HBS 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 120 Hz, 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 120 Hz, 20℃)	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℃) / Z (+20℃)	1.5	1.5	1.5	1.5	1.5	1.5
	Z (-55℃) / Z (+20℃)	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℃ 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)

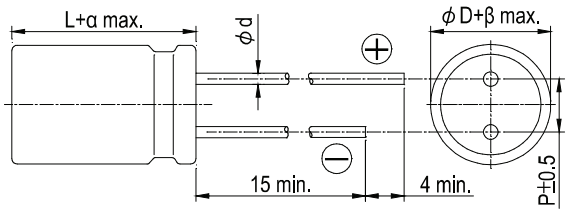
Resistance to Soldering Heat

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

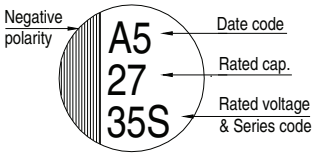


Lead Spacing and Diameter Unit: mm

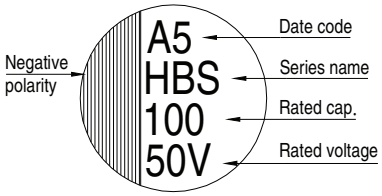
ϕD	6.3	6.3	8	10	10
L	6	8	10	10	12
P	2.5	2.5	3.5	5.0	5.0
ϕd	0.45		0.6		
α	1.0				
β	0.5				

Marking

ϕD = 6.3



ϕD = 8 ~ 10



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HBS Series

Dimension: ϕD×L(mm)
Ripple Current: mA/rms at 100k Hz, 125℃

Standard Ratings

Rated Voltage (V)	Surge Voltage (V)	Capacitance (μF)	Size ϕD×L(mm)	Tanδ (120 Hz, 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 × 6	0.16	13.1	50	900
		150	6.3 × 8		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 × 6	0.14	11.8	50	900
		56			14.0		
		68			17.0		
			6.3 × 8		17.0	30	1,400
		100	6.3 × 8		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 × 6	0.12	9.5	60	900
		33			11.6		
		47			16.5		
		68	6.3 × 8		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 × 6	0.10	11.0	80	750
		33	6.3 × 8		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 × 6	0.08	6.3	120	700
		22	6.3 × 8		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		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

HBS Series	220μF	±20%	25V	Bulk Package	Gas Type	8ϕ×10L	
HBS	**221**	**M**	**1E**	**BK**	**-**	**0810**	**xx**
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration and Package	Rubber Type	Case Size	S = Standard KS = AEC-Q200 Qualified

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