600 1,600 28.0 25 2,900 1,600 1,600 28.0 25 2,900 1,600 1,000			560	10 × 16.5		140	14	4,300	2,500	
35V (1V) 40.3 150 8 × 10 270 10 × 10 330 10 × 12.5 115 17 3.950 2.400 1.600 150 164 14 4.300 2.500 1.600 1.250 164 14 4.300 2.500 1.250 166 10 × 10 1.250 1.600 1.250 1.	35V (1V)	40.3	47	6.3 × 5.8		16.5	60	1,400	900	
35V (1V) 40.3 270			68	6.3 × 7.7		23.8	35	2,100	1,400	
50V (1H) 57.5 50			150	8 × 10	0.12	52.5	22	2,900	1,600	
164			270	10 × 10		94.5	20	3,300	2,000	
SOV (1H) F7.5			330	10 × 12.5		115	17	3,950	2,400	
50V (1H) 57.5 47 8 × 10 56 10 × 10 68 8 × 10 100 10 × 10 120 10 × 10 150 10 × 12.5 220 10 × 16.5 220 10 × 16.5 110 10 16 4,100 2,400 133 8 × 10 33 8 × 10 33 8 × 10 33 10 × 10 56 10 × 10 33 10 × 10 33 10 × 10 33 10 × 10 33 10 × 10 56 10 × 10 57.7 30 2,600 1,400 51.7 30 2,600 1,400 51.7 30 2,600 1,400			470	10 × 16.5		164	14	4,300	2,500	
50V (1H) 57.5 56		57.5	33	8 × 10	0.10	16.5	30	2,400	1,250	
50V (1H) 57.5 68 8 × 10 100 10 × 10 120 10 × 10 150 10 × 12.5 220 10 × 16.5 220 10 × 16.5 110 110 16 4,100 2,400 1,600 1,600 75.0 19 3,700 2,250 110 16 4,100 2,400 1,600 75.0 110 16 4,100 2,400 1,600 2,250 110 16 4,100 2,400 1,100 2,400 1,100 33 8 × 10 33 8 × 10 33 10 × 10 47 8 × 10 56 10 × 10 82 10 × 10 100 10 × 12.5 100 100 100 100 100 100 100 1			47	8 × 10		23.5	30	2,400	1,250	
57.5 100 10 × 10 120 10 × 10 150 10 × 12.5 220 10 × 16.5 110 13.9 40 2,100 1,100 33 8 × 10 33 10 × 10 47 8 × 10 56 10 × 10 82 10 × 10 100 10 × 12.5 100 10 × 12.5 10.10 50.0 25 2,900 1,600 75.0 19 3,700 2,250 110 16 4,100 2,400 1,100 20.8 40 2,100 1,100 20.8 30 2,600 1,400 35.3 30 2,600 1,400 51.7 30 2,600 1,400 1,400 51.7 30 2,600 1,400 1,400 51.7 30 2,600 1,400 1,400 51.7 30 2,600 1,400 1,400 51.7 30 2,600 1,400 1,400 51.7 30 2,600 1,400 51.7 30 2,600 1,400 51.7 30 2,600 1,400 2,100 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 2,100 1,400			56	10 × 10		28.0	25	2,900	1,600	
63V (1J) 100 10 × 10 120 10 × 10 60.0 25 2,900 1,600 1,600 75.0 19 3,700 2,250 110 16 4,100 2,400 1,100 33 8 × 10 33 10 × 10 47 8 × 10 56 10 × 10 56 10 × 10 82 10 × 10 100 10 × 12.5 63.0 22 3,450 2,100 1,600 1,100 1	50V (1H)		68	8 × 10		34.0	30	2,400	1,250	
150 10 × 12.5			100	10 × 10		50.0	25	2,900	1,600	
63V (1J) 220 10 × 16.5 110 16 4,100 2,400 33 8 × 10 13.9 40 2,100 1,100 33 8 × 10 20.8 40 2,100 1,100 47 8 × 10 20.8 30 2,600 1,400 56 10 × 10 29.6 40 2,100 1,100 82 10 × 10 35.3 30 2,600 1,400 51.7 30 2,600 1,400 100 10 × 12.5 63.0 22 3,450 2,100			120	10 × 10		60.0	25	2,900	1,600	
63V (1J) 72.5 22 8 × 10 20.8 40 2,100 1,100 20.8 20.8 30 2,600 1,400 29.6 40 2,100 1,100 29.6 40 2,100 1,100 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.3 30 2,600 1,400 35.7 30 2,600 1,400 35.7 30 2,600 1,400 35.7 30 2,600 1,400			150	10 × 12.5		75.0	19	3,700	2,250	
63V (1J) 72.5 33 8 × 10 20.8 40 2,100 1,100 20.8 30 2,600 1,400 2,100 1,100 20.8 30 2,600 1,400 2,100 1,100 2,100 1,100 2,100 1,100 2,100 1,100 2,100 1,100 2,100 1,400 2,10			220	10 × 16.5		110	16	4,100	2,400	
63V (1J) 72.5 33	63V (1J)	72.5	22	8 × 10	0.08	13.9	40	2,100	1,100	
63V (1J) 72.5 47 8 × 10 56 10 × 10 82 10 × 10 100 10 × 12.5 0.08 29.6 40 2,100 1,100 35.3 30 2,600 1,400 51.7 30 2,600 1,400 63.0 22 3,450 2,100			33	8 × 10		20.8	40	2,100	1,100	
63V (1J) 72.5 56 10 × 10 82 10 × 10 100 10 × 12.5 63.0 2,600 1,400 1,400 2,100			33	10 × 10		20.8	30	2,600	1,400	
56 10 × 10 35.3 30 2,600 1,400 82 10 × 10 51.7 30 2,600 1,400 100 10 × 12.5 63.0 22 3,450 2,100			47	8 × 10		29.6	40	2,100	1,100	
100 10 × 12.5 63.0 22 3,450 2,100			56	10 × 10		35.3	30	2,600	1,400	
			82	10 × 10		51.7	30	2,600	1,400	
150 10 × 16.5 94.5 16 4,100 2,400			100	10 × 12.5		63.0	22	3,450	2,100	
			150	10 × 16.5		94.5	16	4,100	2,400	

Part Numbering System

HUW Series $470\mu\text{F}$ $\pm 20\%$ 25V Carrier Tape $10\,\phi \times 12.5\text{L}$ General Purpose HUW 471 M 1E TR - 1013

Series Name Capacitance Capacitance Tolerance Voltage Type Type Case Size Application

Note: For more details, please refer to "Part Numbering System" on page 87.