HBW Series

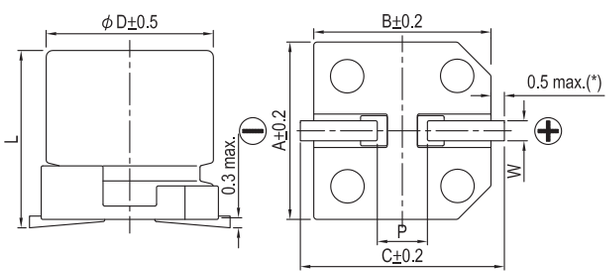
Features
- 125℃, 4,000 hours assured
- Low ESR and High ripple current
- RoHS Compliance

Marking color: Dark Green

Specifications

Items	Performance
Category Temperature Range	-55℃ ~ +125℃
Capacitance Tolerance	±20% (at 120Hz, 20℃)
Leakage Current (at 20℃)	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 120Hz, 20℃)	See Standard Ratings
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℃ after the rated voltage applied with rated ripple current for 4,000 hours at 125℃.
Shelf Life Test	* After storage for 1,000 hours at 125 ± 2℃ with no voltage applied and then being stabilized at 20℃,capacitors shall meet the limits specified in Endurance. (With voltage treatment)
Resistance to Soldering Heat (Please refer to page 25 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: 0.10 | 0.3 | 0.6 | 1.0

Diagram of Dimensions



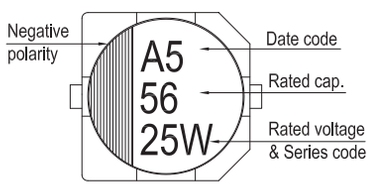
Lead Spacing and Diameter Unit: mm

ϕD	L	A	B	C	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
8	12.0 ± 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

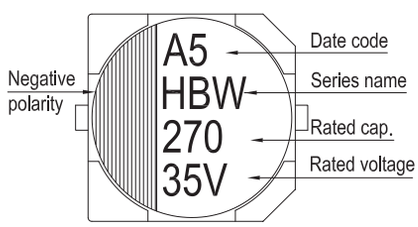
(*): For 6.3ϕ is 0.4 max.

Marking

ϕD = 6.3 mm



ϕD = 8 ~ 10 mm



Dimension: φD×L(mm)

Standard Ratings

Ripple Current: mA/rms at 100k Hz, 125℃

Rated Volt. (V)	Surge Voltage (V)	Capacitance (μF)	Size φD×L(mm)	Tanδ (120Hz, 20℃)	L C (μA)	E S R (mΩ/at 100kHz, 20℃ max.)	Rated R. C. (mA/rms at 100k Hz, 125℃)
16V (1C)	18.4	82	6.3 × 5.8	0.16	13.1	50	900
		150	6.3 × 7.7	0.16	24	30	1,400
		270	8 × 10	0.16	43.2	27	1,600
		470	10 × 10	0.16	75.2	20	2,000
25V (1E)	28.8	56	6.3 × 5.8	0.14	14	50	900
		100	6.3 × 7.7	0.14	25	30	1,400
		220	8 × 10	0.14	55	27	1,600
		330	10 × 10	0.14	82.5	20	2,000
35V (1V)	40.3	27	6.3 × 5.8	0.12	9.5	60	900
		68	6.3 × 7.7	0.12	23.8	35	1,400
		150	8 × 10	0.12	52.5	27	1,600
		270	10 × 10	0.12	94.5	20	2,000
50V(1H)	57.5	22	6.3 × 5.8	0.10	11	80	750
		33	6.3 × 7.7	0.10	16.5	40	1,100
		68	8 × 10	0.10	34	30	1,250
		100	10 × 10	0.10	50	28	1,600
63V(1J)	72.5	10	6.3 × 5.8	0.08	6.3	120	700
		22	6.3 × 7.7	0.08	13.9	80	900
		27	8 × 12	0.08	17	40	1,100
		33	8 × 10	0.08	20.8	40	1,100
		56	10 × 10	0.08	35.3	30	1,400
		56	10 × 12.5	0.08	35.3	26	1,500

Part Numbering System

HBW Series	220μF	±20%	25V	Carrier Tape		8φ×10L	Pb-free and PET coating case
HBW	**221**	**M**	**1E**	**TR**	**-**	**0810**	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case size	Lead Wire and Coating Type

Note: For more details, please refer to “Part Numbering System (SMD Type)” on page 15.

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