

High ripple

Long life

Ripple  
 current

RoHS

- Rated voltage range up to 525Vdc
- Endurance with ripple current:5000hours at 105℃ (2000hours for 500vdc-525vdc)
- High ripple capability ROHS compliant
- Applicable to High voltage power distribution cabinet, security system,

Fujitsu Automatic Numerical Control

◆ SPECIFIC ATIONS

items	Characteristics						
Category temperature Range	-40~+105℃ (10-100VDC)、-25~+105℃ (160-525VDC)						
Rated voltage Range	10~525VDC						
Capacitance Tolerance	± 20% (M) <span style="float:right">at 20℃/120HZ</span>						
Leakage Current	I=0.02CV or 5mA, whichever is smaller I: Where, I : Max. leakage current (μA)、C: Nominal capacitance (μF)、Rated voltage (V) at 20℃after 5 minutes						
Dissipation Factor (tanδ)	See standard ratings(10to250vdc) 0.2max(350vdc~525vdc) <span style="float:right">at 20℃/120HZ</span>						
Low Temperature characteristics	Capacitance change C (-40℃) /C (+20℃) ≥0.6(10to100vdc) C (-25℃) /C (+20℃) ≥0.7(160to250vdc) C (-25℃) /C (+20℃) ≥0.65(350to525vdc) <span style="float:right">at 20℃/120HZ</span>						
Insulation Resistance	When measured between the terminals that are connected to each other and to the mounting damp on the insulating sleeve covering the case by using an insulation resistance meter of 500Vdc, the insulation resistance shall not be less than 100mΩ						
Insulation Withstanding Voltage	When a voltage of 2,000Vac is applied for 1 minute between the terminals that are connected to each other and to the mounting clamp on the insulating sleeve covering the case, there shall not be electrical damage. .						
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105℃. (2000hours for 500&525vdc products at 105℃)						
	<table border="1"> <tr> <td>Capacitance change</td> <td>≤±20% of the initial value</td> </tr> <tr> <td>D.F. (tanδ )</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance change	≤±20% of the initial value	D.F. (tanδ )	≤200% of the initial specified value	Leakage current	≤The initial specified value
Capacitance change	≤±20% of the initial value						
D.F. (tanδ )	≤200% of the initial specified value						
Leakage current	≤The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours at 105℃ 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 border="1"> <tr> <td>Capacitance change</td> <td>≤±20% of the initial value</td> </tr> <tr> <td>D.F. (tanδ )</td> <td>≤150% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance change	≤±20% of the initial value	D.F. (tanδ )	≤150% of the initial specified value	Leakage current	≤The initial specified value
Capacitance change	≤±20% of the initial value						
D.F. (tanδ )	≤150% of the initial specified value						
Leakage current	≤The initial specified value						

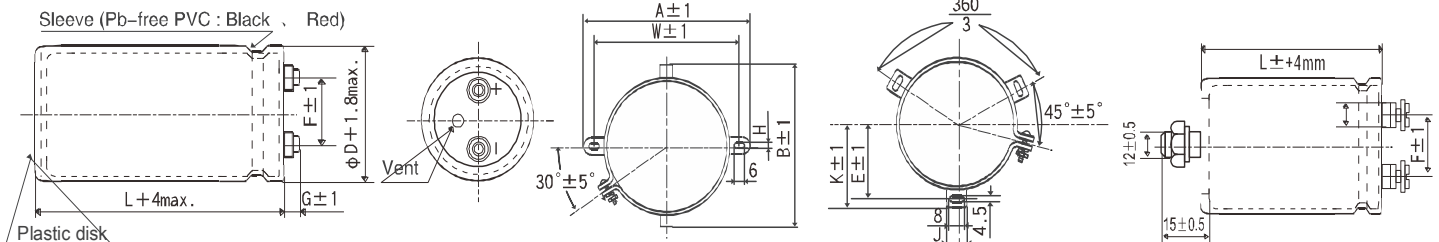
◆ DIMENSIONS[mm]

● Terminal Code : M5

● Mounting Clamp Code : B

● Mounting Clamp Code : C

● NO Mounting Clamp Code : N



Ø35~ Ø63.5: G=6

Ø76.2~ Ø89: G=5

Screw specifications

~ ~ Plus hexagon-headed screw M5\*0.8\*10 M6\*1.0\*10 Ø100

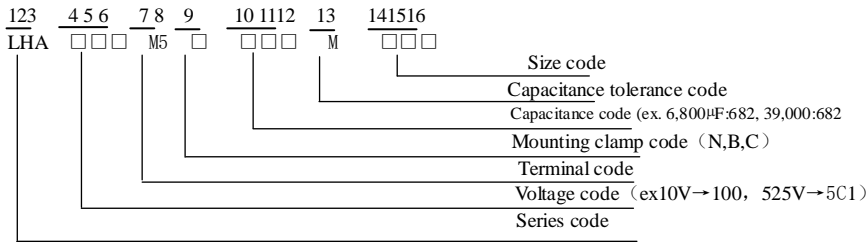
Maximum screw tightening torque 3.23N.m The screw and the mounting clamp are separately supplied and not attached to the product

ØD	A	B	W	H	F
35	58.0	44.0	48.0	3.5	12.7
50	78.0	64.0	68.0	4.5	22.4
63.5	90.0	76.0	80.0	4.5	28.0
76.2	104.5	90.0	93.5	4.5	31.5

ØD	E	K	F	J
50	32.5	37.0	14.0	22.4
63.5	38.1	43.5	28.0	14.0
76.2	44.5	50.0	31.5	14.0
89	50.8	56.5	31.5	16.0
100	56.5	63.4	41.5	18.0



◆PART NUMBERING SYSTEM



Please refer to "Product code guide (screw-mount terminal type)"

SRANDRAD RATINGS

W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current(A ms/105°C, 120HZ)	Part NO.	W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current(A ms/105°C, 120HZ)	Part NO.
10	27000	35*80	0.45	4.3	LHA100M5B273TA80	25	22000	35*80	0.35	4.5	LHA250M5B223TA80
	33000	35*80	0.45	4.7	LHA100M5B333TA80		27000	35*100	0.4	5.0	LHA250M5B273TAA0
	39000	35*80	0.45	5.3	LHA100M5B393TA80		33000	35*120	0.4	5.9	LHA250M5B333TACO
	47000	35*100	0.45	6.1	LHA100M5B473TAA0		39000	50*80	0.4	6.5	LHA250M5C393TC80
	56000	35*100	0.5	6.2	LHA100M5B563TAA0		47000	50*100	0.4	7.9	LHA250M5C473TCA0
	68000	35*120	0.6	6.8	LHA100M5B683TACO		56000	50*120	0.4	8.8	LHA250M5C563TCC0
	82000	50*80	0.6	7.8	LHA100M5C823TC80		68000	50*120	0.5	9.1	LHA250M5C683TCC0
	100000	50*100	0.7	8.5	LHA100M5C104TCA0		82000	63.5*100	0.5	10.6	LHA250M5C823TDA0
	120000	50*100	0.7	9.5	LHA100M5C124TCA0		100000	63.5*120	0.6	11.4	LHA250M5C104TDC0
	150000	63.5*100	0.8	11.0	LHA100M5C154TDA0		120000	76.2*100	0.6	12.8	LHA250M5C124TEA0
	180000	63.5*100	0.8	12.1	LHA100M5C184TDA0		150000	76.2*120	0.75	13.7	LHA250M5C154TECO
	220000	76.2*100	1.0	13.2	LHA100M5C224TEA0		180000	76.2*140	0.75	16.1	LHA250M5C184TEEO
	270000	76.2*120	1.2	14.4	LHA100M5C274TECO		220000	89*140	1.0	16.6	LHA250M5C224TFEO
	330000	76.2*140	1.2	17.0	LHA100M5C334TEEO		35	8200	35*80	0.3	3.0
390000	89*140	1.4	18.6	LHA100M5C394TFEO	10000	35*80		0.3	3.3	LHA350M5B103TA80	
16	15000	35*50	0.45	2.9	LHA160M5B153TA50	12000		35*80	0.3	3.6	LHA350M5B123TA80
	18000	35*80	0.45	3.5	LHA160M5B183TA80	15000		35*80	0.3	4.1	LHA350M5B153TA80
	22000	35*80	0.45	3.9	LHA160M5B223TA80	18000		35*100	0.3	4.8	LHA350M5B183TAA0
	27000	35*80	0.45	4.3	LHA160M5B273TA80	22000		35*120	0.35	5.2	LHA350M5B223TACO
	33000	35*100	0.5	4.8	LHA160M5B333TAA0	27000		50*80	0.4	5.9	LHA350M5C273TC80
	39000	35*100	0.5	5.3	LHA160M5B393TAA0	33000		50*100	0.4	6.6	LHA350M5C333TCA0
	47000	35*120	0.5	6.2	LHA160M5B473TACO	39000		50*120	0.4	7.8	LHA350M5C393TCC0
	56000	50*80	0.6	6.3	LHA160M5C563TC80	47000		50*120	0.45	8.0	LHA350M5C473TCC0
	68000	50*100	0.6	7.6	LHA160M5C683TCA0	56000		63.5*100	0.45	9.2	LHA350M5C563TDA0
	82000	50*120	0.7	8.3	LHA160M5C823TCC0	68000		63.5*120	0.45	11.0	LHA350M5C683TDC0
	100000	50*120	0.7	9.2	LHA160M5C104TCC0	82000		76.2*120	0.5	12.7	LHA350M5C823TECO
	120000	63.5*100	0.8	9.9	LHA160M5C124TDA0	100000		76.2*140	0.6	13.5	LHA350M5C104TEEO
	150000	76.2*100	0.8	12.3	LHA160M5C154TEA0	120000	89*140	0.6	16.1	LHA350M5C124TFEO	
	180000	76.2*120	0.8	14.5	LHA160M5C184TECO	50	3900	35*50	0.2	2.0	LHA500M5B392TA50
220000	76.2*140	1.0	15.2	LHA160M5C224TEEO	4700		35*50	0.25	2.2	LHA500M5B472TA50	
270000	89*140	1.2	16.8	LHA160M5C274TFEO	5600		35*80	0.25	2.8	LHA500M5B562TA80	
25	12000	35*80	0.35	3.3	LHA250M5B123TA80		6800	35*80	0.25	3.0	LHA500M5B682TA80
	15000	35*80	0.35	3.7	LHA250M5B153TA80		8200	35*80	0.25	3.3	LHA500M5B822TA80
	18000	35*80	0.35	4.0	LHA250M5B183TA80		10000	35*80	0.25	3.7	LHA500M5B103TA80



**OART NUMBERING SYSTEM**

W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.	W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.
50	12000	35*100	0.25	4.4	LHA500M5B123TAA0	80	18000	63.5*120	0.25	8.0	LHA800M5C183TDC0
	15000	35*120	0.3	4.7	LHA500M5B153TACO		22000	76.2*100	0.25	9.1	LHA800M5C223TEA0
	18000	50*80	0.35	4.8	LHA500M5C183TC80		27000	76.2*120	0.3	9.7	LHA800M5C273TECO
	22000	50*100	0.35	5.9	LHA500M5C223TCA0		33000	76.2*140	0.3	11.5	LHA800M5C333TEEO
	27000	50*120	0.35	7.0	LHA500M5C273TCC0		39000	89*140	0.35	12.5	LHA800M5C393TFEO
	33000	63.5*100	0.4	7.6	LHA500M5C333TDA0		100	1200	35*50	0.15	1.4
	39000	63.5*120	0.4	8.9	LHA500M5C393TDC0	1500		35*80	0.15	1.6	LHA101M5B152TA80
	47000	63.5*120	0.4	9.8	LHA500M5C473TDC0	1800		35*80	0.15	1.8	LHA101M5B182TA80
	56000	76.2*120	0.4	11.9	LHA500M5C563TECO	2200		35*80	0.15	2.0	LHA101M5B222TA80
	68000	76.2*140	0.45	13.1	LHA500M5C683TEEO	2700		35*50	0.15	2.4	LHA101M5B272TA80
	82000	89*140	0.5	14.8	LHA500M5C823TFEO	3300		35*100	0.15	2.8	LHA101M5B332TAA0
63	2700	35*50	0.15	1.9	LHA630M5B272TA50	3900		35*120	0.15	3.1	LHA101M5B392TACO
	3300	35*50	0.15	2.1	LHA630M5B332TA50	4700		50*80	0.15	3.6	LHA101M5C472TC80
	3900	35*80	0.2	2.7	LHA630M5B392TA80	5600		50*100	0.15	4.3	LHA101M5C562TCA0
	4700	35*80	0.2	2.9	LHA630M5B472TA80	6800		50*120	0.15	5.0	LHA101M5C682TCC0
	5600	35*80	0.2	3.2	LHA630M5B562TA80	8200		50*120	0.15	5.5	LHA101M5C822TCC0
	6800	35*80	0.2	3.5	LHA630M5B682TA80	10000		63.5*100	0.15	6.4	LHA101M5C103TDA0
	8200	35*100	0.2	4.2	LHA630M5B822TAA0	12000		63.5*120	0.2	6.6	LHA101M5C123TDC0
	10000	35*120	0.25	4.3	LHA630M5B103TACO	15000		76.2*100	0.2	7.5	LHA101M5C153TEA0
	12000	50*80	0.25	4.8	LHA630M5C123TC80	18000		76.2*120	0.25	8.0	LHA101M5C183TECO
	15000	50*100	0.25	5.9	LHA630M5C153TCA0	22000	76.2*140	0.25	9.4	LHA101M5C223TEEO	
	18000	50*120	0.25	6.3	LHA630M5C183TCC0	27000	89*140	0.3	10.4	LHA101M5C273TFEO	
	22000	50*120	0.3	6.7	LHA630M5C223TCC0	160	680	35*50	0.15	1.1	LHA161M5B681TA50
	27000	63.5*120	0.3	8.8	LHA630M5C273TDC0		820	35*80	0.15	1.2	LHA161M5B821TA80
	33000	76.2*100	0.3	10.0	LHA630M5C333TEA0		1000	35*80	0.15	1.3	LHA161M5B102TA80
	39000	76.2*120	0.35	10.7	LHA630M5C393TECO		1200	35*80	0.15	1.5	LHA161M5B122TA80
47000	76.2*140	0.35	12.5	LHA630M5C473TEEO	1500		35*80	0.15	1.7	LHA161M5B152TA80	
56000	89*140	0.4	13.8	LHA630M5C563TFEO	1800		35*100	0.15	2.0	LHA161M5B182TAA0	
80	2200	35*50	0.15	1.9	LHA800M5B222TA50		2200	35*120	0.15	2.3	LHA161M5B222TACO
	2700	35*80	0.15	2.2	LHA800M5B272TA80		2700	35*120	0.15	2.7	LHA161M5B272TACO
	3300	30*80	0.15	2.5	LHA800M5B332TA80		3300	50*100	0.15	3.3	LHA161M5C332TCA0
	3900	35*80	0.15	2.9	LHA800M5B392TA80		3900	50*120	0.15	3.8	LHA161M5C392TCC0
	4700	35*100	0.15	3.1	LHA800M5B472TAA0		4700	50*120	0.15	4.2	LHA161M5C472TCC0
	5600	35*100	0.15	3.5	LHA800M5B562TAA0		5600	50*120	0.15	4.7	LHA161M5C562TCC0
	6800	35*120	0.2	4.1	LHA800M5B682TACO		6800	63.5*120	0.15	5.7	LHA161M5C682TDC0
	8200	50*80	0.2	4.8	LHA800M5C822TC80		8200	76.2*100	0.2	6.4	LHA161M5C822TEA0
	10000	50*100	0.2	5.6	LHA800M5C103TCA0		10000	76.2*120	0.2	6.6	LHA161M5C103TECO
	12000	50*100	0.2	6.1	LHA800M5C123TCA0	12000	76.2*140	0.2	7.8	LHA161M5C123TEEO	
	15000	50*120	0.2	7.4	LHA800M5C153TCC0	15000	89*140	0.2	9.5	LHA161M5C153TFEO	



**OART NUMBERING SYSTEM**

W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.	W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.
200	470	35*50	0.15	0.9	LHA201M5B471TA50	350	6800	76.2*125	0.2	16.8	LHA351M5C682MEC5
	560	35*80	0.15	1.0	LHA201M5B561TA80		8200	76.2*145	0.2	19.6	LHA351M5C822MEE5
	680	35*80	0.15	1.1	LHA201M5B681TA80		8200	89*125	0.2	18.9	LHA351M5C822MFC5
	820	35*80	0.15	1.3	LHA201M5B821TA80		10000	76.2*190	0.2	23.0	LHA351M5C103MEK0
	1000	35*100	0.15	1.5	LHA201M5B102TAA0		10000	89*145	0.2	22.2	LHA351M5C103MFE5
	1200	35*120	0.15	1.7	LHA201M5B122TACO		15000	89*190	0.2	30.6	LHA351M5C153MFK0
	1500	35*120	0.15	1.9	LHA201M5B152TACO		22000	89*270	0.2	43.5	LHA351M5C223MFT0
	1800	50*80	0.15	2.2	LHA201M5C182TC80		400	680	50*60	0.2	3.0
	2200	50*100	0.15	2.7	LHA201M5C222TCA0	1200		50*85	0.2	4.7	LHA401M5C122MC85
	2700	50*120	0.15	3.2	LHA201M5C272TCC0	1800		50*105	0.2	6.3	LHA401M5C182MCA5
	3300	50*120	0.15	3.5	LHA201M5C332TCC0	2200		50*125	0.2	7.5	LHA401M5C222MCC5
	3900	63.5*100	0.15	4.0	LHA201M5C392TDA0	2200		63.5*85	0.2	7.3	LHA401M5C222MD85
	4700	63.5*120	0.15	4.7	LHA201M5C472TDC0	2700		50*145	0.2	8.9	LHA401M5C272MCE5
	5600	76.2*100	0.15	5.3	LHA201M5C562TEA0	2700		63.5*105	0.2	8.8	LHA401M5C272MDA5
	6800	76.2*120	0.15	6.3	LHA201M5C682TECO	3300		63.5*125	0.2	10.5	LHA401M5C332MDC5
	8200	76.2*140	0.2	6.4	LHA201M5C822TEE0	3300		76.2*85	0.2	9.9	LHA401M5C332ME85
10000	89*140	0.2	7.7	LHA201M5C103TFE0	4700	63.5*145		0.2	13.4	LHA401M5C472MDE5	
250	330	35*50	0.15	0.7	LHA251M5B331TA50	4700		76.2*125	0.2	13.9	LHA401M5C472MEC5
	390	35*80	0.15	0.8	LHA251M5B391TA80	6800		76.2*145	0.2	17.9	LHA401M5C682MEE5
	470	35*80	0.15	0.9	LHA251M5B471TA80	6800		89*125	0.2	17.2	LHA401M5C682MFC5
	560	35*80	0.15	1.0	LHA251M5B561TA80	8200		76.2*190	0.2	20.8	LHA401M5C822MEK0
	680	35*100	0.15	1.2	LHA251M5B681TAA0	8200		89*145	0.2	20.1	LHA401M5C822MFE5
	820	35*100	0.15	1.4	LHA251M5B821TAA0	12000		89*190	0.2	27.4	LHA401M5C123MFK0
	1000	35*120	0.15	1.6	LHA251M5B102TACO	18000	89*270	0.2	39.4	LHA401M5C183MFT0	
	1200	50*80	0.15	1.8	LHA251M5C122TC80	450	560	50*60	0.2	2.6	LHA451M5C561MC60
	1500	50*100	0.15	2.2	LHA251M5C152TCA0		1000	50*85	0.2	4.0	LHA451M5C102MC85
	2200	50*120	0.15	2.8	LHA251M5C222TCC0		1200	50*105	0.2	4.8	LHA451M5C122MCA5
	2700	63.5*100	0.15	3.3	LHA251M5C272TDA0		1800	50*125	0.2	6.4	LHA451M5C182MCC5
	3300	63.5*120	0.15	4.0	LHA251M5C332TDC0		1800	63.5*85	0.2	6.2	LHA451M5C182MD85
	3900	76.2*100	0.15	4.4	LHA251M5C392TEA0		2200	50*145	0.2	7.6	LHA451M5C222MCE5
	4700	76.2*120	0.15	5.2	LHA251M5C472TECO		2200	63.5*105	0.2	7.5	LHA451M5C222MDA5
	5600	76.2*140	0.15	6.1	LHA251M5C562TEE0		2700	63.5*125	0.2	8.9	LHA451M5C272MDC5
	6800	89*140	0.15	7.4	LHA251M5C682TFE0		2700	76.2*85	0.2	8.4	LHA451M5C272ME85
350	820	50*60	0.2	3.3	LHA351M5C821MC60		3300	63.5*145	0.2	10.6	LHA451M5C332MDE5
	1500	50*85	0.2	5.2	LHA351M5C152MC85		3300	76.2*105	0.2	10.2	LHA451M5C332MEA5
	2200	50*105	0.2	7.0	LHA351M5C222MCA5		3900	76.2*125	0.2	11.9	LHA451M5C392MEC5
	2700	50*125	0.2	8.4	LHA351M5C272MCC5		4700	76.2*145	0.2	11.9	LHA451M5C472MEB5
	2700	63.5*85	0.2	8.1	LHA351M5C272MD85		5600	89*125	0.2	14.2	LHA451M5C562MFC5
	3300	50*145	0.2	9.9	LHA351M5C332MCE5		6800	76.2*190	0.2	17.3	LHA451M5C682MEK0
	3300	63.5*105	0.2	9.8	LHA351M5C332MDA5		6800	89*145	0.2	16.7	LHA451M5C682MFE5
	3900	63.5*125	0.2	11.5	LHA351M5C392MDC5	10000	89*190	0.2	22.8	LHA451M5C103MFK0	
	3900	76.2*85	0.2	10.8	LHA351M5C392ME85	15000	89*270	0.2	32.8	LHA451M5C153MFT0	
	5600	63.5*145	0.2	14.7	LHA351M5C562MDE5	500	470	50*60	0.2	2.4	LHA501M5C471MC60

## PART NUMBERING SYSTEM

W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.	W. V [Vdc]	cap [μ F]	Case size D x L [mm]	tanδ 120HZ, 20 °C	Rated ripple current (A ms/105°C, 120HZ)	Part NO.
500	820	50*85	0.2	3.6	LHA501M5C821MC85	525	390	50*60	0.2	2.2	LHA5C1M5C391MC60
	1000	50*105	0.2	4.4	LHA501M5C102MCA5		680	50*85	0.2	3.3	LHA5C1M5C681MC85
	1200	50*125	0.2	5.2	LHA501M5C122MCC5		1000	50*125	0.2	4.8	LHA5C1M5C102MCC5
	1200	63.5*85	0.2	5.0	LHA501M5C122MD85		1500	63.5*105	0.2	6.2	LHA5C1M5C152MDA5
	1500	50*145	0.2	6.3	LHA501M5C152MCE5		1800	63.5*125	0.2	7.3	LHA5C1M5C182MDC5
	1800	63.5*105	0.2	6.8	LHA501M5C182MDA5		2200	63.5*145	0.2	8.6	LHA5C1M5C222MDE5
	2700	63.5*145	0.2	9.6	LHA501M5C272MDE5		2200	76.2*105	0.2	8.3	LHA5C1M5C222MEA5
	2700	76.2*105	0.2	9.2	LHA501M5C272MEA5		2700	76.2*125	0.2	9.9	LHA5C1M5C272MEC5
	3900	76.2*145	0.2	12.7	LHA501M5C392MEE5		3300	76.2*145	0.2	11.7	LHA5C1M5C332MEE5
	3900	89*125	0.2	11.9	LHA501M5C392MFC5		4700	76.2*190	0.2	14.4	LHA5C1M5C472MEK0
	6800	89*190	0.2	18.8	LHA501M5C682MFK0		4700	89*145	0.2	13.9	LHA5C1M5C472MFE5
	10000	89*270	0.2	26.8	LHA501M5C103MFT0		5600	89*190	0.2	17.1	LHA5C1M5C562MFK0

## ◆ RTED RIPPLE CURRENT MULTIPLIERS

The ripple frequency and standard list of the specified value is not at the same time, please use the value is less than the following

## ● Frequency Multiplier

Frequency (HZ)	50	120	300	1K	3K	10K	50K
10~50VDC	0.95	1.00	1.03	1.05	-	1.09	1.12
63~80VDC	0.90	1.00	1.06	1.10	-	1.18	1.22
100~250VDC	0.80	1.00	1.12	1.22	-	1.30	1.33
350~525VDC	0.80	1.00	1.20	1.50	1.60	-	-

Note : The endurance of capacitors is shorted with internal heating produced by ripple current at the rate of halving the lifetime with every 5 to 10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced. Also, for the LWS series capacitors, using them at operating voltage less than their rated voltage can extend their lifetime. For the details, please contact representative of capsun