

Data Sheet

Customer : _____

Product : Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
SMD Type, Standard, 125°C 4,000Hours – HHMR Series

Size : 6.3x6mm ~ 10x16.5mm

Issued Date : 01-Sep.-2025

Edition : Ver.1

Record of change

Date	Ver.	Description	Page

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01-Sep.-2025	01-Sep.-2025	01-Sep.-2025	
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CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

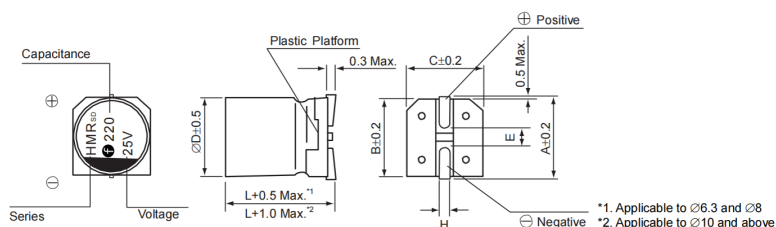
SMD Type, 125°C Standard

- High reliability and high voltage realized by hybrid electrolyte
- Endurance: 4,000 hours at 125°C
- Rated Voltage : 16V ~ 100V
- Rated capacitance : 22 ~ 1,800 μF
- For high temperature & reliability applications.

SPECIFICATIONS

Item	Performance Characteristics																		
Operating Temperature range	-55 + 125°C																		
Rated Voltage Range	16V ~ 100V																		
Capacitance Tolerance	± 20% (at 120 Hz/ 20°C)																		
Leakage Current	I ≤ 0.01 CV or less (2 minutes , 20°C) Not greater than the formula above after 2 minutes voltage applied. I : Leakage current (μA) C : Capacitance (μF) V : Voltage(VDC)																		
Dissipation Factor (tan δ)	Rated voltage(V)	16	25	35	50	63	80	100	(20°C · 120 Hz)										
	tan δ (Max.)	0.16	0.14	0.12	0.10	0.08	0.08	0.08											
Temperature Characteristics (Impedance ratio at 100 KHz)	Z (-25°C)/ Z (+20°C) < 2.0 Z (-55°C)/ Z (+20°C) < 2.5																		
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 4,000 hours at 125°C. <table><tr><td>Capacitance change</td><td>≤ ± 30% of the initial value</td></tr><tr><td>D. F. (Tan δ)</td><td>≤ 200% of initial specified value</td></tr><tr><td>ESR</td><td>≤ 200% of initial specified value</td></tr><tr><td>Leakage current</td><td>Initial specified value or less</td></tr></table>									Capacitance change	≤ ± 30% of the initial value	D. F. (Tan δ)	≤ 200% of initial specified value	ESR	≤ 200% of initial specified value	Leakage current	Initial specified value or less		
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ESR	≤ 200% of initial specified value																		
Leakage current	Initial specified value or less																		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to item 4.1 of JIS C 5101-4. <table><tr><td>Capacitance change</td><td>≤ ± 30% of the initial value</td></tr><tr><td>D. F. (Tan δ)</td><td>≤ 200% of initial specified value</td></tr><tr><td>ESR</td><td>≤ 200% of initial specified value</td></tr><tr><td>Leakage current</td><td>Initial specified value or less</td></tr></table>									Capacitance change	≤ ± 30% of the initial value	D. F. (Tan δ)	≤ 200% of initial specified value	ESR	≤ 200% of initial specified value	Leakage current	Initial specified value or less		
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Leakage current	Initial specified value or less																		
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to the DC rated voltage at 85°C, 85% RH for 2,000 hours. <table><tr><td>Capacitance change</td><td>≤ ± 30% of the initial value</td></tr><tr><td>D. F. (Tan δ)</td><td>≤ 200% of initial specified value</td></tr><tr><td>ESR</td><td>≤ 200% of initial specified value</td></tr><tr><td>Leakage current</td><td>Initial specified value or less</td></tr><tr><td>Appearance</td><td>No significant damage</td></tr></table>									Capacitance change	≤ ± 30% of the initial value	D. F. (Tan δ)	≤ 200% of initial specified value	ESR	≤ 200% of initial specified value	Leakage current	Initial specified value or less	Appearance	No significant damage
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D. F. (Tan δ)	≤ 200% of initial specified value																		
ESR	≤ 200% of initial specified value																		
Leakage current	Initial specified value or less																		
Appearance	No significant damage																		
Resistance to Soldering heat	The following specifications shall be satisfied when the capacitors are restored to 20°C after the soldering. <table><tr><td>Capacitance change</td><td>≤ ± 10% of the initial value</td></tr><tr><td>D. F. (Tan δ)</td><td>≤ the initial specified value</td></tr><tr><td>Leakage current</td><td>≤ the initial specified value</td></tr></table>									Capacitance change	≤ ± 10% of the initial value	D. F. (Tan δ)	≤ the initial specified value	Leakage current	≤ the initial specified value				
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Leakage current	≤ the initial specified value																		

Dimension



ϕD	L	A	B	C	H	E
6.3	6.0	6.6	6.6	7.2	0.5~0.8	1.9
6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
8	10.0	8.3	8.3	9	0.7~1.1	3.1
8	12.5	8.3	8.3	9	0.7~1.1	3.1
10	10.5	10.3	10.3	11	0.7~1.1	4.5
10	12.8	10.3	10.3	11	0.7~1.1	4.5
10	16.5	10.3	10.3	11	0.7~1.1	4.5

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

■ Part Numbering (example: 220 μ F 25V 8x10mm)

HHMR **221** **M** **1E** **C** **R** **D** **100** **S**
 SERIES CAPACITANCE TOL. W.V. TYPE LEAD DIA. LENGTH PRINTING COLOR

■ Standard Products Table

Rated voltage (V.DC)	Rated Capacitance (μ F)	Case Size D x L (mm)	$\tan \delta$	ESR (m Ω max. 20°C/100 KHz)	Rated ripple current (mA rms/125°C, 100KHz)
16 (1C)	100	6.3 x 6	0.16	45	950
	220	6.3 x 7.7	0.16	27	1,450
	270	8 x 10	0.16	22	1,700
	470	8 x 10	0.16	22	1,700
	820	8 x 12.5	0.16	20	1,850
	470	10 x 10.5	0.16	18	2,100
	820	10 x 10.5	0.16	18	2,100
	1500	10 x 12.8	0.16	14	3,000
25 (1E)	1800	10 x 16.5	0.16	12	3,400
	68	6.3 x 6	0.14	50	900
	100	6.3 x 7.7	0.14	30	1,400
	150	6.3 x 7.7	0.14	30	1,400
	220	8 x 10	0.14	27	1,600
	330	8 x 10	0.14	27	1,600
	470	8 x 12.5	0.14	23	1,900
	330	10 x 10.5	0.14	20	2,000
	470	10 x 10.5	0.14	20	2,000
	680	10 x 12.8	0.14	15	2,700
35 (1V)	1000	10 x 16.5	0.14	11	4,000
	47	6.3 x 6	0.12	60	900
	68	6.3 x 7.7	0.12	35	1,400
	100	6.3 x 7.7	0.12	35	1,400
	150	8 x 10	0.12	27	1,600
	180	8 x 10	0.12	27	1,600
	220	8 x 12.5	0.12	24	1,800
	270	10 x 10.5	0.12	20	2,000
	330	10 x 10.5	0.12	20	2,000
	470	10 x 12.8	0.12	16	2,600
50 (1H)	680	10 x 16.5	0.12	11	4,000
	22	6.3 x 6	0.10	80	750
	33	6.3 x 7.7	0.10	40	1,100
	68	8 x 10	0.10	30	1,250
	100	8 x 10	0.10	30	1,250
	120	8 x 12.5	0.10	28	1,400
	100	10 x 10.5	0.10	25	1,600
	150	10 x 10.5	0.10	25	1,600
	220	10 x 12.8	0.10	23	1,800
63 (1J)	270	10 x 16.5	0.10	13	3,700
	22	6.3 x 7.7	0.08	80	900
	33	8 x 10	0.08	40	1,100
	47	8 x 10	0.08	40	1,100
	100	8 x 12.5	0.08	36	1,300
	56	10 x 10.5	0.08	30	1,400
	100	10 x 10.5	0.08	30	1,400
	150	10 x 12.8	0.08	26	1,600
	180	10 x 16.5	0.08	15	3,500

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■ Standard Products Table

Rated voltage (V.DC)	Rated Capacitance (μF)	Case Size D x L (mm)	tan δ	ESR (mΩ max. 20°C/100 KHz)	Rated ripple current (mA _{rms} /125°C,100KHz)
80 (1K)	22	8 x 10	0.08	45	1,050
	33	8 x 10	0.08	45	1,050
	47	8 x 12.5	0.08	42	1,200
	47	10 x 10.5	0.08	36	1,200
	56	10 x 10.5	0.08	36	1,200
	82	10 x 12.8	0.08	33	1,350
	100	10 x 16.5	0.08	20	2,200
100 (2A)	33	10 x 10.5	0.08	80	850
	47	10 x 12.8	0.08	60	1,050

■ Frequency coefficient of allowable ripple current

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