

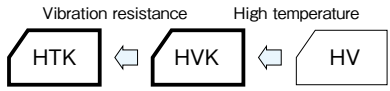
## Conductive Polymer Hybrid Capacitors

GREEN CAP SMD Low ESR 125°C 6000hours

- Low ESR and high ripple current are realized.
- HTK is resist to vibration. (30G guaranteed)
- Equivalent to conductive polymer type Aluminum Electrolytic Capacitor. (There are little characteristics change by temperature and frequency)
- Guaranteed 125°C, 6000 hours. ( $\phi 5$ , 6.3V to 16V, 63V or more : 4000 hours)



Marking color : Blue print



### Specifications

Item	Performance																				
Category temperature range (°C)	-55~+125																				
Tolerance at rated capacitance (%)	±20 (20°C, 120Hz)																				
Leakage current (µA) (max.)	0.01 CV or 3 whichever is larger (after 2 minutes) C : Rated capacitance (µF) , V : Rated voltage (V) (20°C)																				
Tangent of loss angle (tanδ)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>80</td> <td>100</td> </tr> <tr> <td>tanδ (max.)</td> <td>0.20</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> <td>0.08</td> </tr> </table> <p>(20°C, 120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100	tanδ (max.)	0.20	0.18	0.16	0.14	0.12	0.10	0.08	0.08	0.08
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Characteristics at high and low temperature	<table border="1"> <tr> <td>Impedance ratio (max.)</td> <td>Z-25°C/Z+20°C</td> <td>1.5</td> </tr> <tr> <td></td> <td>Z-55°C/Z+20°C</td> <td>2.0</td> </tr> </table> <p>(100kHz)</p>	Impedance ratio (max.)	Z-25°C/Z+20°C	1.5		Z-55°C/Z+20°C	2.0														
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Endurance (125°C) (Applied ripple current)	<table border="1"> <tr> <td>Test time</td> <td>6000 hours (<math>\phi 5</math>, 6.3V to 16V, 63V or more : 4000 hours)</td> </tr> <tr> <td>Leakage current</td> <td>The initial specified value or less</td> </tr> <tr> <td>Percentage of capacitance change</td> <td>Within ±30% of initial value</td> </tr> <tr> <td>Tangent of the loss angle</td> <td>200% or less of the initial specified value</td> </tr> <tr> <td>ESR change</td> <td>200% or less of the initial specified value</td> </tr> </table>	Test time	6000 hours ( $\phi 5$ , 6.3V to 16V, 63V or more : 4000 hours)	Leakage current	The initial specified value or less	Percentage of capacitance change	Within ±30% of initial value	Tangent of the loss angle	200% or less of the initial specified value	ESR change	200% or less of the initial specified value										
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Shelf life (125°C)	Test time : 1000hours ; other items are same as the endurance. Voltage application treatment : According to JIS C5101-4 4.1.																				

### Outline Drawing

Unit : mm

#### Series HVK

φD	L	A	B	C	M	W	P	Casing symbol
5	5.8±0.3	5.3	5.3	2.3	0.4±0.2	0.5 to 0.8	1.5	E61
6.3	5.8±0.3	6.6	6.6	2.7	0.4±0.2	0.5 to 0.8	2.0	F61
6.3	7.7±0.3	6.6	6.6	2.7	0.4±0.2	0.5 to 0.8	2.0	F80
8	8.7±0.3	8.4	8.4	3.0	0.4±0.2	0.5 to 0.8	3.1	G90
8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
10	8.7±0.3	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H90
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	IE

#### Series HTK

φD	L	A	B	C	M	W	P	Casing symbol
8	10±0.5	8.4	8.4	3.0	0.4±0.2	0.7 to 1.1	3.1	G10
10	10±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	H10
10	12.5±0.5	10.4	10.4	3.3	0.4±0.2	0.7 to 1.1	4.7	HC5
12.5	13.5±0.5	13.0	13.0	4.9	0.7±0.3	1.0 to 1.4	4.6	IE

- Soldering conditions are described on page 15.
- Land pattern size are described on page 13.
- The taping specifications are described on page 16.

### Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)	120	1k	10k	100k or more
Rated voltage (V)	120	1k	10k	100k or more
6.3 to 100	0.10	0.30	0.60	1

**Part numbering system (6000 hours guaranteed)**

HVK (example : 35V270µF)

HVK	35	V	271	M	H10	B	□
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

HTK (example : 35V270µF)

HTK	35	V	271	M	H10	B	□
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

**(4000 hours guaranteed)**

HVK (example : 16V470µF)

HVK	16	V	471	M	H10	E	□
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

HTK (example : 63V56µF)

HTK	63	V	560	M	H10	E	□
Series code	Rated voltage symbol		Rated capacitance symbol	Capacitance tolerance symbol	Casing symbol		Taping symbol

Standard Ratings

Rated voltage (V) Rated capacitance (µF)	Item	6.3			10			16			25		
		Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)
33	—	—	—	—	—	—	—	—	—	—	5×5.8	80	550
47	—	—	—	—	—	—	—	5×5.8	70	600	—	—	—
56	—	—	—	—	—	—	—	—	—	—	6.3×5.8	50	900
82	—	—	—	—	—	—	—	6.3×5.8	45	950	—	—	—
100	—	—	—	—	6.3×5.8	45	950	—	—	—	6.3×7.7	30	1400
150	—	—	—	—	—	—	—	6.3×7.7	27	1450	8×8.7	27	1500
220	6.3×5.8	45	950	6.3×7.7	24	1450	—	—	—	—	8×10	27	1600
270	—	—	—	—	—	—	—	8×10	22	1700	10×8.7	25	1700
330	6.3×7.7	24	1450	8×10	22	1700	—	—	—	—	10×10	20	2000
470	—	—	—	10×10	18	2100	10×10	18	2100	—	—	—	—
560	8×10	22	1700	—	—	—	—	—	—	—	10×12.5	18	3000
820	10×10	18	2100	—	—	—	—	—	—	—	12.5×13.5	15	3500

Rated voltage (V) Rated capacitance (µF)	Item	35			50			63		
		Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)
10	—	—	—	—	5×5.8	120	500	6.3×5.8	120	700
22	5×5.8	100	550	6.3×5.8	80	750	6.3×7.7	80	900	
27	—	—	—	—	—	—	8×8.7	50	1000	
33	—	—	—	6.3×7.7	40	1100	8×10	40	1100	
47	6.3×5.8	60	900	8×8.7	35	1200	10×8.7	35	1200	
56	—	—	—	—	—	—	10×10	30	1400	
68	6.3×7.7	35	1400	8×10	30	1250	—	—	—	
82	—	—	—	10×8.7	28	1400	—	—	—	
100	8×8.7	30	1500	10×10	28	1600	10×12.5	26	2000	
120	—	—	—	—	—	—	12.5×13.5	22	2500	
150	8×10	27	1600	10×12.5	24	2500	—	—	—	
220	10×8.7	25	1700	—	—	—	—	—	—	
270	10×10	20	2000	—	—	—	—	—	—	
330	—	—	—	12.5×13.5	20	3000	—	—	—	
390	10×12.5	18	3000	—	—	—	—	—	—	
560	12.5×13.5	15	3500	—	—	—	—	—	—	

Rated voltage (V) Rated capacitance (µF)	Item	80			100		
		Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)	Case φ D × L (mm)	ESR (mΩ max.)	Rated ripple current (mA rms)
15	—	—	—	—	10×10	45	1000
22	8×10	45	1100	—	—	—	—
33	10×10	36	1200	—	—	—	—

(Note) Rated ripple current : 125°C , 100kHz ; ESR : 20°C , 100kHz

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