

HBW Series

Features

- 125°C, 4,000 hours assured
- Low ESR and High ripple current
- RoHS compliant
- AEC-Q200 compliant

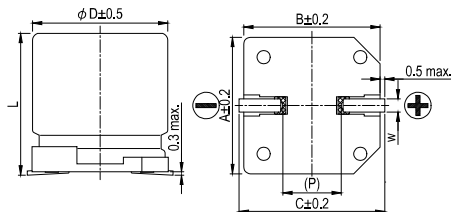


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Specifications

Items	Performance							
Category Temperature Range	-55°C ~ +125°C							
Capacitance Tolerance	± 20% (at 120 Hz, 20°C)							
Leakage Current (at 20°C)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF, V = rated DC working voltage in V							
Tanδ (at 120 Hz, 20°C)	See Standard Ratings							
Low Temperature Characteristics (at 100k Hz)	Impedance ratio shall not exceed the values given in the table below							
	Rated Voltage		16	25	35	50	63	80
	Impedance ratio	Z (-25°C) / Z (+20°C)	1.5	1.5	1.5	1.5	1.5	1.5
		Z (-55°C) / Z (+20°C)	2.0	2.0	2.0	2.0	2.0	2.0
Endurance	Test Time		4,000 Hrs					
	Capacitance Change		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 4,000 hours at 125°C.							
Shelf Life Test	* After storage for 1,000 hours at 125 ± 2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)							
Resistance to Soldering Heat (Please refer to page 15 for reflowsoldering conditions)	Capacitance Change		Within ± 10% of initial value					
	Tanδ		Within specified value					
	ESR		Within specified value					
	Leakage Current		Within specified value					
Ripple Current and Frequency Multipliers	Frequency (Hz)	120 ≤ f < 1k	1k ≤ f < 10k	10k ≤ f < 100k	100k ≤ f < 500k			
	Multiplier	0.1	0.3	0.6	1.0			

Diagram of Dimensions



Lead Spacing and Diameter

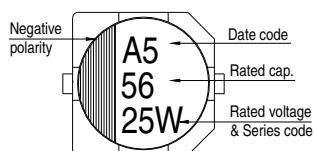
Unit: mm

φ D	L	A	B	C	W	P
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

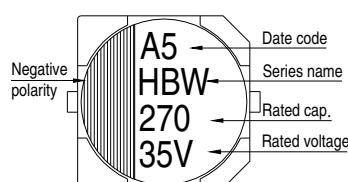
The diagram is marking " () " for reference dimension.

Marking

φ D = 6.3



φ D = 8 ~ 10



All product specifications in the catalog are subject to change without notice. (Cat. 2025E3)

Standard Ratings

Dimension: ϕ D×L(mm)
Ripple Current: mA/rms at 100k Hz, 125°C

Rated Voltage (V)	Surge Voltage (V)	Capacitance (μ F)	Size ϕ D×L(mm)	Tan δ (120 Hz, 20°C)	L C (μ A)	E S R (m Ω /at 100kHz, 20°C max.)	Rated R. C. (mA/rms at 100k Hz, 125°C)
16V (1C)	18.4	82	6.3 × 5.8	0.16	13.1	50	900
		150	6.3 × 7.7		24.0	30	1,400
		270	8 × 10		43.2	27	1,600
		470	10 × 10		75.2	20	2,000
25V (1E)	28.8	47	6.3 × 5.8	0.14	11.8	50	900
		56	6.3 × 5.8		14.0	50	900
		68	6.3 × 7.7		17.0	30	1,400
		100	6.3 × 7.7		25.0	30	1,400
		150	8 × 10		37.5	27	1,600
		220	8 × 10		55.0	27	1,600
		330	10 × 10		82.5	20	2,000
35V (1V)	40.3	27	6.3 × 5.8	0.12	9.5	60	900
		33			11.6		
		47			16.5		
		68	6.3 × 7.7		23.8	35	1,400
		100	8 × 10		35.0	27	1,600
		150	8 × 10		52.5	27	1,600
		220	10 × 10		77.0	20	2,000
		270	10 × 10		94.5	20	2,000
50V (1H)	57.5	22	6.3 × 5.8	0.10	11.0	80	750
		33	6.3 × 7.7		16.5	40	1,100
		47	8 × 10		23.5	30	1,250
		68	8 × 10		34.0	30	1,250
		100	10 × 10		50.0	28	1,600
		120	10 × 10		60.0	28	1,600
63V (1J)	72.5	10	6.3 × 5.8	0.08	6.3	120	700
		22	6.3 × 7.7		13.9	80	900
		27	8 × 10		17.0	40	1,100
		33			20.8		
		47			29.6		
		56	10 × 10		35.3	30	1,400
			10 × 12.5		35.3	26	1,500
		68	10 × 10		42.8	30	1,400
		82	10 × 10		51.7	30	1,400
80V (1K)	92.0	22	8 × 10	0.08	17.6	45	1,050
		33	10 × 10		26.4	36	1,360
		47	10 × 10		37.6	36	1,360

Part Numbering System

HBW Series	220 μF	$\pm 20\%$	25V	Carrier Tape	8 $\phi \times 10L$	Regional Tracking Purpose
HBW	221	M	1E	TR	-	0810
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size
						S

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

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