



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Surface Mount Type

Series : **HB** Type : **V**  
**High temperature**  
**Lead-Free reflow (suffix : A\*)**



### Features

- Endurance : 105 °C 2000 h
- Vibration-proof product is available upon request. (φ8 mm and larger)
- RoHS compliant

### Specifications

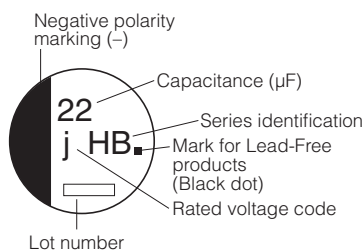
Category temperature range	-40 °C to +105 °C								
Rated voltage range	6.3 V.DC to 50 V.DC								
Capacitance range	1 µF to 1500 µF								
Capacitance tolerance	±20 % (120 Hz/ +20 °C)								
Leakage current	I ≤ 0.01 CV or 3 (µA) After 2 minutes (Whichever is greater)								
Dissipation factor (tan δ)	Please see the attached characteristics list								
Characteristics at low temperature	Standard	V.DC	6.3	10	16	25	35	50	(Impedance ratio at 120 Hz)
		Z(-25 °C)/Z(+20 °C)	4	3	2	2	2	2	
	Z(-40 °C)/Z(+20 °C)	8	6	4	4	3	3		
	Miniaturization product	Z(-25 °C)/Z(+20 °C)	4	3	2	2	2	2	
		Z(-40 °C)/Z(+20 °C)	10	8	6	6	4	4	
Endurance	After applying rated working voltage for 2000 hours at +105 °C±2 °C and then being stabilized at +20 °C, capacitors shall meet the following limits.								
	Capacitance change	Within ±20 % of the initial value (16 V.DC or less : Within ±25 %, Miniaturization product : Within ±35 %)							
	tan δ	≤200 % of the initial limit							
	DC leakage current	Within the initial limit							
Shelf life	After storage for 1000 hours at +105 °C±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	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.								
	Capacitance change	Within ±10 % of the initial value							
	tan δ	Within the initial limit							
	DC leakage current	Within the initial limit							
AEC-Q200	AEC-Q200 compliant								

### Frequency correction factor for ripple current

Frequency (Hz)	50, 60	120	1 k	10 k to
Correction factor	0.70	1.00	1.30	1.70

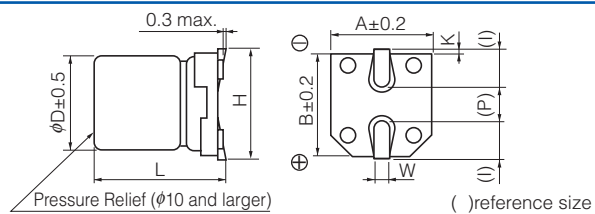
### Marking

Example : 6.3 V.DC 22 µF  
 Marking color : BLACK



R. Voltage (V.DC)	6.3	10	16	25	35	50
Code	j	A	C	E	V	H

### Dimensions



Size code	φD	L	A, B	H	I	W	P	K
B	4.0	5.8±0.3	4.3	5.5 max.	1.8	0.65±0.1	1.0	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
C	5.0	5.8±0.3	5.3	6.5 max.	2.2	0.65±0.1	1.5	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
D	6.3	5.8±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
E	8.0	6.2±0.3	8.3	9.5 max.	3.4	0.65±0.1	2.2	0.35 <sup>+0.15</sup> <sub>-0.20</sub>
F	8.0	10.2±0.3	8.3	10.0 max.	3.4	0.90±0.2	3.1	0.70±0.20
G	10.0	10.2±0.3	10.3	12.0 max.	3.5	0.90±0.2	4.6	0.70±0.20

## Characteristics list

Endurance : 105 °C 2000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Size* code	Specification		Part No.	Reflow	Min. Packaging Q'ty
		φD	L		Ripple current (120 Hz) (+105 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)			Taping (pcs)
6.3	22	4	5.8	B	26	0.30	EEEHBJ220AR	(5)	2000
	33	4	5.8	B	29	0.30	EEEHBJ330AR	(5)	2000
	47	4	5.8	(B)	26	0.50	EEEHBJ470UAR	(5)	2000
		5	5.8	C	46	0.30	EEEHBJ470AR	(5)	1000
	100	5	5.8	(C)	42	0.50	EEEHBJ101UAR	(5)	1000
		6.3	5.8	D	71	0.30	EEEHBJ101AP	(5)	1000
	220	6.3	5.8	(D)	80	0.50	EEEHBJ221UAP	(5)	1000
		8	10.2	F	150	0.35	EEEHBJ221AP	(7)	500
	330	8	6.2	(E)	180	0.50	EEEHBJ331UAP	(7)	1000
		8	10.2	F	230	0.35	EEEHBJ331AP	(7)	500
470	8	10.2	(F)	230	0.50	EEEHBJ471UAP	(7)	500	
1500	10	10.2	(G)	290	0.50	EEEHBJ152UAP	(7)	500	
10	33	4	5.8	(B)	23	0.30	EEEHBA330UAR	(5)	2000
		5	5.8	C	43	0.26	EEEHBA330AR	(5)	1000
	68	6.3	5.8	D	70	0.22	EEEHBA680AP	(5)	1000
	100	6.3	5.8	(D)	71	0.30	EEEHBA101UAP	(5)	1000
		8	6.2	E	110	0.26	EEEHBA101AP	(7)	1000
	150	6.3	5.8	(D)	64	0.50	EEEHBA151UAP	(5)	1000
	220	8	6.2	(E)	110	0.30	EEEHBA221UAP	(7)	1000
		8	10.2	F	160	0.26	EEEHBA221AP	(7)	500
	470	8	10.2	(F)	220	0.35	EEEHBA471UAP	(7)	500
		10	10.2	G	270	0.26	EEEHBA471AP	(7)	500
16	10	4	5.8	B	28	0.16	EEEHB1C100AR	(5)	2000
	22	4	5.8	(B)	29.5	0.26	EEEHBC220UAR	(5)	2000
		5	5.8	C	39	0.16	EEEHB1C220AR	(5)	1000
	33	6.3	5.8	D	65	0.16	EEEHB1C330AP	(5)	1000
	47	5	5.8	(C)	39	0.26	EEEHBC470UAR	(5)	1000
		6.3	5.8	D	70	0.16	EEEHB1C470AP	(5)	1000
	6.3	7.7	D8	84	0.16	EEEHBC470XAP	(5)	900	
		6.3	5.8	(D)	70	0.26	EEEHBC101UAP	(5)	1000
	100	8	10.2	F	120	0.20	EEEHB1C101AP	(7)	500
		8	10.2	(F)	150	0.20	EEEHBC221UAP	(7)	500
	220	10	10.2	G	210	0.20	EEEHB1C221AP	(7)	500
		10	10.2	G	230	0.20	EEEHB1C331AP	(7)	500
	470	8	10.2	(F)	240	0.40	EEEHBC471UAP	(7)	500
		10	10.2	G	340	0.20	EEEHB1C471AP	(7)	500
25	4.7	4	5.8	B	22	0.14	EEEHB1E4R7AR	(5)	2000
	6.8	4	5.8	B	25	0.14	EEEHB1E6R8AR	(5)	2000
	10	4	5.8	(B)	28	0.16	EEEHBE100UAR	(5)	2000
		5	5.8	C	28	0.14	EEEHB1E100AR	(5)	1000
	22	6.3	5.8	D	55	0.14	EEEHB1E220AP	(5)	1000
	33	5	5.8	(C)	50	0.20	EEEHBE330UAR	(5)	1000
		6.3	5.8	D	65	0.14	EEEHB1E330AP	(5)	1000
	47	6.3	5.8	(D)	65	0.20	EEEHBE470UAR	(5)	1000
		8	6.2	E	91	0.16	EEEHB1E470AP	(7)	1000
	100	8	6.2	(E)	100	0.16	EEEHBE101UAP	(7)	1000
		8	10.2	F	130	0.16	EEEHB1E101AP	(7)	500
	220	8	10.2	(F)	130	0.30	EEEHBE221UAP	(7)	500
		10	10.2	G	190	0.16	EEEHB1E221AP	(7)	500
	330	8	10.2	(F)	130	0.30	EEEHBE331UAP	(7)	500
		10	10.2	G	220	0.16	EEEHB1E331AP	(7)	500
	470	10	10.2	(G)	230	0.30	EEEHBE471UAP	(7)	500

\* Size code( ) : Miniaturization product

If Part number exceeds 12 digits, voltage code is abbreviated as follows; 0J → J, 1A → A, 1C → C, 1E → E, 1V → V

· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

· When requesting vibration-proof product, please put the last "V" instead to "P"

## Characteristics list

Endurance : 105 °C 2000 h

Rated voltage (V.DC)	Cap. (±20 %) (μF)	Case size (mm)		Size* code	Specification		Part No.	Reflow	Min. Packaging Q'ty	
		φD	L		Ripple current (120 Hz) (+105 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)			Taping (pcs)	
35	4.7	4	5.8	B	21	0.12	EEEHB1V4R7AR	(5)	2000	
	6.8	4	5.8	(B)	25	0.12	EEEHBV6R8UAR	(5)	2000	
	10	5	5.8	C	28	0.12	EEEHB1V100AR	(5)	1000	
	22	6.3	5.8	D	55	0.12	EEEHB1V220AP	(5)	1000	
	33	8	6.2	E	84	0.14	EEEHB1V330AP	(7)	1000	
	47	47	6.3	7.7	D8	98	0.20	EEEHBV470YAP	(5)	900
			8	6.2	(E)	91	0.18	EEEHBV470UAP	(7)	1000
			8	10.2	F	98	0.14	EEEHB1V470AP	(7)	500
	100	100	8	10.2	(F)	98	0.20	EEEHBV101UAP	(7)	500
			10	10.2	G	160	0.14	EEEHB1V101AP	(7)	500
220	10	10.2	(G)	180	0.14	EEEHBV221UAP	(7)	500		
50	1	4	5.8	B	10	0.12	EEEHB1H1R0AR	(5)	2000	
	2.2	4	5.8	B	16	0.12	EEEHB1H2R2AR	(5)	2000	
	3.3	4	5.8	B	16	0.12	EEEHB1H3R3AR	(5)	2000	
	4.7	5	5.8	C	23	0.12	EEEHB1H4R7AR	(5)	1000	
	6.8	5	5.8	C	23	0.12	EEEHB1H6R8AR	(5)	1000	
	10	6.3	5.8	D	35	0.12	EEEHB1H100AP	(5)	1000	
	22	22	6.3	5.8	(D)	35	0.14	EEEHBH220UAP	(5)	1000
			8	6.2	E	70	0.12	EEEHB1H220AP	(7)	1000
	33	8	10.2	F	91	0.12	EEEHB1H330AP	(7)	500	
	47	47	6.3	7.7	D8	63	0.12	EEEHBH470YAP	(5)	900
			8	10.2	(F)	95	0.12	EEEHBH470UAP	(7)	500
			10	10.2	G	100	0.12	EEEHB1H470AP	(7)	500
	100	10	10.2	(G)	250	0.12	EEEHBH101UAP	(7)	500	
220	10	10.2	(G)	270	0.18	EEEHBH221UAP	(7)	500		

\* Size code( ) : Miniaturization product

If Part number exceeds 12 digits, voltage code is abbreviated as follows; 0J → J, 1A → A, 1C → C, 1E → E, 1V → V

· Please refer to the page of "Reflow Profile" and "The Taping Dimensions".

· When requesting vibration-proof product, please put the last "V" instead to "P"