

## HPB 105°C Standard Series (Hybrid)

- 105°C Standard.
- Load life of 5000 hours at 105°C.
- Radial lead type: lead free flow soldering condition correspondence.
- RoHS Compliance(2011/65/EU)



### SPECIFICATIONS

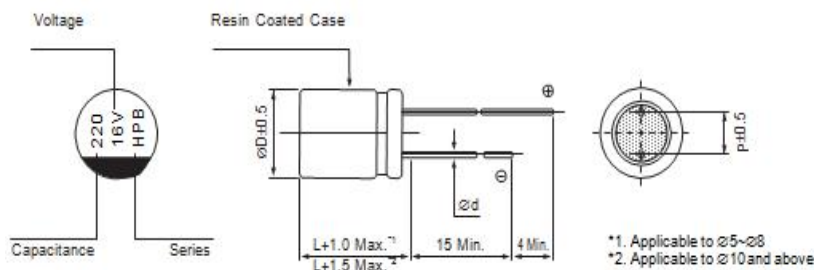
Items	Performance Characteristics		
Category Temperature Range	-55 ~ +105°C		
Rated Voltage Range	16 ~ 100V		
Rated Capacitance Range	47 ~ 1500μF		
Capacitance Tolerance	± 20 % (at 120Hz, 20°C)		
Tangent of Loss Angle (tan δ)	Less than or equal to the specified value at 120Hz, 20°C		
ESR(※1)	Less than or equal to the specified value at 100KHz, 20°C		
Leakage Current(※2)	Leakage current ≤ 0.01CV, (after 2 minutes application of rated voltage at 20°C).		
Temperature Characteristics (Max.)	Z -25°C / Z+20°C ≤1.5 (100kHz) Z- 55°C / Z+20°C ≤2.0		
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20 °C after the rated voltage is applied for 5000 hours at 105 °C	Capacitance change	Within ±30% of the initial capacitance value(※3)
		tan δ	200% or less than the initial specified value
		ESR(※1)	200% or less than the initial specified value
		Leakage current(※2)	Less than or equal to the initial specified value
Damp Heat (Steady State)	The specifications listed at right shall be met when the capacitors are restored to 20 °C after the rated voltage is applied for 2000 hours at 85°C, 85% RH.	Capacitance change	Within ±30% of the initial capacitance value(※3)
		tan δ	200% or less than the initial specified value
		ESR(※1)	200% or less than the initial specified value
		Leakage current(※2)	Less than or equal to the initial specified value
Resistance to Soldering Heat	The following specifications shall be satisfied when the capacitors are restored to 20 °C after the soldering.	Capacitance change	Within ±10% of the initial capacitance value(※3)
		tan δ	Less than or equal to the initial specified value
		ESR(※1)	Less than or equal to the initial specified value
		Leakage current(※2)	Less than or equal to the initial specified value
Sheif Life	After 1000 hours application of the rated voltage at 105°C, they meet the characteristics listed below.	Capacitance change	Within ±30% of the initial capacitance value(※3)
		tan δ	200% or less than the initial specified value
		ESR(※1)	200% or less than the initial specified value
		Leakage current(※2)	Less than or equal to the initial specified value
Marking	Red print on the case top		

※1 ESR should be measured at both of the terminal ends closest to the capacitor body.

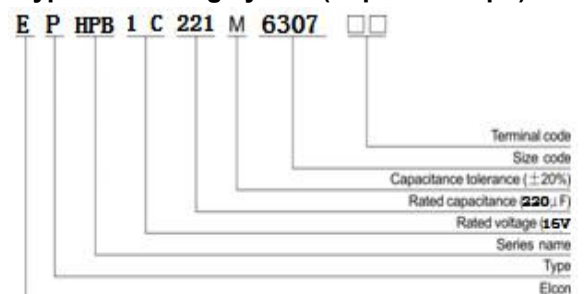
※2 Conditioning: If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105 °C

※3 Initial value: The value before test of examination of resistance to soldering.

### Dimensions



### Type numbering system(Exp:16V 220μF)



	Φ x L(mm)			
Size	6.3x7	6.3x11.5	8x12	10x12
ΦD	6.3	6.3	8	10.0
L	7	12	12	12
P	2.5	2.5	3.5	5.0
Φd	0.5	0.6	0.6	0.6

Voltage		16	25	35	50	63	80	100
V		16	25	35	50	63	80	100
Code		1C	1E	1V	1H	1J	1K	2A

### FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT

Frequency	120Hz≤f≤1KHz	1KHz≤f≤10KHz	10KHz≤f≤100KHz	100KHz≤f≤300KHz
Coefficient	0.10	0.40	0.70	1.00

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## ■ STANDARD RATINGS

Rated voltage (V)(code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size ΦD x L(mm)	tan δ	Leakage Current (μA)	ESR(mΩ) (at 100kHz 20 ℃)	Rated Ripple (mArms)	Part Number
16 (1C)	18.4	220	6.3x7	0.16	35.2	27	2200	EPHPB1C221M6307
		330	6.3x11.5	0.16	52.8	25	2350	EPHPB1C331M6311
		820	8x12	0.16	131.2	20	2700	EPHPB1C821M0812
		1500	10x12	0.16	240	14	3400	EPHPB1C152M1012
25 (1E)	28.7	100	6.3x7	0.14	25	30	2000	EPHPB1E101M6307
		150	6.3x7	0.14	37.5	30	2000	EPHPB1E151M6307
		220	6.3x11.5	0.14	55	27	2250	EPHPB1E221M6311
		470	8x12	0.14	117.5	23	2600	EPHPB1E471M0812
35 (1V)	40.2	680	10x12	0.14	170	15	3000	EPHPB1E681M1012
		100	6.3x7	0.12	35	35	2000	EPHPB1V101M6307
		150	6.3x11.5	0.12	52.5	32	2250	EPHPB1V151M6311
		220	8x12	0.12	77	24	2500	EPHPB1V221M0812
50 (1H)	57.5	470	10x12	0.12	164.5	16	2900	EPHPB1V471M1012
		33	6.3x7	0.10	16.5	40	1600	EPHPB1H330M6307
		47	6.3x11.5	0.10	23.5	36	1750	EPHPB1H470M6311
		120	8x12	0.10	60	28	2000	EPHPB1H121M0812
63 (1J)	72.4	220	10x12	0.10	110	23	2200	EPHPB1H221M1012
		22	6.3x7	0.08	13.86	80	1500	EPHPB1J220M6307
		33	6.3x11.5	0.08	20.79	70	1600	EPHPB1J330M6311
		100	8x12	0.08	63	36	1800	EPHPB1J101M0812
80 (1K)	92	150	10x12	0.08	94.5	26	2000	EPHPB1J151M1012
		47	8x12	0.08	37.6	42	1750	EPHPB1K470M0812
		82	10x12	0.08	65.6	33	1850	EPHPB1K820M1012
100(2A)	115	47	10x12	0.08	47	60	1600	EPHPB2A470M1012