Panasonic

25-06214

SMT Aluminum Electrolytic Capacitors

Surface Mount Type

Series: HB Type : V

■ Features
- Endurance: 105°C 2000 h
- 5.8 mm height (≦φ6.3)
- Vibration-proof product is available upon request.(φ8≦)
- RoHS directive compliant(Parts No:EEE∗)

■ Specifications

Category temp. range	-40 to +105°C
Rated W.V. Range	4 to 50 V .DC
Nominal Cap. Range	0.1 to 220 μ F
Capacitance Tolerance	±20 % (120Hz/+20°C)
DC Leakage Current	I ≦ 0.01 CV or 3(μ A) after 2 minutes (Whichever is greater) (Bi-Polar I=0.02 CV or 6 (μA) after 2 minutes) (Whichever is greater)
tan δ	Please see the attached standard products list

Characteristics at Low Temperature (Impedance ratio at 120 Hz)

W.V. (V)	4	6.3	10	16	25	35	50
-25 / +20 °C	7	4	3	2	2	2	2
-40 / +20 °C	15	8	6	4	4	3	3

Endurance: After applying rated working voltage for 2000 hours at +105±2°C and then being stabilized at +20°C, capacitors shall meet the following limits.

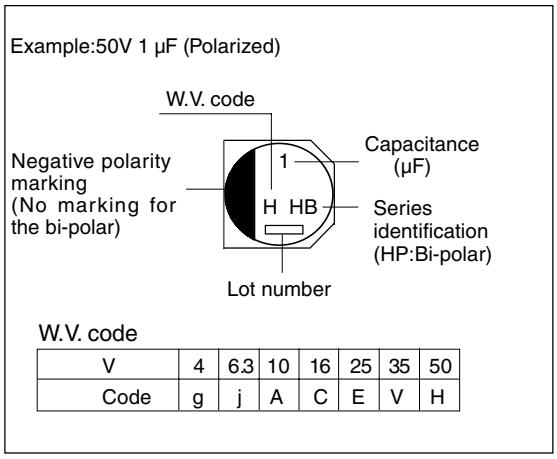
Capacitance change	±20% of initial measured value(4W.V.:±35 %, 6.3W.V.:±25 %)
tan δ	≦ 200 % of initial specified value
DC leakage current	≦ initial specified value

Shelf Life: After storage for 1000 hours at +105±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 (Refer to page 86 for recommended temperature profile.) and then being stabilized at +20°C, capacitor shall meet the following limits.

Capacitance change	±10% of initial measured value
tan δ	≦ initial specified value
DC leakage current	≦ initial specified value

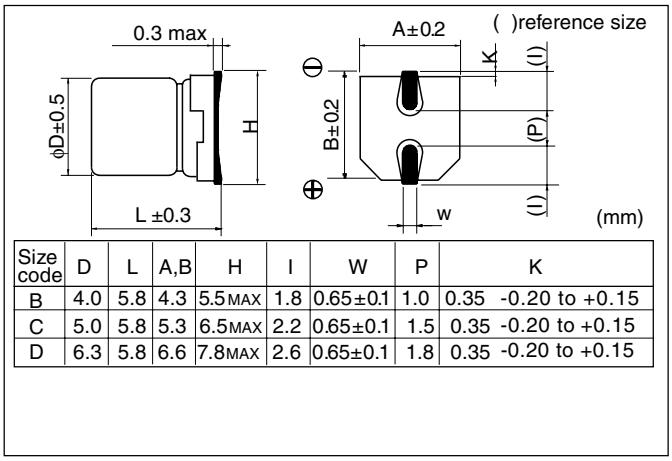
■ Marking



W.V. code

V	4	6.3	10	16	25	35	50
Code	g	j	A	C	E	V	H

■ Dimensions in mm (not to scale)



Size code	D	L	A,B	H	I	W	P	K
B	4.0	5.8	4.3	5.5MAX	1.8	0.65±0.1	1.0	0.35 -0.20 to +0.15
C	5.0	5.8	5.3	6.5MAX	2.2	0.65±0.1	1.5	0.35 -0.20 to +0.15
D	6.3	5.8	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 -0.20 to +0.15

■ Case size

W.V.(V) / Cap.(μF)	4	6.3		10		16		25		35		50	
	Polar-ized	Polar-ized	Bi - polar	Polar-ized	Bi - polar	Polar-ized	Bi - polar	Polar-ized	Bi - polar	Polar-ized	Bi - polar	Polar-ized	Bi - polar
0.1 to 0.47												B	B
1.0												B	B
2.2											B	B	
3.3									B			B	D
4.7								B	B			C	D
6.8								B				C	
10					B	B	C		D	C		D	
22		B				C			D	D			
33		B		C	D			D					
47	B	C	D			D							
68													
100	C	D											
150	D												
220	D												

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■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size Dia. (mm)	Case size Length (mm)	Case size Size Code	Specification Ripple current (120Hz) (+105°C) (mA)	Specification tan δ (120Hz) (+20°C)	Part No. (RoHS: not compliant)	Reflow	Part No. (RoHS: compliant)	Reflow	Min. Packaging Q'ty Taping (pcs)
4	47	4	5.8	B	34	0.50	EEVHB0G470R	(1)	EEEHB0G470R	(4)	2000
	100	5	5.8	C	61	0.50	EEVHB0G101R	(1)	EEEHB0G101R	(4)	1000
	150	6.3	5.8	D	82	0.50	EEVHB0G151P	(1)	EEEHB0G151P	(4)	1000
	220	6.3	5.8	D	82	0.50	EEVHB0G221P	(1)	EEEHB0G221P	(4)	1000
6.3	22	4	5.8	B	26	0.30	EEVHB0J220R	(1)	EEEHB0J220R	(4)	2000
	33	4	5.8	B	29	0.30	EEVHB0J330R	(1)	EEEHB0J330R	(4)	2000
	47	5	5.8	C	46	0.30	EEVHB0J470R	(1)	EEEHB0J470R	(4)	1000
	100	6.3	5.8	D	71	0.30	EEVHB0J101P	(1)	EEEHB0J101P	(4)	1000
10	33	5	5.8	C	43	0.22	EEVHB1A330R	(1)	EEEHB1A330R	(4)	1000
16	10	4	5.8	B	28	0.16	EEVHB1C100R	(1)	EEEHB1C100R	(4)	2000
	22	5	5.8	C	39	0.16	EEVHB1C220R	(1)	EEEHB1C220R	(4)	1000
	47	6.3	5.8	D	70	0.16	EEVHB1C470P	(1)	EEEHB1C470P	(4)	1000
25	4.7	4	5.8	B	22	0.14	EEVHB1E4R7R	(1)	EEEHB1E4R7R	(4)	2000
	6.8	4	5.8	B	25	0.14	EEVHB1E6R8R	(1)	EEEHB1E6R8R	(4)	2000
	33	6.3	5.8	D	65	0.14	EEVHB1E330P	(1)	EEEHB1E330P	(4)	1000
35	10	5	5.8	C	28	0.12	EEVHB1V100R	(1)	EEEHB1V100R	(4)	1000
	22	6.3	5.8	D	55	0.12	EEVHB1V220P	(1)	EEEHB1V220P	(4)	1000
50	0.1	4	5.8	B	1	0.12	EEVHB1HR10R	(1)	EEEHB1HR10R	(4)	2000
	0.22	4	5.8	B	2	0.12	EEVHB1HR22R	(1)	EEEHB1HR22R	(4)	2000
	0.33	4	5.8	B	3	0.12	EEVHB1HR33R	(1)	EEEHB1HR33R	(4)	2000
	0.47	4	5.8	B	5	0.12	EEVHB1HR47R	(1)	EEEHB1HR47R	(4)	2000
	1	4	5.8	B	10	0.12	EEVHB1H1R0R	(1)	EEEHB1H1R0R	(4)	2000
	2.2	4	5.8	B	16	0.12	EEVHB1H2R2R	(1)	EEEHB1H2R2R	(4)	2000
	3.3	4	5.8	B	16	0.12	EEVHB1H3R3R	(1)	EEEHB1H3R3R	(4)	2000
	4.7	5	5.8	C	23	0.12	EEVHB1H4R7R	(1)	EEEHB1H4R7R	(4)	1000
	6.8	5	5.8	C	23	0.12	EEVHB1H6R8R	(1)	EEEHB1H6R8R	(4)	1000
	10	6.3	5.8	D	35	0.12	EEVHB1H100P	(1)	EEEHB1H100P	(4)	1000

An explanation of the taping dimensions can be found on page 84.
Reflow profiles can be found on page 86.
Endurance: 105°C 2000h

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■ Standard Products(Bi-polar)

W.V. (V)	Cap. (±20%) (μF)	Case size Dia. (mm)	Length (mm)	Size Code	Specification Ripple current (120Hz) (+105°C) (mA)	tan δ (120Hz) (+20°C)	Part No. (RoHS: not compliant)	Reflow	Part No. (RoHS: compliant)	Reflow	Min. Packaging Q'ty Taping (pcs)
6.3	47	6.3	5.8	D	35	0.60	EEVHP0J470P	(1)	EEEHP0J470P	(4)	1000
10	10	4	5.8	B	20	0.44	EEVHP1A100R	(1)	EEEHP1A100R	(4)	2000
	33	6.3	5.8	D	26	0.44	EEVHP1A330P	(1)	EEEHP1A330P	(4)	1000
16	10	5	5.8	C	25	0.32	EEVHP1C100R	(1)	EEEHP1C100R	(4)	1000
25	3.3	4	5.8	B	12	0.28	EEVHP1E3R3R	(1)	EEEHP1E3R3R	(4)	2000
	4.7	4	5.8	B	12	0.28	EEVHP1E4R7R	(1)	EEEHP1E4R7R	(4)	2000
	10	6.3	5.8	D	28	0.28	EEVHP1E100P	(1)	EEEHP1E100P	(4)	1000
	22	6.3	5.8	D	55	0.28	EEVHP1E220P	(1)	EEEHP1E220P	(4)	1000
35	2.2	4	5.8	B	10	0.24	EEVHP1V2R2R	(1)	EEEHP1V2R2R	(4)	2000
50	0.22	4	5.8	B	2	0.24	EEVHP1HR22R	(1)	EEEHP1HR22R	(4)	2000
	0.33	4	5.8	B	3	0.24	EEVHP1HR33R	(1)	EEEHP1HR33R	(4)	2000
	0.47	4	5.8	B	5	0.24	EEVHP1HR47R	(1)	EEEHP1HR47R	(4)	2000
	1	4	5.8	B	10	0.24	EEVHP1H1R0R	(1)	EEEHP1H1R0R	(4)	2000
	3.3	6.3	5.8	D	16	0.24	EEVHP1H3R3P	(1)	EEEHP1H3R3P	(4)	1000
	4.7	6.3	5.8	D	23	0.24	EEVHP1H4R7P	(1)	EEEHP1H4R7P	(4)	1000

An explanation of the taping dimensions can be found on page 84.
Reflow profiles can be found on page 86.
Endurance: 105°C 2000h

■ Frequency Correction Factor of Rated Ripple Current

	Frequency (Hz)			
	50,60	120	1k	10k~
coefficient	0.70	1.0	1.3	1.7

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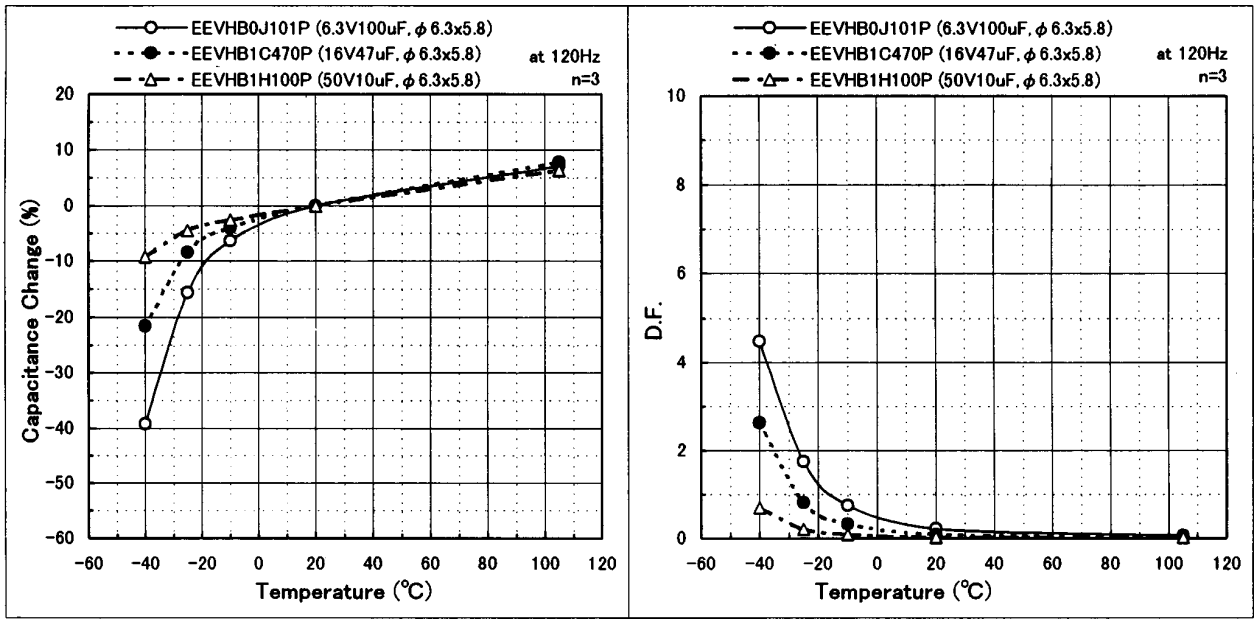
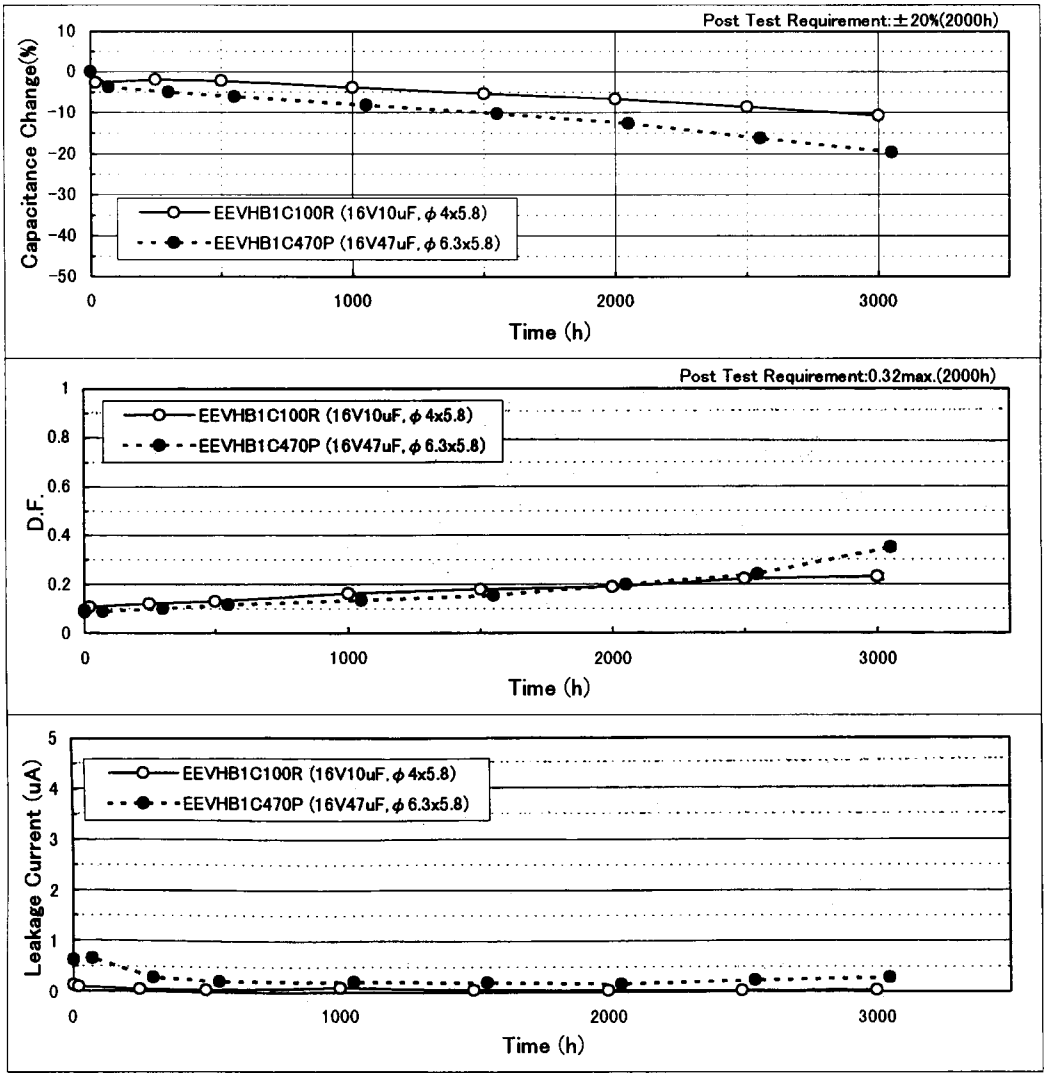
■ Temperature Characteristics



■ Endurance



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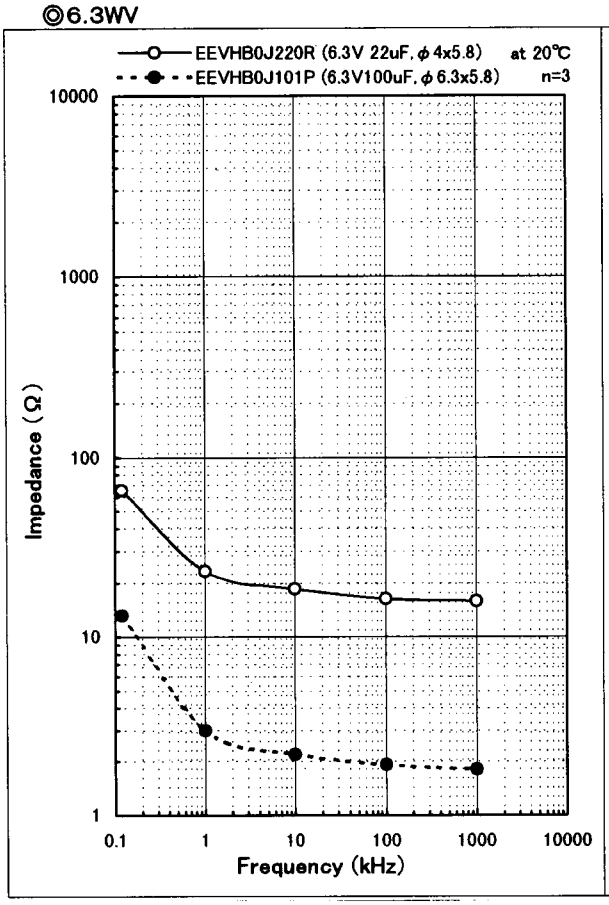
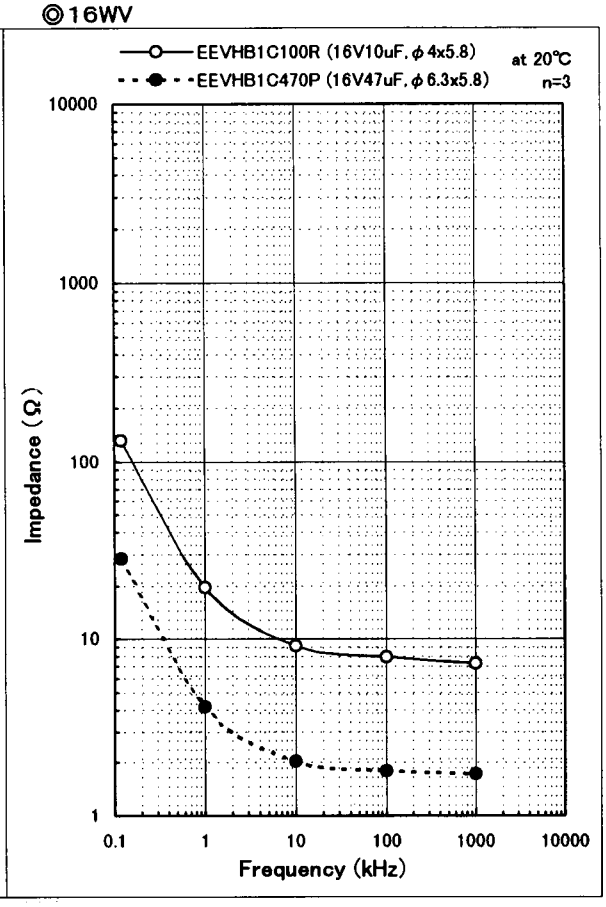
■ Frequency Characteristics

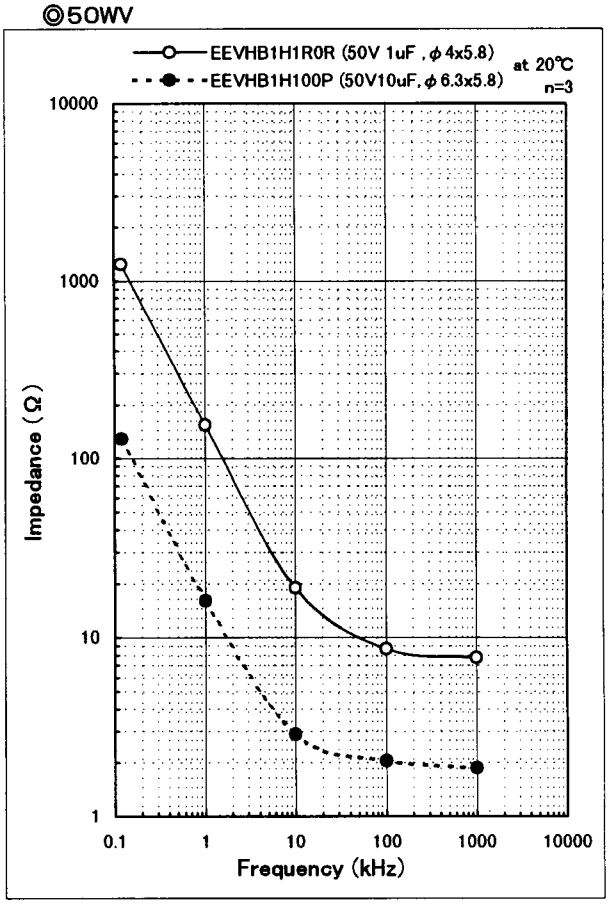
◎6.3WV



◎16WV



◎50WV



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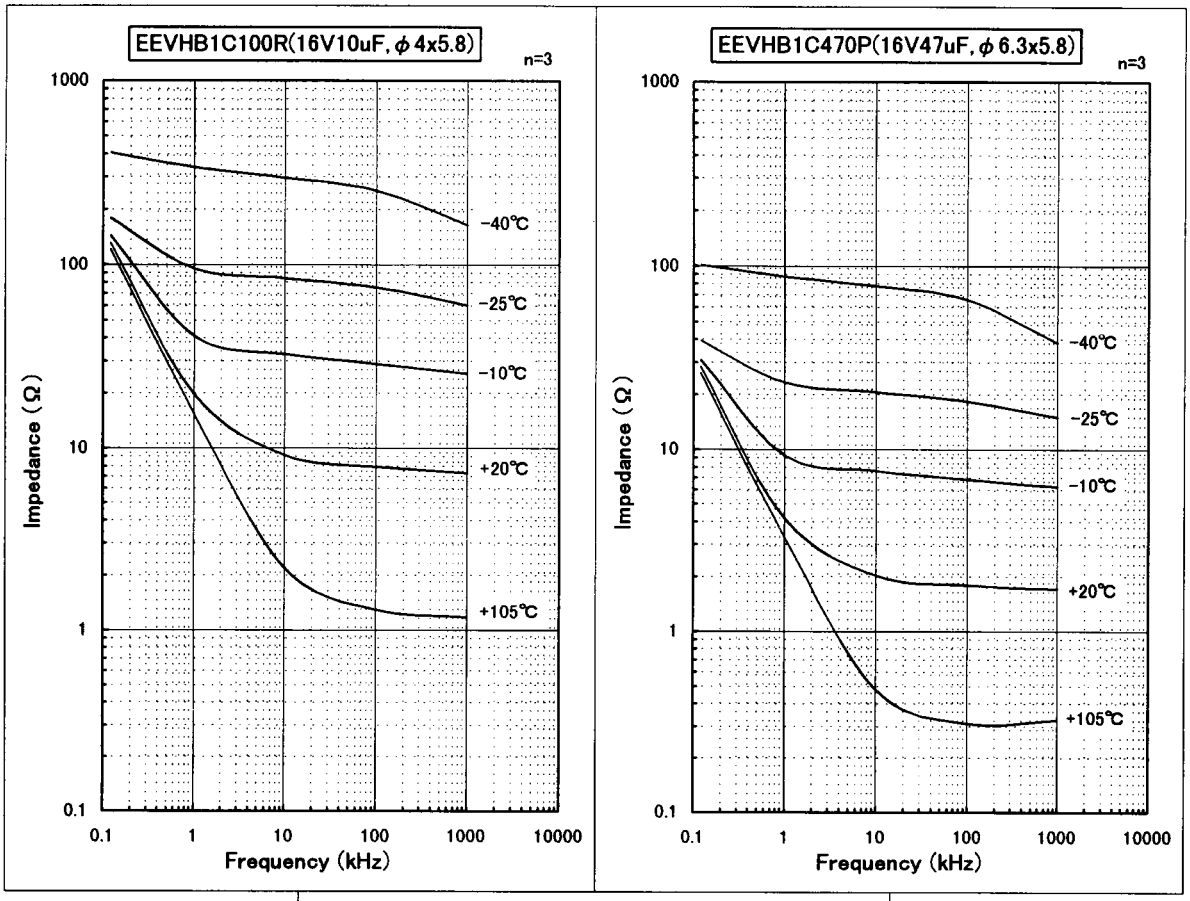
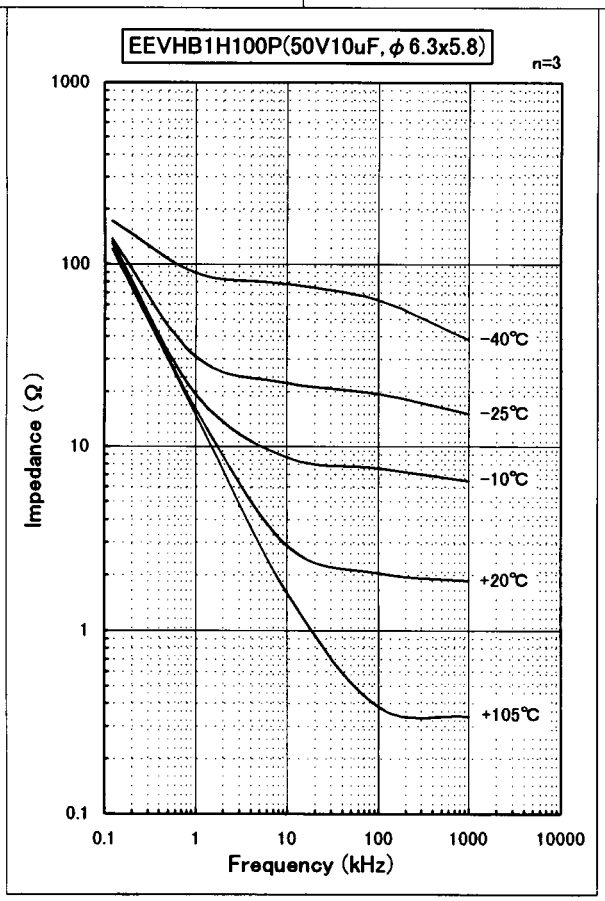
■ Temperature Characteristics





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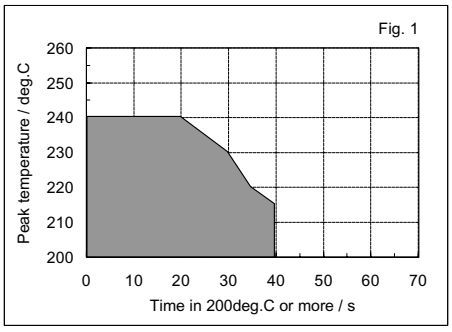
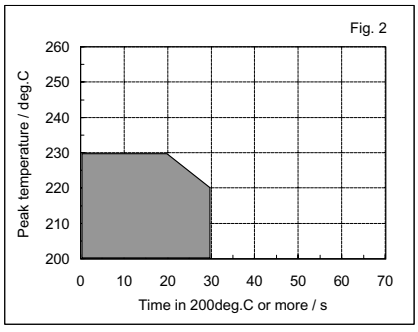
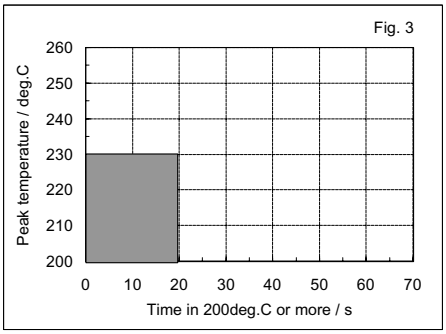
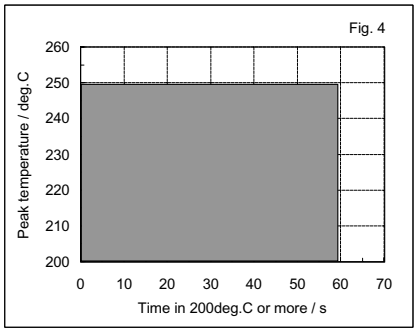
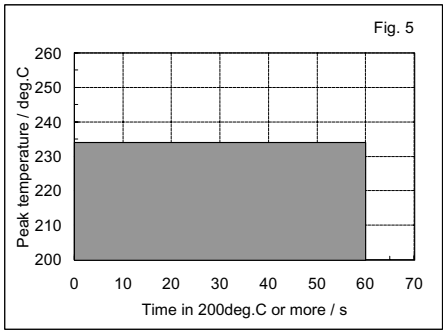
Pre-fix	Suffix	Case Diameter	RoHS Compliant	Terminal Finish	Reflow Condition		Reflow Chart
					Peak Temperature	Time above 200	
ECE-V	R	3mm to 5mm	No	Sn-Pb	240 for 5 seconds	20 seconds	(1) Fig.1
	P	6mm	No	Sn-Pb	240 for 5 seconds	20 seconds	(1) Fig.1
	P	8mm to 10mm	No	Sn-Pb	230 for 5 seconds	20 seconds	(2) Fig.2
EEV-	R	4mm to 5mm	No	Sn-Pb	240 for 5 seconds	20 seconds	(1) Fig.1
	P	6mm	No	Sn-Pb	240 for 5 seconds	20 seconds	(1) Fig.1
	P	8mm to 10mm	No	Sn-Pb	230 for 5 seconds	20 seconds	(2) Fig.2
	Q	12.5mm	Yes	Sn	230 for 5 seconds	20 seconds	(2) Fig.2 (Except for EB series)
							(3) Fig.3 (EB series only)
	M	16mm to 18mm	Yes	Sn	230 for 5 seconds	20 seconds	(2) Fig.2 (Except for EB series)
							(3) Fig.3 (EB series only)
EEE-	R	3mm to 5mm	Yes	Sn-Bi	250 for 5 seconds	60 seconds	(4) Fig.4
	P	6mm	Yes	Sn-Bi	250 for 5 seconds	60 seconds	(4) Fig.4
	P	8mm to 10mm	Yes	Sn-Bi	235 for 5 seconds	60 seconds	(5) Fig.5











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