

## RF Series

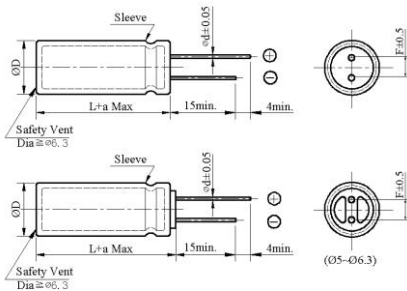
- Miniaturized, Low E.S.R and Low impedance
- Suitable for use in high ripple current capability
- Load life 6,000~12,000 hours at 105°C



### ◆ SPECIFICATIONS

Item	Performance Characteristics																				
Category Temperature Range	-55~+105°C																				
Working Voltage Range	6.3 ~ 100Vdc																				
Capacitance Range	6.8 ~18,000µF																				
Capacitance Tolerance	±20% (at 25°C and 120Hz)																				
Dissipation Factor (tanδ) (at 25°C, 120Hz)	<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>100</td> </tr> <tr> <td>tanδ(Max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> </tr> </table>	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	tanδ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08		
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100												
tanδ(Max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08													
The above values should be increased by 0.02 for every additional 1000µF																					
Leakage Current	I=0.01CV or 3µA whichever is greater I : Leakage current (µA) C : Rated capacitance (µF) V : Rated voltage (V) Impress the rated voltage for 2 minutes																				
Low Temperature Characteristics Impedance Ratio(MAX)	<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>100</td> </tr> <tr> <td>Z(-55°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> <p style="text-align: right;">(at 120Hz)</p>	Rated voltage (V)	6.3	10	16	25	35	50	63	100	Z(-55°C)/Z(+20°C)	4	3	3	3	3	3	3	3		
Rated voltage (V)	6.3	10	16	25	35	50	63	100													
Z(-55°C)/Z(+20°C)	4	3	3	3	3	3	3	3													
Endurance	<p>The following specifications shall be satisfied when the capacitors are restored to 25 °C after subjected to DC voltage with the rated ripple current is applied for 6,000~12,000 hours at 105 °C</p> <table border="1"> <tr> <td>Capacitance change</td> <td>≅ ±25% of the initial value</td> <td>Size</td> <td>Life time (hours)</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≅ 200% of the specified value</td> <td>≅ 6. 3Φ</td> <td>6,000</td> </tr> <tr> <td>Leakage current</td> <td>≅ specified value</td> <td>8 Φ</td> <td>8,000</td> </tr> <tr> <td></td> <td></td> <td>10 Φ</td> <td>10,000</td> </tr> <tr> <td></td> <td></td> <td>≅ 12. 5Φ</td> <td>12,000</td> </tr> </table>	Capacitance change	≅ ±25% of the initial value	Size	Life time (hours)	Dissipation factor(tanδ)	≅ 200% of the specified value	≅ 6. 3Φ	6,000	Leakage current	≅ specified value	8 Φ	8,000			10 Φ	10,000			≅ 12. 5Φ	12,000
Capacitance change	≅ ±25% of the initial value	Size	Life time (hours)																		
Dissipation factor(tanδ)	≅ 200% of the specified value	≅ 6. 3Φ	6,000																		
Leakage current	≅ specified value	8 Φ	8,000																		
		10 Φ	10,000																		
		≅ 12. 5Φ	12,000																		
Shelf Life	<p>The following requirements shall be satisfied when the capacitor are restored to 25°C after exposing them for 1,000 hours at 105°C without voltage applied.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>≅ ±25% of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≅ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≅ 200% of the specified value</td> </tr> </table>	Capacitance change	≅ ±25% of the initial value	Dissipation factor(tanδ)	≅ 200% of the specified value	Leakage current	≅ 200% of the specified value														
Capacitance change	≅ ±25% of the initial value																				
Dissipation factor(tanδ)	≅ 200% of the specified value																				
Leakage current	≅ 200% of the specified value																				
Others	Conforms to JIS-C-5101-4 (1998), characteristic W																				

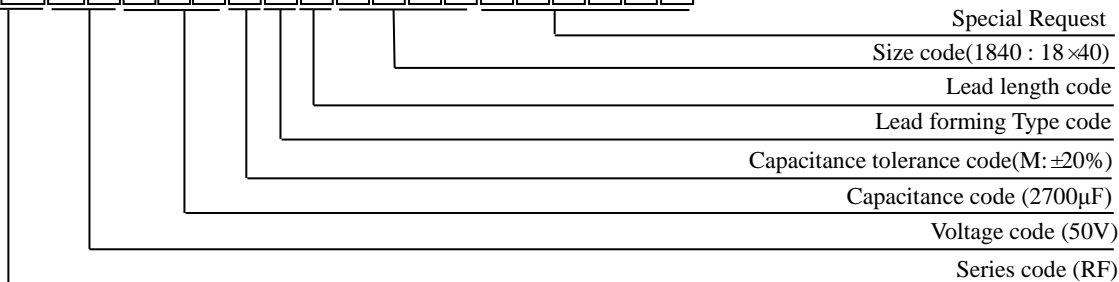
### ◆ DIMENSIONS (mm)



ΦD	5	6.3	8	10	12.5	16	18
ΦD	ΦD + 0.5 Max						
Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
a	L + 1.5 Max				≅ 35 L+1.5Max ≅ 40 L+2.0 Max	L + 1.5Max	

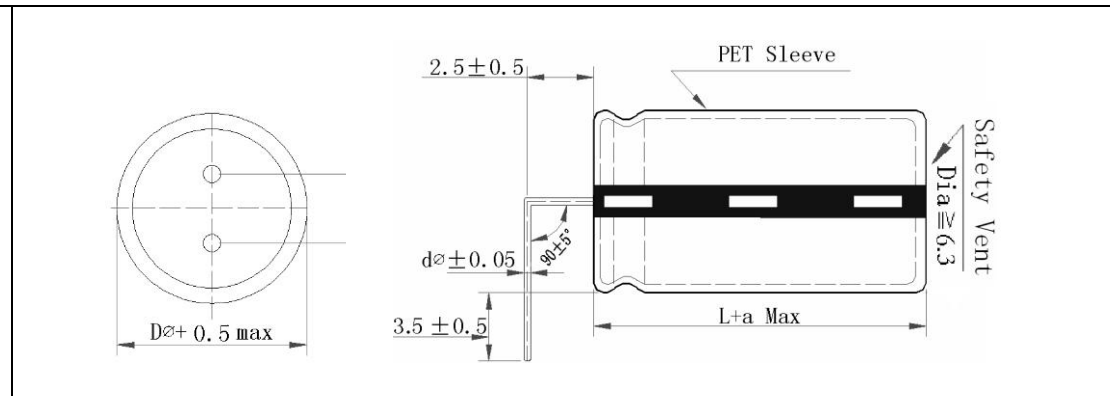
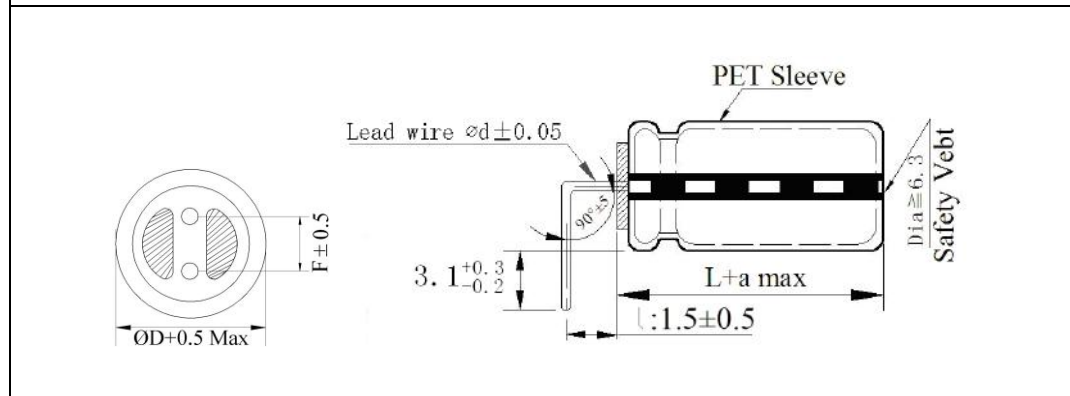
### ◆ PART NUMBER SYSTEM ( Example : 50V 2700µF )

R F I H 2 7 2 M N N 1 8 4 0



## Aluminum Electrolytic Capacitor

Customer	Digi-Key	SERIES	RF	NO.:	PUBLISH DATE	2022-03-25
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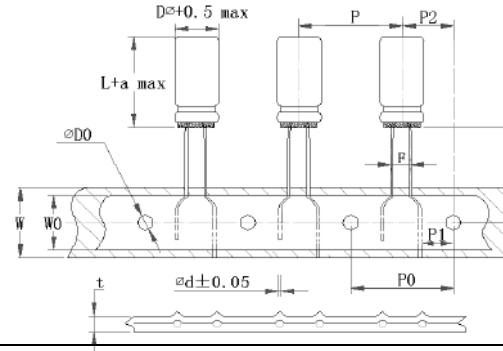
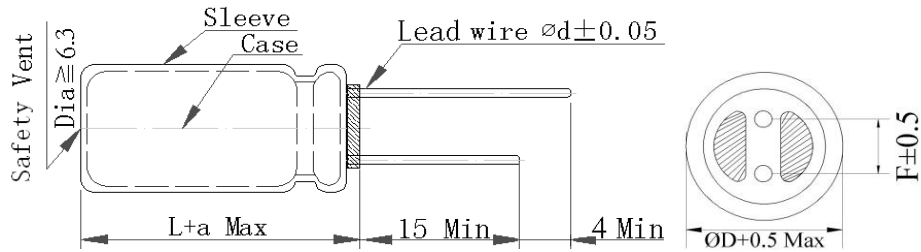
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @ 105°C 100kHz	ESR @ 25°C (mΩ max/ 120Hz)	Impedance @ 20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															D Φ	L	a	d	F	
1	RF1H220MRE0511U	/	22 μF	±20%	50 V	/	-55~+105	/	/	/	195	/	700	6000	5	11	/	/	2	FIG-1
2	RF2A330MS31016ER	/	33 μF	±20%	100 V	/	-55~+105	/	/	/	630	/	320	10000	10	16	/	/	5	FIG-2

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

REMARKS:	APPROVED BY	CHECKED BY	PREPARED BY
Sleeve Color: Brown. Suffix U indicates convex rubber cover.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

<b>Customer</b>	<b>Digi-Key</b>	<b>SERIES</b>	<b>RF</b>	<b>NO.:</b>	<b>PUBLISH DATE</b>	<b>2022-03-25</b>
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Unit (mm):

P=12.7±1.0

H=18.5±0.5

P0=12.7±0.2

P1=3.85±0.5

P2=6.35±1.0

W=18.0±0.5

F=2.5+0.8/-0.2

W0=12.5MIN

ΦD0=4.0±0.2

t=0.7±0.2

**Original**

**FIG-1**

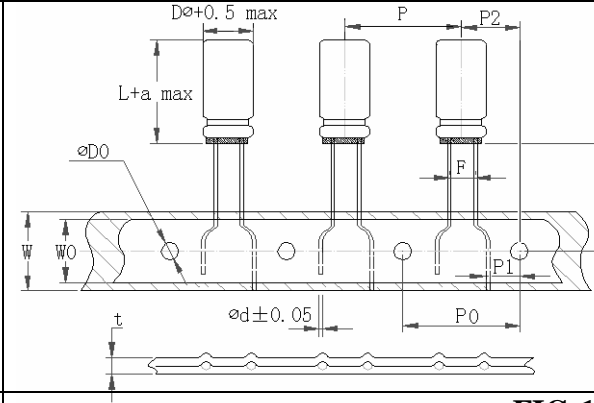
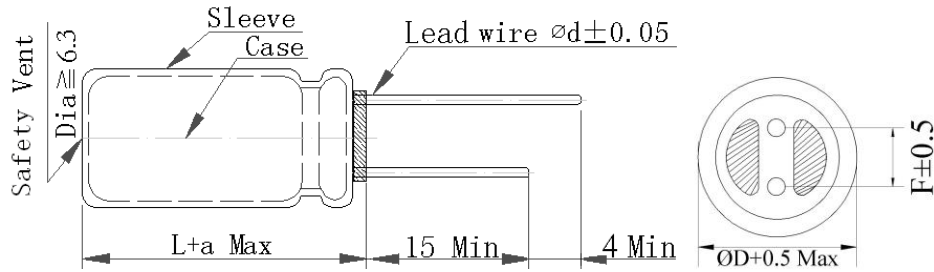
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @105°C 100kHz	ESR @25°C (mΩ max/ 120Hz)	Impedance @20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															D Φ	L	a	d	F	
1	RF2A8R2MP20511EU	/	8.2 μF	±20%	100 V	/	-55~+105	/	/	/	90	/	8000	6000	5	11	/	/	2.5	FIG-1
2	RF1V470MP20511EU	/	47 μF	±20%	35 V	/	-40~+105	/	/	/	345	/	220	6000	5	11	/	/	2.5	FIG-1

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

<b>REMARKS:</b>	<b>APPROVED BY</b>	<b>CHECKED BY</b>	<b>PREPARED BY</b>
Sleeve Color: Brown. Suffix U indicates convex rubber cover.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

<b>Customer</b>	<b>Digi-Key</b>	<b>SERIES</b>	<b>RF</b>	<b>NO.:</b>	<b>PUBLISH DATE</b>	<b>2022-03-25</b>
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Unit (mm):

P=12.7±1.0	H=18.5±0.5
P0=12.7±0.2	P1=3.85±0.5
P2=6.35±1.0	W=18.0±0.5
F=2.5+0.8/-0.2	W0=12.5MIN
ΦD0=4.0±0.2	Φd=0.5±0.05
t=0.7±0.2	

**Original**

**FIG-1**

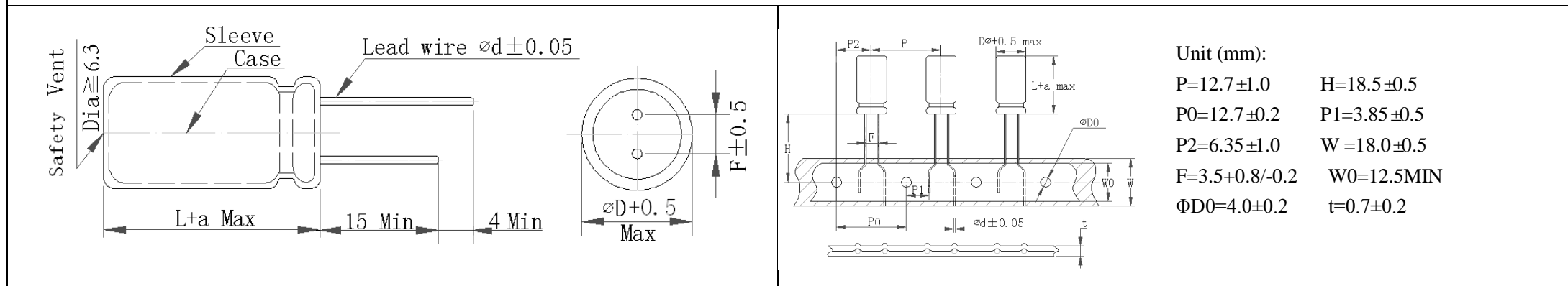
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @105°C 100kHz	ESR @25°C (mΩ max/ 120Hz)	Impedance @20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															D Φ	L	a	d	F	
1	RF1E151MP26311EF7U	/	150 μF	±20%	25 V	/	-40~+105	/	/	/	700	/	170	7000	6.3	11	/	/	2.5	FIG-1
2	RF1H470MP26311ERU	/	47 μF	±20%	50 V	/	-55~+105	/	/	/	450	/	380	6000	6.3	11	/	/	2.5	FIG-1

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

<b>REMARKS:</b>	<b>APPROVED BY</b>	<b>CHECKED BY</b>	<b>PREPARED BY</b>
Sleeve Color: Brown. Suffix U indicates convex rubber cover. Suffix F7 indicates the life of the capacitor is 7000 hrs.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

<b>Customer</b>	<b>Digi-Key</b>	<b>SERIES</b>	<b>RF</b>	<b>NO.:</b>	<b>PUBLISH DATE</b>	<b>2022-03-25</b>
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**Original** **FIG-1**

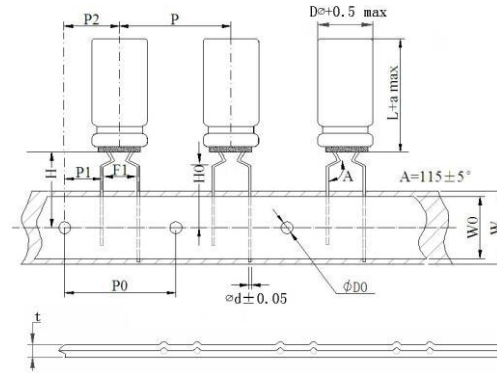
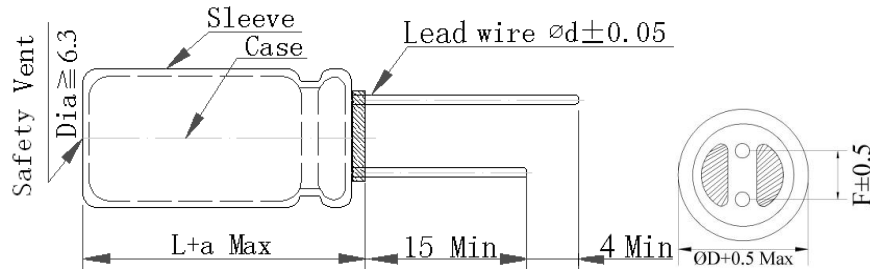
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @105°C 100kHz	ESR @25°C (mΩ max/ 120Hz)	Impedance @20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															D Φ	L	a	d	F	
1	RF1C681MP30815EF10	/	680 μF	±20%	16 V	/	-40~+105	/	/	/	1600	/	59	10000	8	15	/	/	3.5	FIG-1
2	RF1C471MP308B5E	/	470 μF	±20%	16 V	/	-40~+105	/	/	/	945	/	56	8000	8	11.5	/	/	3.5	FIG-1
3	RF1V391MP30820E	/	390 μF	±20%	35 V	/	-40~+105	/	/	1500	/	/	29	8000	8	20	/	/	3.5	FIG-1

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

<b>REMARKS:</b>	<b>APPROVED BY</b>	<b>CHECKED BY</b>	<b>PREPARED BY</b>
Sleeve Color: Brown. Suffix F10 indicates the life of the capacitor is 10000 hrs.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

Customer	Digi-Key	SERIES	RF	NO.:	PUBLISH DATE	2022-03-25
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Unit(mm):

P=12.7±1.0	H0=16.0±0.5
P0=12.7±0.2	W =18.0±0.5
P1=3.85±0.5	W0=12.5MIN
P2=6.35±1.0	ΦD0=4.0±0.2
F1=5.0+0.8/-0.2	H=18.5±0.5
t=0.7±0.2	

**Original**

**FIG-1**

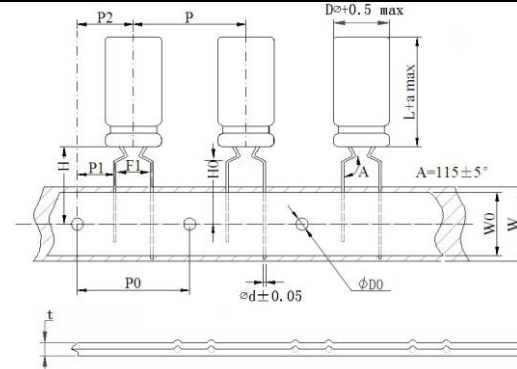
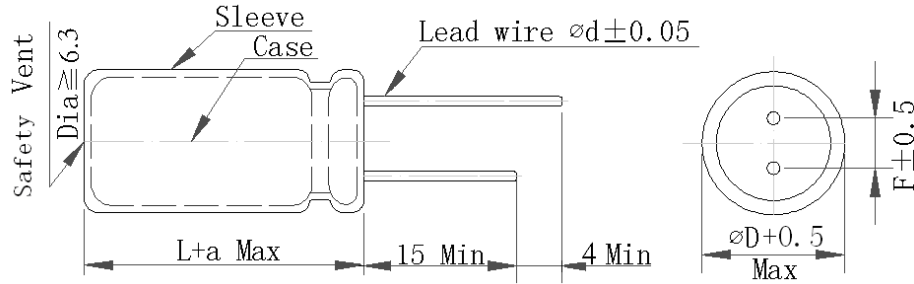
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @105°C 100kHz	ESR @25°C (mΩ max/ 120Hz)	Impedance @20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															DΦ	L	a	d	F1	
1	RF2A330MP508B5ERU	/	33 μF	±20%	100 V	/	-55~+105	/	/	/	724	/	700	8000	8	11.5	/	/	5	FIG-1

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

REMARKS:	APPROVED BY	CHECKED BY	PREPARED BY
Sleeve Color: Brown. Suffix U indicates convex rubber cover.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

Customer	Digi-Key	SERIES	RF	NO.:	PUBLISH DATE	2022-03-25
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Unit(mm):

P=12.7±1.0	H0=16.0±0.5
P0=12.7±0.2	W =18.0±0.5
P1=3.85±0.5	W0=12.5MIN
P2=6.35±1.0	ΦD0=4.0±0.2
F1=5.0+0.8/-0.2	H=18.5±0.5
t=0.7±0.2	

**Original**

**FIG-1**

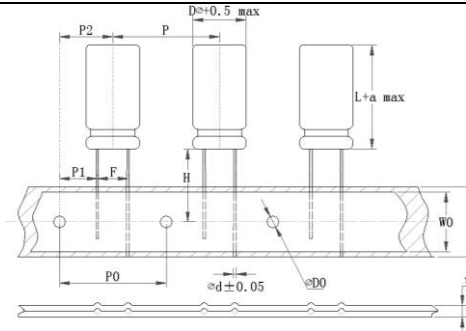
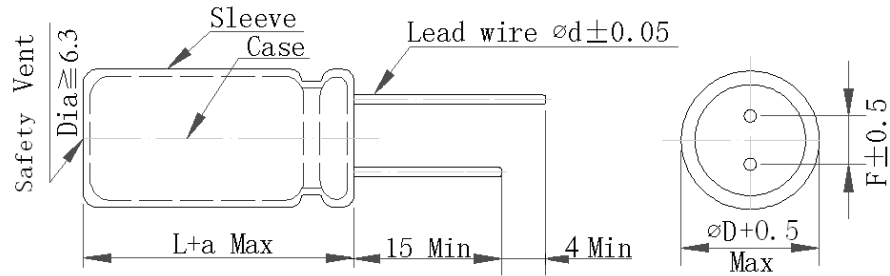
No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @105°C 100kHz	ESR @25°C (mΩ max/ 120Hz)	Impedance @20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															DΦ	L	a	d	F1	
1	RF1E331MP508B5E	/	330 μF	±20%	25 V	/	-40~+105	/	/	/	945	/	56	8000	8	11.5	/	/	5	FIG-1

※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

REMARKS:	APPROVED BY	CHECKED BY	PREPARED BY
Sleeve Color: Brown.	张洪斌	曾爱娥	梁慧妍

## Aluminum Electrolytic Capacitor

Customer	Digi-Key	SERIES	RF	NO.:	PUBLISH DATE	2022-03-25
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Unit(mm):

P=12.7±1.0 H=18.5±0.5  
P0=12.7±0.2 W=18.0±0.5  
P1=3.85±0.5 W0=12.5MIN  
P2=6.35±1.0 ΦD0=4.0±0.2  
F=5.0+0.8/-0.2 t=0.7±0.2

**Original**

**FIG-1**

No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @ 105°C 100kHz	ESR @ 25°C (mΩ max/ 120Hz)	Impedance @ 20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															DΦ	L	a	d	F	
1	RF1K470MNN0812	/	47 μF	±20%	80 V	/	-55~+105	/	/	620	/	/	290	8000	8	12	/	/	3.5	Original
2	RF1K221MNN1025E	/	220 μF	±20%	80 V	/	-55~+105	/	/	/	1620	/	55	10000	10	25	/	/	5	Original
3	RF1C102MP51016E	/	1000 μF	±20%	16 V	/	-40~+105	/	/	/	2000	/	23	10000	10	16	/	/	5	FIG-1
4	RF1C152MP51020ER	/	1500 μF	±20%	16 V	/	-40~+105	/	/	/	2180	/	20	10000	10	20	/	/	5	FIG-1
5	RF1C222MP51025E	/	2200 μF	±20%	16 V	/	-40~+105	/	/	2480	/	/	/	10000	10	25	/	/	5	FIG-1
6	RF1E102MP51020E	/	1000 μF	±20%	25 V	/	-40~+105	/	/	/	3000	/	28	10000	10	20	/	/	5	FIG-1
7	RF1V681MP51020E	/	680 μF	±20%	35 V	/	-40~+105	/	/	/	2500	/	28	10000	10	20	/	/	5	FIG-1
8	RF1H221MP51016E	/	220 μF	±20%	50 V	/	-55~+105	/	/	/	1370	/	60	10000	10	16	/	/	5	FIG-1
9	RF1K181MP51020	/	180 μF	±20%	80 V	/	-55~+105	/	/	/	1040	/	150	10000	10	20	/	/	5	FIG-1

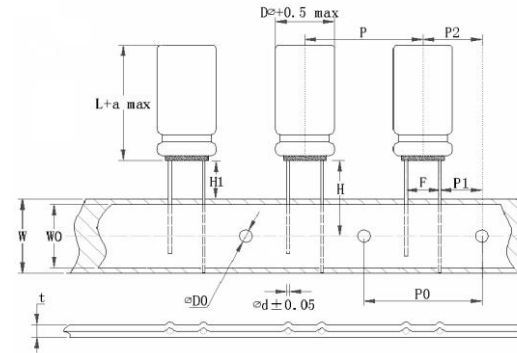
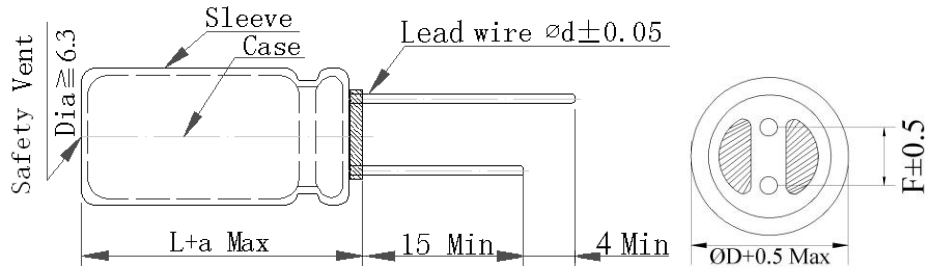
※Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

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Sleeve Color: Brown.	张洪斌	曾爱娥	梁慧妍



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Unit (mm):

P=12.7±1.0	H=18.5±0.5
P0=12.7±0.2	W=18.0±0.5
P1=3.85±0.5	W0=12.5MIN
P2=6.35±1.0	ΦD0=4.0±0.2
F=5.0+0.8/-0.2	t=0.7±0.2
H1=9.5±1.0	

**Original**

**FIG-1**

No.	CHINSAN Part No.	Customer Part No.	Capacitance (uF)	Tolerance On rated Capacitance (%)	Working Voltage (Vdc)	Surge Voltage (Vdc)	Category Temp Range (°C)	Tanδ @ 25°C (120Hz) (Max)	Leakage Current (uA) (2 min.)	Rated Ripple Current (mA rms) @ 105°C 120Hz	Rated Ripple Current (mA rms) @ 105°C 100kHz	ESR @ 25°C (mΩ max/ 120Hz)	Impedance @ 20°C (mΩ max/ 100kHz)	Endurance @ 105°C (Hours)	Dimensions (mm)					Appearance Drawing No
															DΦ	L	a	d	F	
1	RF1E471MP51012ERU	/	470 μF	±20%	25 V	/	-40~+105	/	/	/	1330	/	39	10000	10	12	/	/	5	FIG-1
2	RF1E681MP51016U	/	680 μF	±20%	25 V	/	-40~+105	/	/	/	1760	/	28	10000	10	16	/	/	5	FIG-1
3	RF1E821MP51016EU	/	820 μF	±20%	25 V	/	-40~+105	/	/	/	2150	/	40	10000	10	16	/	/	5	FIG-1
4	RF1V331MP51012EU	/	330 μF	±20%	35 V	/	-40~+105	/	/	/	1400	/	39	10000	10	12	/	/	5	FIG-1
5	RF1V471MP51016EU	/	470 μF	±20%	35 V	/	-40~+105	/	/	/	1760	/	30	10000	10	16	/	/	5	FIG-1
6	RF2A470MP51013EU	/	47 μF	±20%	100 V	/	-55~+105	/	/	/	730	/	180	10000	10	13	/	/	5	FIG-1

\*Test leakage current before testing dissipation factor and capacitance during the electric characteristic test.

REMARKS:	APPROVED BY	CHECKED BY	PREPARED BY
Sleeve Color: Brown. Suffix U indicates convex rubber cover.	张洪斌	曾爱娥	梁慧妍