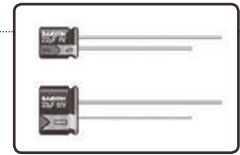




FEATURES

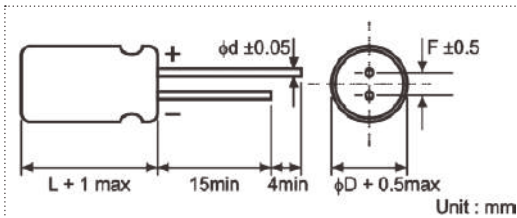
- Super miniature, 5mmL, high temperature, suitable for use in electronic circuit of high density assembly of video recorder, remote controller, VCD etc.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Rated Working Voltage Range	4 to 50V							
Nominal Capacitance Range	3.3 to 330μF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.01CV or 3 (μA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	4	6.3	10	16	25	35	50
	tan δ (max.)	0.37	0.28	0.24	0.20	0.16	0.13	0.12
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	4	6.3	10	16	25	35	50
	Z-25°C / Z+20°C	6	3	3	2	2	2	2
	Z-40°C / Z+20°C	12	8	5	4	3	3	3
High Temperature Loading	Test time	: 1,000 hours			Post test requirements at +20°C			
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value			
	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value (4V: within ±30%)			
					tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current	: ≤ Initial specified value						
	Cap. change	: within ±20% of the initial measured value (4V: within ±30%)						
	tan δ	: ≤ 200% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



Φ D	4	5	6.3	8
F	1.5	2.0	2.5	2.5
Φ d	0.45			

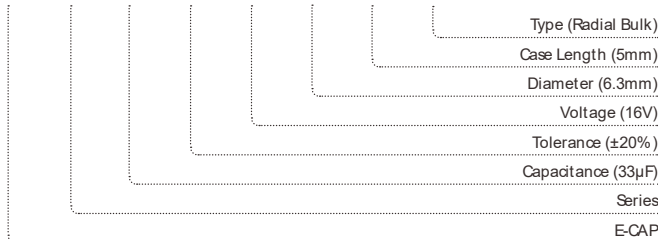
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	10k~
Cap (μF) ≤47	0.75	1.00	1.35	1.57	2.00
68~330	0.80	1.00	1.23	1.34	1.50

PART NUMBER SYSTEM (EXAMPLE : 16V 33μF)

1	23	456	7	89	10	1112	1314
E	KF	336	M	1C	E	05	RR



STANDARD RATINGS

Voltage (Code)		4V (0G)		6.3V (0J)		10V (1A)		16V (1C)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
10	106							4 x 5	18
22	226	4 x 5	22	4 x 5	22	4 x 5	24	5 x 5	30
33	336	5 x 5	30	5 x 5	30	5 x 5	35	6.3 x 5	40
47	476	5 x 5	36	5 x 5	36	6.3 x 5	46	6.3 x 5	50
100	107	6.3 x 5	60	6.3 x 5	60	6.3 x 5	67	6.3 x 5	73
220	227			8 x 5	103	8 x 5	116	8 x 5	126
330	337			8 x 5	127				

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		25V (1E)		35V (1V)		50V (1H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
3.3	335			4 x 5	11	4 x 5	14
4.7	475	4 x 5	13	4 x 5	15	5 x 5	19
10	106	4 x 5	20	5 x 5	25	6.3 x 5	30
22	226	6.3 x 5	38	6.3 x 5	48	8 x 5	52
33	336	6.3 x 5	48	6.3 x 5	59	8 x 5	63
47	476	6.3 x 5	58	8 x 5	82		
100	107	8 x 5	97				

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

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FEATURES

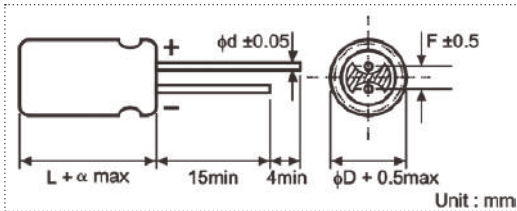
- Rated working voltage range 6.3 to 50V DC operation temperature range -40 to +105°C.
- This series is for communication equipments, switching power supply, industrial measuring instruments, automotive electric products, etc.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Rated Working Voltage Range	6.3 to 50V							
Nominal Capacitance Range	3.3 to 330μF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.01CV or 3 (μA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	
	tan δ (max.)	0.24	0.21	0.18	0.15	0.13	0.12	
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	6.3	10	16	25	35	50	
	Z-25°C / Z+20°C	4	2	2	2	2	2	
	Z-40°C / Z+20°C	8	5	4	3	3	3	
High Temperature Loading	Test time	: 1,000 hours			Post test requirements at +20°C			
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value			
	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value			
					tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current	: ≤ Initial specified value						
	Cap. change	: within ±20% of the initial measured value						
	tan δ	: ≤ 200% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



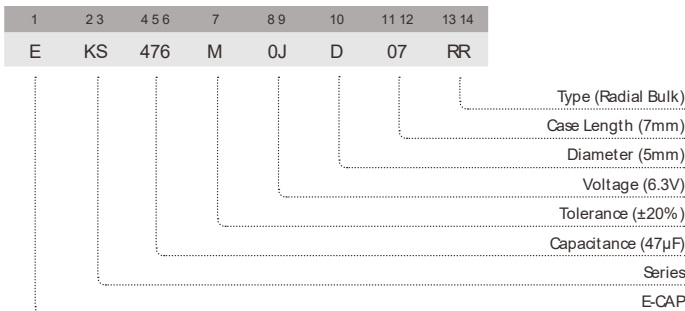
ΦD	4	5	6.3	8
F	1.5	2.0	2.5	3.5
Φd	0.45			
α	(L ≤ 7) 1		(L ≥ 9) 1.5	

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (μF)	50	120	300	1k	10k~
Freq. (Hz)	≤47	0.75	1.00	1.35	1.57	2.00
	68~220	0.80	1.00	1.23	1.34	1.50

PART NUMBER SYSTEM (EXAMPLE : 6.3V 47μF)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
10	106					4 x 7	29	4 x 7	29
22	226	4 x 7	34	4 x 7	34	4 x 7	38	5 x 7	45
33	336	4 x 7	37	4 x 7	40	5 x 7	50	5 x 7	55
47	476	4 x 7	44	5 x 7	50	5 x 7	60	6.3 x 7	67
100	107	5 x 7	67	5 x 7	72	6.3 x 7	92	6.3 x 7	97
				6.3 x 7	83	8 x 7	106	8 x 7	113
220	227	6.3 x 7	112	8 x 7	140	8 x 9	174		
330	337	8 x 7	158						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
3.3	335			4 x 7	24
4.7	475	4 x 7	24	5 x 7	29
10	106	5 x 7	36	5 x 7	38
				6.3 x 7	44
22	226	6.3 x 7	57	8 x 7	65
33	336	6.3 x 7	62		
47	476	6.3 x 7	74		
100	107	8 x 9	65		

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

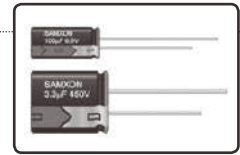
Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

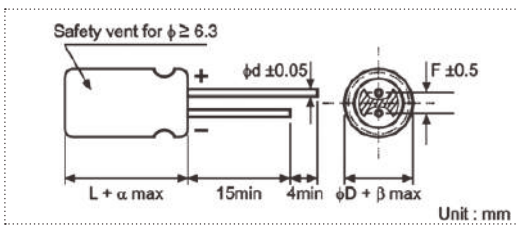
- High CV value, guarantee 2,000 hours load life at 85°C.
- Suitable for use in electronic circuits in colour TV receiver, video recorder etc.



SPECIFICATIONS

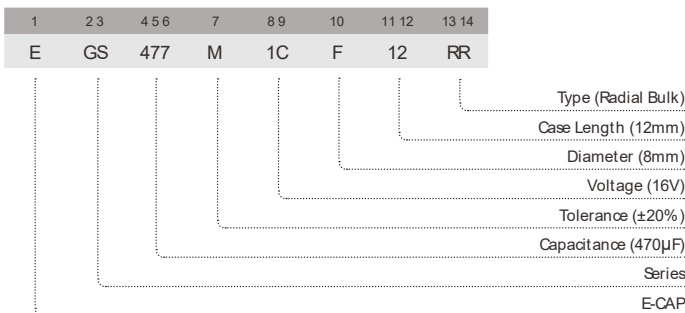
Item	Performance Characteristics	
Operating Temperature Range	-40 to +85°C	-25 to +85°C
Rated Working Voltage Range	6.3 to 100V	160 to 450V
Nominal Capacitance Range	2.2 to 22000µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3 10 16 25 35 50 63 100
	tan δ (max.)	0.28 0.24 0.20 0.16 0.14 0.12 0.10 0.08
	Working Voltage (V)	160 200 250 350 400 450
	tan δ (max.)	0.20 0.20 0.20 0.25 0.25 0.25
Low Temperature Characteristics	For capacitance value >1000µF, add 0.02 per another 1000µF	
	Impedance ratio max. at 120Hz	
	Working Voltage (V)	6.3 10 16 25 35 50 63 100
	Z-25°C / Z+20°C	5 4 3 2 2 2 2 2
	Z-40°C / Z+20°C	12 10 8 5 4 3 3 3
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C
	Test temperature : +85°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current : ≤ Initial specified value	
	Cap. change : within ±20% of the initial measured value	
	tan δ : ≤ 200% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

CASE SIZE TABLE



Φ D	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18	22	25
F	3.5	3.5	5.0	5.0	7.5	7.5	10.0	12.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0
α	(L < 20) 1.5				(L ≥ 20) 2.0			
β	(D < 20) 0.5				(D ≥ 20) 1.0			

PART NUMBER SYSTEM (EXAMPLE : 16V 470µF)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
220	227							8 x 12	370
330	337							8 x 12	453
470	477					8 x 12	499	10 x 12.5	628
680	687	8 x 12	503	8 x 12	546	10 x 12.5	690	10 x 16	826
1000	108	8 x 12	610	10 x 12.5	791	10 x 16	928	10 x 20	1094
1500	158	10 x 12.5	780	10 x 16	875	10 x 20	1025	12.5 x 20	1210
2200	228	10 x 16	890	10 x 20	1226	12.5 x 20	1555	12.5 x 25	1800
3300	338	10 x 20	1350	12.5 x 20	1685	12.5 x 25	1990	16 x 25	2304
4700	478	12.5 x 20	1822	12.5 x 25	2103	16 x 25	2487	16 x 30	2854
6800	688	12.5 x 25	1930	16 x 25	2606	16 x 30	3010	16 x 40	3528
								18 x 35	3546
10000	109	16 x 25	2760	16 x 30	2960	16 x 35	3490		
15000	159	16 x 35	2860	16 x 40	3100				
22000	229	18 x 40	3400						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
33	336							8 x 12	187
47	476							10 x 12.5	259
68	686					8 x 12	220	10 x 16	290
100	107			8 x 12	306	8 x 12	321	10 x 20	453
220	227	8 x 12	405	10 x 12.5	506	10 x 16	615	12.5 x 20	742
330	337	10 x 12.5	576	10 x 16	706	10 x 20	823	12.5 x 25	987
470	477	10 x 16	753	10 x 20	811	12.5 x 20	1153	16 x 25	1394
680	687	10 x 20	988	12.5 x 20	988	12.5 x 25	1512	16 x 30	1400
1000	108	12.5 x 20	1407	12.5 x 25	1715	16 x 25	2037	18 x 35	1995
2200	228	16 x 25	2134	16 x 30	2320	18 x 35	2300		
3300	338	16 x 30	2338	18 x 35	3218	18 x 40	2500		
4700	478	18 x 35	3400	18 x 40	3336				
5600	568	18 x 40	3411						
6800	688	18 x 40	3500						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
3.3	335							8 x 12	56
4.7	475							10 x 12.5	77
10	106	8 x 12	82	8 x 12	90	10 x 12.5	113	10 x 16	120
22	226	10 x 16	150	10 x 16	168	10 x 20	185	12.5 x 20	233
33	336	10 x 20	243	10 x 20	245	10 x 20	198	16 x 25	312
47	476	10 x 20	307	12.5 x 20	343	12.5 x 20	235	16 x 25	413
68	686	12.5 x 20	350	12.5 x 25	350	16 x 25	380	16 x 25	450
100	107	12.5 x 25	541	16 x 25	601	16 x 25	572	18 x 35	518
220	227	16 x 30	976	16 x 35	1138				
330	337	18 x 35	1346	18 x 35	1324				

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225	8 x 12	47	8 x 12	40
3.3	335	8 x 12	55	10 x 12.5	54
4.7	475	10 x 12.5	73	10 x 16	72
10	106	10 x 16	120	10 x 20	98
22	226	12.5 x 20	230	12.5 x 25	202
33	336	16 x 25	345	16 x 25	271
47	476	16 x 25	437	16 x 30	355
68	686	16 x 30	500	18 x 35	360
82	826	16 x 30	550	18 x 40	385
100	107	18 x 35	720		

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Rated Voltage	Coefficient		Freq. (Hz)				
	Cap. (μF)		50	120	300	1k	10k~
6.3~100V	≤47		0.75	1.00	1.35	1.57	2.00
	68~470		0.80	1.00	1.23	1.34	1.50
	≥560		0.85	1.00	1.10	1.13	1.15
160~450V	2.2~220		0.80	1.00	1.25	1.40	1.60
	≥270		0.90	1.00	1.10	1.13	1.15

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FEATURES

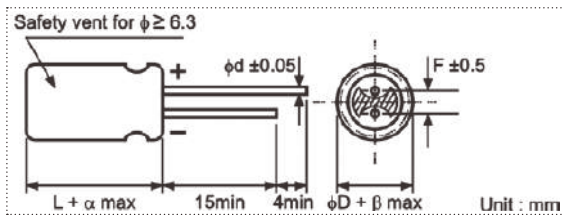
- Rated working voltage range 6.3 to 100V DC/ 160 to 550V DC at operation temperature range -40 to +105°C / -25 to +105°C.
- This series is for communication equipments, switching power supply, industrial measuring instruments, automotive electric products, etc.



SPECIFICATIONS

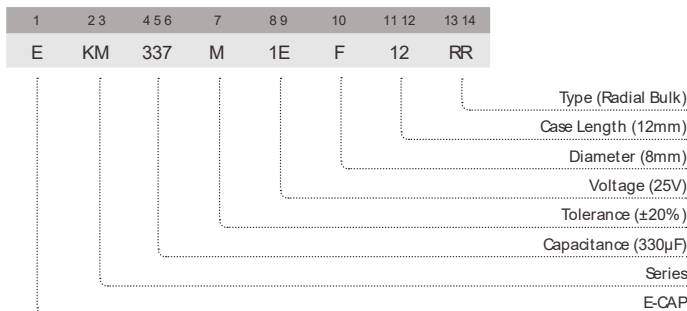
Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated Working Voltage Range	6.3 to 100V	160 to 550V
Nominal Capacitance Range	0.47 to 33000µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3 10 16 25 35 50 63 100
	tan δ (max.)	0.26 0.22 0.18 0.16 0.14 0.12 0.10 0.08
	Working Voltage (V)	160 200 220 250 350 400 420 450~550
	tan δ (max.)	0.20 0.20 0.20 0.20 0.24 0.24 0.24 0.24
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	6.3 10 16 25 35 50 63 100
	Z-25°C / Z+20°C	5 4 3 2 2 2 2 2
	Z-40°C / Z+20°C	10 8 6 4 3 3 3 3
	Working Voltage (V)	160 200 220 250 350 400 420 450~550
	Z-25°C / Z+20°C	3 3 3 4 4 6 6 15
High Temperature Loading	Test time	2,000 hours
	Test temperature	+105°C
	Test conditions	Rated DC working voltage with rated ripple current.
	Post test requirements at +20°C	Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value	
Industrial Standard	JISC- 5101-4 (IEC 60384-4)	

CASE SIZE TABLE



	ΦD	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18	22	25
F		2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5	10.0	12.5
Φd		0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0
α				(L < 20) 1.5				(L ≥ 20) 2.0			
β				(D < 20) 0.5				(D ≥ 20) 1.0			

PART NUMBER SYSTEM (EXAMPLE : 25V 330µF)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475							5 x 11	26
10	106					5 x 11	35	5 x 11	38
22	226			5 x 11	49	5 x 11	54	5 x 11	57
33	336	5 x 11	54	5 x 11	60	5 x 11	64	5 x 11	75
47	476	5 x 11	65	5 x 11	70	5 x 11	80	5 x 11	84
68	686	5 x 11	70	5 x 11	75	5 x 11	90	5 x 11	92
100	107	5 x 11	95	5 x 11	105	5 x 11	125	5 x 11	140
						6.3 x 11	142	6.3 x 11	159
220	227	5 x 11	153	5 x 11	170	6.3 x 11	213	8 x 12	285
				6.3 x 11	193				
330	337	6.3 x 11	216	6.3 x 11	239	8 x 12	315	8 x 12	340
470	477	6.3 x 11	258	6.3 x 11	285	8 x 12	366	8 x 12	406
						10 x 12.5	400	10 x 12.5	471
680	687	8 x 12	365	8 x 12	408	10 x 12.5	480	10 x 16	620
1000	108	8 x 12	443	10 x 12.5	571	8 x 20	663		
						10 x 16	680	10 x 20	821
						10 x 20	723		
2200	228	10 x 16	740	10 x 20	886	10 x 20	980	12.5 x 20	1176
						12.5 x 20	1108	12.5 x 25	1296
3300	338	10 x 20	1032	12.5 x 20	1205	12.5 x 25	1389	16 x 25	1646
4700	478	12.5 x 20	1280	12.5 x 25	1492	16 x 25	1740	16 x 30	2012
6800	688	12.5 x 25	1554	16 x 25	1824	16 x 30	2081	16 x 35	2308
10000	109	16 x 25	1897	16 x 30	1980	16 x 35	2379	18 x 35	2500
15000	159	16 x 30	2188	16 x 40	2180	18 x 35	2600		
22000	229	18 x 35	2400	18 x 40	2407				
33000	339	18 x 40	2555						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105			5 x 11	13			5 x 11	16
2.2	225			5 x 11	20			5 x 11	23
3.3	335			5 x 11	30			5 x 11	34
4.7	475	5 x 11	28	5 x 11	37	5 x 11	40	5 x 11	40
10	106	5 x 11	41	5 x 11	54	5 x 11	59	6.3 x 11	61
22	226	5 x 11	67	5 x 11	79	5 x 11	79	6.3 x 11	92
33	336	5 x 11	80	5 x 11	101	6.3 x 11	122	8 x 12	144
47	476	5 x 11	101	6.3 x 11	133	6.3 x 11	146	10 x 12.5	199
68	686	6.3 x 11	138	6.3 x 11	160	8 x 12	155	10 x 16	240
100	107	6.3 x 11	168	8 x 12	229	10 x 12.5	251	10 x 20	349
		8 x 12	198						
220	227	8 x 12	294	10 x 16	509	10 x 20	504	12.5 x 25	662
		8 x 16	330						
330	337	10 x 12.5	419	10 x 16	589	12.5 x 20	688	12.5 x 25	800
		10 x 16	547						
470	477	10 x 20	567	10 x 20	707	12.5 x 20	810	16 x 25	990
		10 x 20	682						
680	687	10 x 20	682	12.5 x 20	923	12.5 x 25	1160	16 x 30	1289
				12.5 x 25	1287			18 x 35	1903
1000	108	12.5 x 20	1023	16 x 25	1478	16 x 25	1448	18 x 40	2020
1200	128	12.5 x 20	1120						
1500	158	12.5 x 25	1300						
2200	228	16 x 25	1497	16 x 30	1759	18 x 35	1781		
				16 x 35	1884				
3300	338	16 x 30	1808	18 x 35	2167				
4700	478	18 x 35	2335						
6800	688	18 x 40	2400						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		220V (2N)		250V (2E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
0.47	474							6.3 x 11	8
1	105							6.3 x 11	17
2.2	225							6.3 x 11	27
3.3	335			6.3 x 11	30	6.3 x 11	30	6.3 x 11	35
4.7	475	6.3 x 11	41	6.3 x 11	40	8 x 12	40	8 x 12	45
10	106	8 x 12	60	10 x 12.5	72	10 x 12.5	70	10 x 12.5	75
				10 x 16	79				
22	226	10 x 12.5	100	10 x 16	113	10 x 20	125	10 x 20	130
		10 x 16	110						
33	336	10 x 20	156	10 x 20	165	12.5 x 20	165	12.5 x 20	184
47	476	10 x 20	195	10 x 20	194	12.5 x 20	220	12.5 x 25	238
				12.5 x 16	185				
68	686	12.5 x 20	250	12.5 x 20	226	12.5 x 25	245	16 x 20	246
				12.5 x 25	250				
82	826	12.5 x 25	310	10 x 30	320	12.5 x 30	280	16 x 25	351
100	107	12.5 x 25	360	16 x 20	357	16 x 25	335	16 x 25	390
				16 x 25	386			16 x 30	422
150	157	12.5 x 30	380	16 x 25	525	16 x 30	365	18 x 25	406
180	187	12.5 x 35	420	12.5 x 35	560	16 x 35	500	18 x 35	469
220	227	16 x 30	680	16 x 30	643	16 x 40	615	18 x 35	485
				18 x 25	635				
270	277	16 x 30	728	18 x 30	740				
330	337	18 x 35	830	18 x 30	808				
				18 x 35	864				
390	397	18 x 35	850	18 x 35	904	18 x 40	959		
470	477	18 x 40	880	18 x 40	1016				
560	567	18 x 45	925	18 x 45	1112				

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)



STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		420V (2M)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
0.47	474	6.3 x 11	8	6.3 x 11	8	6.3 x 11	8		
1	105	6.3 x 11	18	6.3 x 9	17	6.3 x 11	15	6.3 x 11	16
				6.3 x 11	19				
2.2	225	6.3 x 11	25	6.3 x 11	25	8 x 12	29	8 x 12	24
				8 x 12	30				
3.3	335	8 x 12	40	6.3 x 11	30	8 x 12	35	8 x 12	29
				8 x 9	31				
				8 x 12	35				
4.7	475	8 x 12	43	8 x 12	40	10 x 12.5	46	10 x 12.5	37
				10 x 12.5	46			10 x 16	42
5.6	565							8 x 16	40
6.8	685			8 x 16	53	8 x 16	53	10 x 16	50
				10 x 12.5	56				
10	106	10 x 16	73	8 x 16	68	10 x 12.5	65	10 x 16	66
				10 x 12.5	70	10 x 16	77	10 x 20	85
				10 x 16	78	10 x 20	85		
12				10 x 12.5	76				
				10 x 20	90				
15	156			12.5 x 16	92			10 x 16	73
18	186	12.5 x 20	100	12.5 x 20	105	12.5 x 25	124	10 x 30	108
22	226	12.5 x 20	150	12.5 x 20	148	12.5 x 20	126	12.5 x 20	118
				12.5 x 25	163	12.5 x 25	140	12.5 x 25	131
27	276	12.5 x 25	177	10 x 30	192	12.5 x 25	170	12.5 x 30	164
				12.5 x 20	181				
33	336	16 x 25	200	12.5 x 20	175	16 x 25	200	12.5 x 30	181
				12.5 x 25	193			16 x 20	215
				16 x 20	209			16 x 25	237
39	396	16 x 25	258	16 x 25	251	12.5 x 30	248	12.5 x 35	256
				12.5 x 25	245	12.5 x 35	288	16 x 25	281
47	476	16 x 25	265	12.5 x 30	266	18 x 20	277	16 x 25	281
				16 x 20	256			16 x 30	305
56	566	16 x 30	280	12.5 x 30	313	12.5 x 40	344	16 x 30	342
				12.5 x 35	336				
68	686	16 x 30	288	16 x 25	365	16 x 30	408	16 x 30	352
				16 x 30	396			18 x 25	352
				18 x 20	356			18 x 30	366
82	826	18 x 30	372	16 x 30	414	16 x 35	456	18 x 30	440
				18 x 25	409	18 x 25	420	18 x 34	462
				18 x 30	443				
100	107	18 x 35	460	16 x 30	457	18 x 30	440	16 x 35	459
				18 x 25	452			18 x 30	457
				18 x 30	489	18 x 35	488	18 x 35	490
120	127			16 x 40	567	16 x 35	464	18 x 40	592
				18 x 30	532	18 x 30	464		
				18 x 35	570	18 x 35	482		
150	157			16 x 40	577	18 x 35	507	18 x 40	606
				18 x 35	580	18 x 45	568	18 x 45	640
				18 x 40	616				
180	187			18 x 40	636	18 x 40	573		
				18 x 50	704	18 x 45	622		

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

KM

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		500V (2H)		550V (25)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
1	105	8 x 12	20		
2.2	225	8 x 12	30	10 x 12.5	30
3.3	335	8 x 16	40	10 x 16	42
		10 x 12.5	40		
4.7	475	10 x 16	48	10 x 20	55
		10 x 20	58		
10	106	10 x 20	90	12.5 x 20	95
		12.5 x 20	100	12.5 x 25	100
18	186	12.5 x 25	150	12.5 x 30	150
		12.5 x 30	180	16 x 25	170
22	226	16 x 25	190	18 x 20	170
		16 x 30	240	16 x 35	240
33	336	18 x 25	240	18 x 35	240
		18 x 30	360	18 x 35	310
47	476	16 x 35	360	16 x 40	310
		16 x 40	420	16 x 45	350
56	566	18 x 35	420	18 x 40	350
		18 x 35	460	18 x 45	400
68	686	16 x 45	480		
82	826	18 x 40	510		
100	107	18 x 45	600		

Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 120Hz

Case Size Φ D x L (mm)

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

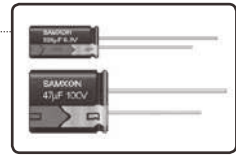
Rated Voltage	Coefficient Cap. (μF)	Freq. (Hz)	Frequency Coefficient				
			50	120	300	1k	10k~
6.3~100V	≤47		0.75	1.00	1.35	1.57	2.00
	68~470		0.80	1.00	1.23	1.34	1.50
	≥560		0.85	1.00	1.10	1.13	1.15
160~550V	0.47~220		0.80	1.00	1.25	1.40	1.60
	≥270		0.90	1.00	1.10	1.13	1.15

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FEATURES

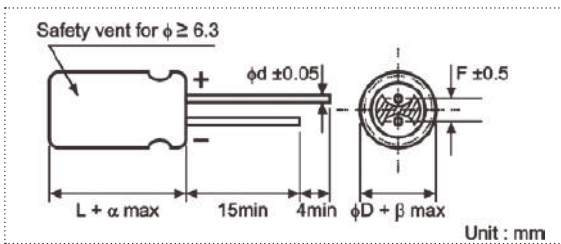
- For general purpose, -55°C to +105°C, 1,000 to 2,000 hours.
- Wide CV value range.
- Safety vent construction products.



SPECIFICATIONS

Item	Performance Characteristics									
Operating Temperature Range	-55 to +105°C									
Rated Working Voltage Range	6.3 to 100V									
Nominal Capacitance Range	2.2 to 22000µF									
Capacitance Tolerance	±20% at 120Hz, +20°C									
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C									
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100	
	tan δ (max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	
	For capacitance value >1000µF, add 0.02 per another 1000µF									
Low Temperature Characteristics	Impedance ratio max. at 120Hz									
	Working Voltage (V)	6.3	10	16	25	35	50	63	100	
	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	
	Z-40°C / Z+20°C	10	8	6	4	3	3	3	3	
For capacitance value >1000µF, add 0.5 per another 1000µF for Z-25°C / Z+20°C add 1.0 per another 1000µF for Z-40°C / Z+20°C										
High Temperature Loading	Test time	Φ D	5 ~ 8	10 ~ 18	Post test requirements at +20°C					
	Load life		1,000h	2,000h	Leakage current : ≤ Initial specified value					
	Test temperature		+105°C		Cap. change : within ±20% of the initial measured value					
Test conditions : Rated DC working voltage with rated ripple current      tan δ : ≤ 200% of the initial specified value										
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits									
	Leakage current : ≤ Initial specified value									
	Cap. change : within ±20% of the initial measured value									
	tan δ : ≤ 200% of the initial specified value									
Industrial Standard	JISC - 5101-4 (IEC 60384-4)									

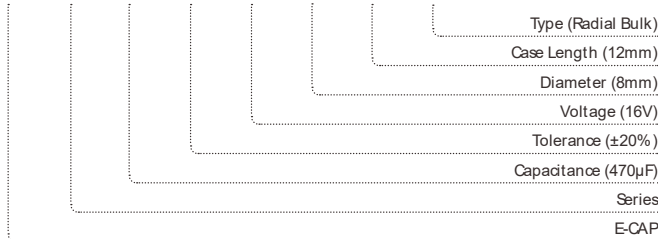
CASE SIZE TABLE



ΦD	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α				(L < 20) 1.5	(L ≥ 20) 2.0			
β				(D < 20) 0.5	(D ≥ 20) 1.0			

PART NUMBER SYSTEM (EXAMPLE: 16V 470µF)

1	23	456	7	89	10	11 12	13 14
E	KG	477	M	1C	F	12	RR



**STANDARD RATINGS**

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
47	476							5 x 11	91
100	107					5 x 11	110	6.3 x 11	130
220	227	5 x 11	140			6.3 x 11	180	8 x 12	230
330	337			6.3 x 11	200	8 x 12	260	8 x 12	310
470	477	6.3 x 11	230	6.3 x 11	240	8 x 12	310	10 x 12.5	380
1000	108	8 x 12	380	10 x 12.5	460	10 x 16	560	10 x 20	680
2200	228	10 x 16	710	10 x 20	760	12.5 x 20	920	12.5 x 20	988
3300	338	10 x 20	840	12.5 x 20	1000	12.5 x 25	1170	16 x 25	1400
4700	478	12.5 x 20	1090	12.5 x 25	1260	16 x 25	1480	16 x 30	1750
6800	688	12.5 x 25	1350	16 x 25	1570	16 x 30	1780	16 x 35	1910
10000	109	16 x 25	1650	16 x 30	1890	16 x 35	1930		
15000	159	16 x 30	2010	16 x 40	2170				
22000	229	18 x 35	2350						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225			5 x 11	18			5 x 11	21
3.3	335			5 x 11	22			5 x 11	31
4.7	475			5 x 11	26			5 x 11	38
10	106			5 x 11	39	5 x 11	46	6.3 x 11	54
22	226			5 x 11	65	5 x 11	71	6.3 x 11	93
33	336			5 x 11	90	6.3 x 11	100	8 x 12	130
47	476	5 x 11	90	6.3 x 11	110	6.3 x 11	120	10 x 12.5	165
100	107	6.3 x 11	150	8 x 12	180	10 x 12.5	215	10 x 20	265
220	227	8 x 12	270	10 x 16	330	10 x 20	370	12.5 x 25	440
330	337	10 x 12.5	350	10 x 16	410	12.5 x 20	578	12.5 x 25	600
470	477	10 x 16	460	10 x 20	530	12.5 x 20	640	16 x 25	715
1000	108	12.5 x 20	810	12.5 x 25	950	16 x 25	930	18 x 40	1040
2200	228	16 x 25	1260	16 x 35	1570	18 x 35	1610		
3300	338	16 x 30	1610	18 x 35	1770				
4700	478	18 x 35	1910						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

**RIPPLE CURRENT MULTIPLIER**

Frequency Coefficient

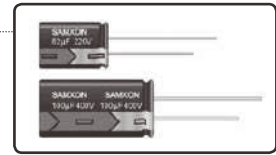
Coefficient	Cap. (μF)	60	120	1k	10k	100k
Freq. (Hz)	0.1~33	0.75	1.00	1.55	1.80	2.00
	47~470	0.80	1.00	1.35	1.50	1.50
	1000~22000	0.85	1.00	1.10	1.15	1.15

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FEATURES

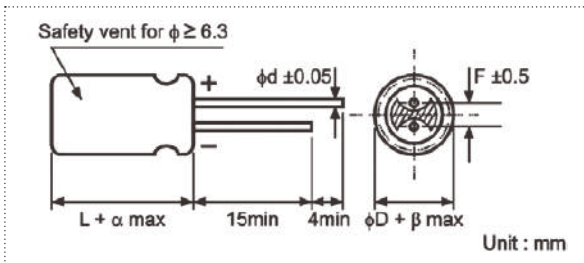
- Doesn't spark with DC over voltage.
- Load life: 2,000 hours at 105°C.



SPECIFICATIONS

Item	Performance Characteristics		
Operating Temperature Range	-25 to +105°C		
Rated Working Voltage Range	200 & 400V		
Nominal Capacitance Range	22 to 330µF		
Capacitance Tolerance	±20% at 120Hz, +20°C		
Leakage Current	I ≤ 0.03CV + 40 (µA) after 2 minutes application of rated working voltage at +20°C		
tan δ (120Hz, +20°C)	Working Voltage (V)	200	400
	tan δ (max.)	0.20	0.24
Low Temperature Characteristics	Impedance ratio max. at 120Hz		
	Rated Voltage (V)	200	400
	Z-25°C / Z+20°C	3	6
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C	
	Test temperature : +105°C	Leakage current : ≤ Initial specified value	
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value	
		tan δ : ≤ 200% of the initial specified value	
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits		
	Leakage current : ≤ Initial specified value	Cap. change : within ±20% of the initial measured value	
	tan δ : ≤ 200% of the initial specified value		
Industrial Standard	JISC - 5101-4 (IEC 60384-4)		

CASE SIZE TABLE



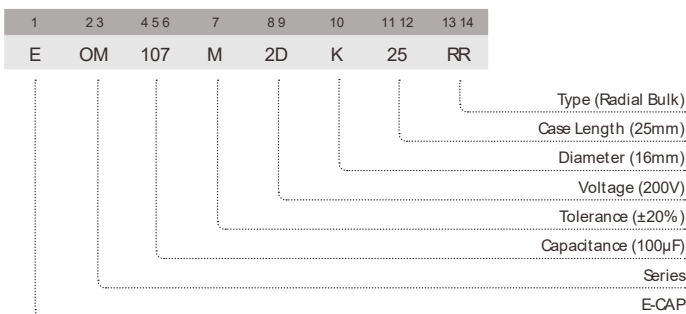
Φ D	16	18
F	7.5	7.5
Φ d	0.8	0.8
α	(L < 20) 1.5	(L ≥ 20) 2.0
β	(D < 20) 0.5	(D ≥ 20) 1.0

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	10k~
Cap (µF)					
22~220	0.80	1.00	1.25	1.40	1.60
270~330	0.90	1.00	1.10	1.13	1.15

PART NUMBER SYSTEM (EXAMPLE : 200V 100µF)



OM Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		200V (2D)		400V (2G)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
22	226			16 x 20	145
33	336			16 x 25	220
				18 x 20	225
39	396			16 x 30	245
				18 x 25	250
47	476			16 x 30	275
				18 x 25	280
56	566			16 x 40	350
				18 x 30	315
68	686			18 x 35	350
82	826	16 x 20	230	18 x 40	395
100	107	16 x 25	425		
		18 x 20	250	18 x 40	450
120	127	16 x 30	500		
		18 x 25	475		
150	157	16 x 30	560		
		18 x 25	530		
180	187	16 x 40	645		
		18 x 30	630		
220	227	18 x 35	725		
270	277	18 x 45	830		
330	337	18 x 45	920		

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size Φ D x L (mm)

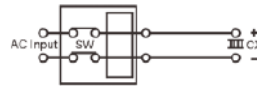
DC OVERVOLTAGE TEST CONDITIONS

They vent will operate and the capacitor shall become an open circuit without burning materials when the following excess DC voltage is applied.

- Test DC voltage

Rated voltage	Current limit	Test DC voltage
200Vdc	4A	300 / 375Vdc
400Vdc	2A	500 / 600Vdc

- Test circuit



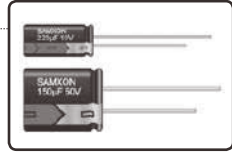
Constant DC voltage / current power supply

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

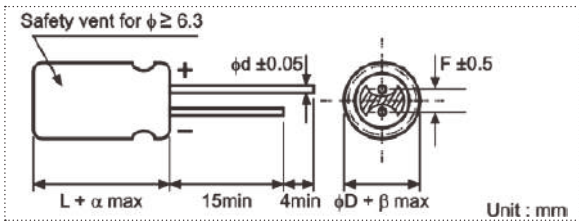
- Low impedance for high frequency.
- Life time: 1,000~4,000 hours at 105°C.



SPECIFICATIONS

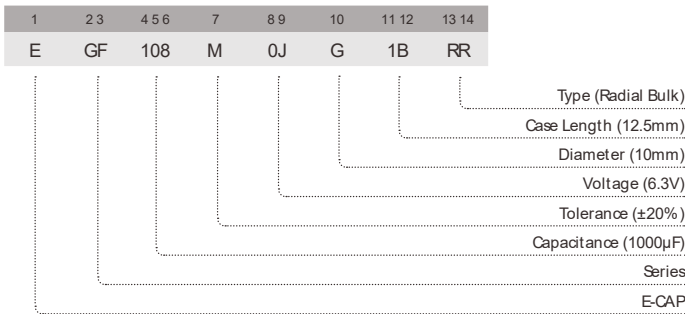
Item	Performance Characteristics																				
Operating Temperature Range	-40 to +105°C																				
Rated Working Voltage Range	6.3 to 100V																				
Nominal Capacitance Range	3.3 to 4700µF																				
Capacitance Tolerance	±20% at 120Hz, +20°C																				
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C																				
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100												
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08												
For capacitance value >1000µF, add 0.02 per another 1000µF																					
Low Temperature Characteristics	Impedance ratio max. at 120Hz																				
	Working Voltage (V)	6.3	10	16	25	35	50	63	100												
	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	2											
Z-40°C / Z+20°C											8	6	4	3	3	3	3	3	3		
High Temperature Loading	Test time	<table border="1"> <tr> <td>ΦD</td> <td>L≤7</td> <td>D5-6.3</td> <td>D8-10</td> <td>D12.5</td> </tr> <tr> <td>Load life</td> <td>1,000h</td> <td>2,000h</td> <td>3,000h</td> <td>4,000h</td> </tr> </table>	ΦD	L≤7	D5-6.3	D8-10	D12.5	Load life	1,000h	2,000h	3,000h	4,000h	Post test requirements at +20°C								
	ΦD	L≤7	D5-6.3	D8-10	D12.5																
	Load life	1,000h	2,000h	3,000h	4,000h																
	Test temperature	: +105°C				Leakage current : ≤Initial specified value															
Test conditions	: Rated DC working voltage with rated ripple current				Cap. change : within ±25% of the initial measured value tan δ : ≤150% of the initial specified value																
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits																				
Leakage current : ≤Initial specified value																					
Cap. change : within ±25% of the initial measured value																					
tan δ : ≤150% of the initial specified value																					
Industrial Standard	JISC - 5101-4 (IEC 60384-4)																				

CASE SIZE TABLE



Φ D	4	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5
F	1.5	2.0	2.5	3.5	3.5	5.0	5.0
Φ d	0.45	(L ≤ 7) 0.45	(L ≥ 9) 0.50	0.6	0.6	0.6	0.6
α	(L ≤ 7) 1		(L ≤ 9 < 20) 1.5	(L ≥ 20) 2.0			
β	(D < 20) 0.5				(D ≥ 20) 1.0		

PART NUMBER SYSTEM (EXAMPLE : 6.3V 1000µF)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
10	106							4 x 5	5.000	50
15	156							4 x 7	3.300	70
								5 x 5	2.600	80
22	226	4 x 5	5.000	50	4 x 7	3.300	70	5 x 7	1.700	110
					5 x 5	2.600	80	5 x 5	2.600	80
33	336	5 x 5	2.600	80	5 x 5	2.600	80	6.3 x 5	1.300	115
		5 x 7	1.700	110	5 x 7	1.700	110	6.3 x 7	0.800	160
47	476	5 x 5	2.600	80	6.3 x 5	1.300	115	6.3 x 5	1.300	115
		5 x 7	1.700	110	6.3 x 7	0.800	160	6.3 x 7	0.800	160
68	686	6.3 x 5	1.300	115	6.3 x 7	0.800	160	8 x 7	0.500	200
		6.3 x 7	0.800	160						
100	107	6.3 x 5	1.300	115	8 x 7	0.500	200	6.3 x 11	0.220	340
		6.3 x 7	0.800	160				8 x 7	0.500	200
120	127							6.3 x 11	0.220	340
150	157	8 x 7	0.500	200	6.3 x 11	0.220	340	6.3 x 11	0.220	340
					8 x 7	0.500	200	8 x 12	0.130	640
180	187	6.3 x 11	0.220	340	6.3 x 11	0.220	340	6.3 x 11	0.220	340
								8 x 12	0.130	640
220	227	8 x 7	0.500	200	6.3 x 11	0.220	340	6.3 x 11	0.220	340
		6.3 x 11	0.220	340				8 x 12	0.130	640
270	277	6.3 x 11	0.220	340	6.3 x 11	0.220	340	8 x 12	0.130	640
					8 x 12	0.130	640			
330	337	6.3 x 11	0.220	340	6.3 x 11	0.220	340	6.3 x 11	0.220	340
		8 x 12	0.130	640	8 x 12	0.130	640	8 x 12	0.130	640
390	397	8 x 12	0.130	640	8 x 12	0.130	640	8 x 12	0.130	640
470	477	8 x 12	0.130	640	6.3 x 11	0.220	340	8 x 12	0.130	640
					8 x 12	0.130	640	10 x 12.5	0.080	865
560	567	8 x 12	0.130	640	8 x 12	0.130	640	10 x 12.5	0.080	865
680	687	8 x 12	0.130	640	8 x 12	0.130	640	8 x 16	0.087	840
								10 x 12.5	0.080	865
820	827	8 x 12	0.130	640	10 x 12.5	0.080	865	10 x 16	0.060	1210
		10 x 12.5	0.080	865						
1000	108	8 x 12	0.130	640	8 x 16	0.087	840	8 x 16	0.087	840
		10 x 12.5	0.080	865	10 x 16	0.060	1210	10 x 16	0.060	1210
1200	128	8 x 16	0.087	840	10 x 20	0.046	1400	10 x 20	0.046	1400
		10 x 12.5	0.080	865						
1500	158	8 x 20	0.069	1050	10 x 20	0.046	1400	10 x 20	0.046	1400
		10 x 16	0.060	1210						
1800	188	10 x 20	0.046	1400	10 x 20	0.046	1400	10 x 25	0.042	1650
								12.5 x 20	0.035	1900
2200	228	10 x 20	0.046	1400	10 x 20	0.046	1400	10 x 25	0.042	1650
								12.5 x 20	0.035	1900
2700	278	10 x 25	0.042	1650	10 x 25	0.042	1650	12.5 x 25	0.030	2124
		12.5 x 20	0.035	1900	12.5 x 20	0.035	1900			
3300	338	10 x 25	0.042	1650	12.5 x 25	0.030	2124	12.5 x 25	0.030	2124
		12.5 x 20	0.035	1900						
3900	398	12.5 x 20	0.035	1900						
4700	478	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
3.3	335				4 x 5	5.000	50			
4.7	475	4 x 5	5.000	50	4 x 5	5.000	50			
6.8	685	4 x 5	5.000	50	4 x 7	3.300	70			
					5 x 5	2.600	80			
10	106	4 x 7	3.300	70	5 x 5	2.600	80			
		5 x 5	2.600	80	5 x 7	1.700	110			
15	156	5 x 7	1.700	110	6.3 x 5	1.300	115			
		6.3 x 5	1.300	115	6.3 x 7	0.800	160			
22	226	5 x 7	1.700	110	6.3 x 5	1.300	115			
		6.3 x 5	1.300	115	6.3 x 7	0.800	160			
33	336	6.3 x 5	1.300	115	8 x 7	0.500	200	6.3 x 11	0.300	295
		6.3 x 7	0.800	160						
39	396							6.3 x 11	0.300	295
47	476	8 x 7	0.500	200	6.3 x 11	0.220	340	6.3 x 11	0.300	295
56	566				6.3 x 11	0.220	340	8 x 12	0.170	555
68	686	8 x 7	0.500	200	6.3 x 11	0.220	340	8 x 12	0.170	555
82	826	6.3 x 11	0.220	340	8 x 12	0.130	640	8 x 12	0.170	555
100	107	6.3 x 11	0.220	340	6.3 x 11	0.220	340	10 x 12.5	0.120	760
					8 x 12	0.130	640			
120	127	8 x 12	0.130	640	8 x 12	0.130	640	8 x 16	0.120	730
								10 x 12.5	0.120	760
150	157	8 x 12	0.130	640	8 x 12	0.130	640	10 x 16	0.084	1050
180	187	8 x 12	0.130	640	10 x 12.5	0.080	865	8 x 20	0.091	910
								10 x 16	0.084	1050
220	227	8 x 12	0.130	640	8 x 12	0.130	640	8 x 20	0.091	910
					8 x 16	0.087	840			
					10 x 12.5	0.080	865			
270	277	8 x 12	0.130	640	10 x 16	0.060	1210	10 x 25	0.055	1440
		10 x 12.5	0.080	865						
330	337	8 x 12	0.130	640	8 x 16	0.087	840	12.5 x 20	0.045	1660
		10 x 12.5	0.080	865	8 x 20	0.069	1050			
					10 x 16	0.060	1210			
390	397	10 x 12.5	0.080	865	10 x 16	0.060	1210	12.5 x 20	0.045	1660
470	477	8 x 16	0.087	840	10 x 16	0.060	1210	12.5 x 25	0.034	1950
		10 x 12.5	0.080	865						
		10 x 16	0.060	1210						
560	567	10 x 16	0.060	1210	10 x 20	0.046	1400	12.5 x 25	0.034	1950
680	687	10 x 16	0.060	1210	10 x 20	0.046	1400			
		10 x 20	0.046	1400	12.5 x 20	0.035	1900			
820	827	10 x 20	0.046	1400	10 x 25	0.042	1650			
					12.5 x 20	0.035	1900			
1000	108	10 x 20	0.046	1400	12.5 x 20	0.035	1900			
					12.5 x 25	0.030	2124			
1200	128	10 x 20	0.046	1400						
1500	158	10 x 25	0.042	1650						
		12.5 x 20	0.035	1900						
1800	188	12.5 x 25	0.030	2124						
2200	228	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
15	156				6.3 x 11	0.960	115
22	226	6.3 x 11	0.960	115			
27	276	6.3 x 11	0.960	115	8 x 12	0.504	232
33	336	6.3 x 11	0.960	115			
39	396	8 x 12	0.504	232	8 x 16	0.360	300
47	476	8 x 12	0.504	232	10 x 12.5	0.344	314
56	566	8 x 12	0.504	232	8 x 20	0.264	362
68	686	8 x 12	0.504	232	10 x 16	0.248	357
82	826	10 x 12.5	0.344	314	10 x 20	0.168	466
100	107	8 x 16	0.360	300	10 x 20	0.168	466
		10 x 12.5	0.344	314	12.5 x 20	0.128	690
120	127	8 x 16	0.360	300	12.5 x 20	0.128	690
		10 x 16	0.248	357			
150	157	8 x 20	0.264	362			
180	187	10 x 20	0.168	466	12.5 x 25	0.096	922
220	227	10 x 16	0.248	357	12.5 x 25	0.096	922
		10 x 20	0.168	466			
270	277	12.5 x 20	0.128	690			
330	337	12.5 x 20	0.128	690			
390	397	12.5 x 25	0.096	922			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Cap. (μF)	120	1k	10k	100k
≤180	0.40	0.75	0.90	1.00
220~560	0.50	0.85	0.94	1.00
680~1800	0.60	0.87	0.95	1.00
2200~3900	0.75	0.90	0.95	1.00
4700	0.85	0.95	0.98	1.00

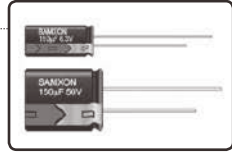
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, High Ripple Current (高紋波), Long Life Assurance (長壽命), Low Impedance (低阻抗品)



FEATURES

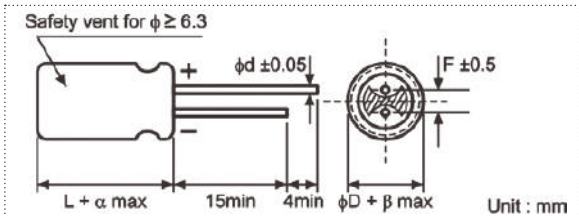
- Low impedance for high frequency.
- Long life: 3,000~6,000 hours at 105°C.



SPECIFICATIONS

Item	Performance Characteristics									
Operating Temperature Range	-40 to +105°C									
Rated Working Voltage Range	6.3 to 100V									
Nominal Capacitance Range	15 to 3900µF									
Capacitance Tolerance	±20% at 120Hz, +20°C									
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C									
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100	
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	
For capacitance value >1000µF, add 0.02 per another 1000µF										
Low Temperature Characteristics	Impedance ratio max. at 120Hz									
	Working Voltage (V)	6.3	10	16	25	35	50	63	100	
	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	2
	Z-40°C / Z+20°C	8	6	4	3	3	3	3	3	
High Temperature Loading	Test time	ΦD	5-6.3	8	10	12.5	Post test requirements at +20°C			
	Load life		3,000h	4,000h	5,000h	6,000h	Leakage current : ≤ Initial specified value			
	Test temperature		+105°C				Cap. change : within ±25% of the initial measured value			
	Test conditions		Rated DC working voltage with rated ripple current				tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits									
	Leakage current	: ≤ Initial specified value								
	Cap. change	: within ±25% of the initial measured value								
	tan δ	: ≤ 200% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)									

CASE SIZE TABLE



ΦD	6.3	8 (L <20)	8 (L ≥20)	10	12.5
F	2.5	3.5	3.5	5.0	5.0
Φd	0.5	0.5	0.6	0.6	0.6
α		(L <20) 1.5		(L ≥20) 2.0	
β		(D <20) 0.5		(D ≥20) 1.0	

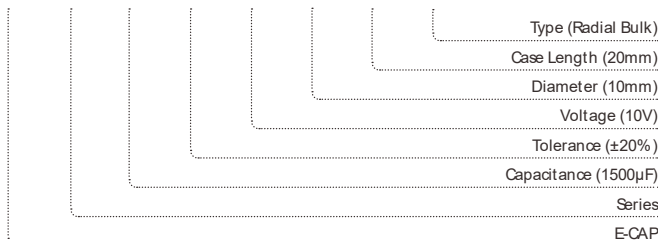
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	100k
15~33	0.45	0.55	0.70	0.90	1.00
39~330	0.60	0.70	0.85	0.95	1.00
470~1000	0.65	0.75	0.90	0.98	1.00
1200~3900	0.75	0.80	0.95	1.00	1.00

PART NUMBER SYSTEM (EXAMPLE : 10V 1500µF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	SF	158	M	1A	G	20	RR



SF

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
120	127							6.3 x 11	0.220	340
220	227				6.3 x 11	0.220	340			
330	337	6.3 x 11	0.220	340				8 x 12	0.130	640
470	477							8 x 12	0.130	640
					8 x 12	0.130	640	8 x 16	0.087	840
								10 x 12.5	0.080	865
680	687	8 x 12	0.130	640	8 x 16	0.087	840	8 x 20	0.069	1050
					10 x 12.5	0.080	865	10 x 12.5	0.080	865
								10 x 16	0.060	1210
820	827	10 x 12.5	0.080	865						
1000	108	8 x 16	0.087	840	8 x 20	0.069	1050	10 x 16	0.060	1210
					10 x 16	0.060	1210	10 x 20	0.046	1400
1200	128	8 x 20	0.069	1050	10 x 20	0.046	1400	10 x 25	0.042	1650
		10 x 16	0.060	1210						
1500	158	10 x 20	0.046	1400	10 x 25	0.042	1650	12.5 x 20	0.035	1900
2200	228	10 x 25	0.042	1650	12.5 x 20	0.035	1900	12.5 x 20	0.035	1900
								12.5 x 25	0.030	2124
3300	338	12.5 x 20	0.035	1900	12.5 x 25	0.030	2124			
3900	398	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
56	566				6.3 x 11	0.220	340	6.3 x 11	0.300	295
100	107	6.3 x 11	0.220	340				8 x 12	0.170	555
120	127							8 x 16	0.120	730
150	157				8 x 12	0.130	640	10 x 12.5	0.120	760
220	227	6.3 x 11	0.220	340	8 x 16	0.087	840	10 x 16	0.084	1050
		8 x 12	0.130	640	10 x 12.5	0.080	865			
330	337	8 x 16	0.087	840	10 x 12.5	0.080	865	10 x 25	0.055	1440
		10 x 12.5	0.080	865	10 x 16	0.060	1210			
470	477	8 x 20	0.069	1050	10 x 20	0.046	1400	10 x 20	0.060	1210
		10 x 16	0.060	1210				12.5 x 20	0.045	1660
560	567				10 x 25	0.042	1650	12.5 x 25	0.034	1950
680	687	10 x 16	0.060	1210	12.5 x 20	0.035	1900	10 x 30	0.043	1690
		10 x 20	0.046	1400						
820	827	10 x 25	0.042	1650						
1000	108	12.5 x 20	0.035	1900	12.5 x 20	0.035	1900			
					12.5 x 25	0.030	2124			
1500	158	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
15	156				6.3 x 11	0.960	115
27	276				8 x 12	0.504	232
33	336	6.3 x 11	0.960	115			
39	396				8 x 16	0.360	300
47	476				10 x 12.5	0.344	314
56	566	8 x 12	0.504	232	8 x 20	0.264	362
68	686				10 x 16	0.248	357
82	826	8 x 16	0.360	300	10 x 20	0.168	466
		10 x 12.5	0.344	314			
100	107				10 x 20	0.168	466
					10 x 25	0.160	531
120	127	8 x 20	0.264	362	12.5 x 20	0.128	690
		10 x 16	0.248	357			
180	187	10 x 20	0.168	466	12.5 x 25	0.096	922
220	227	10 x 25	0.160	531			
270	277	12.5 x 20	0.128	690			
330	337	12.5 x 25	0.096	922			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

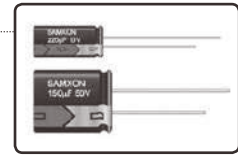
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, High Ripple Current (高紋波), Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



FEATURES

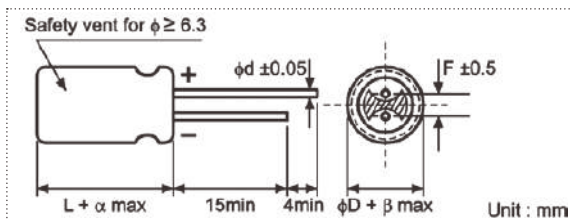
- Low impedance for high frequency.
- Load life of 4,000~10,000 hours at 105°C.



SPECIFICATIONS

Item	Performance Characteristics									
Operating Temperature Range	-40 to +105°C									
Rated Working Voltage Range	6.3 to 100V									
Nominal Capacitance Range	15 to 4700µF									
Capacitance Tolerance	±20% at 120Hz, +20°C									
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C									
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100	
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	
	For capacitance value >1000µF, add 0.02 per another 1000µF									
Low Temperature Characteristics	Impedance ratio max. at 120Hz									
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	
	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	2
	Z-40°C / Z+20°C	8	6	4	3	3	3	3	3	3
High Temperature Loading	Test time	ΦD	5-6.3	8-10	≥12.5	Post test requirements at +20°C				
		6.3-10WV	4,000h	6,000h	8,000h	Leakage current : ≤ Initial specified value				
		16-100WV	5,000h	7,000h	10,000h	Cap. change : within ±25% of the initial measured value				
	Test temperature	: +105°C								
Test conditions	: Rated DC working voltage with rated ripple current				tan δ	: ≤200% of the initial specified value				
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits									
	Leakage current	: ≤ Initial specified value								
	Cap. change	: within ±25% of the initial measured value								
	tan δ	: ≤200% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)									

CASE SIZE TABLE



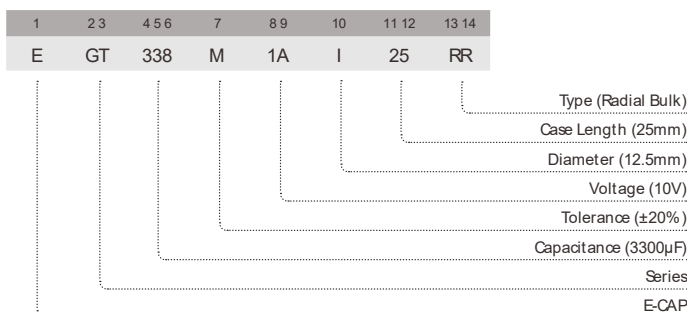
ΦD	6.3	8 (L <20)	8 (L ≥20)	10	12.5	16
F	2.5	3.5	3.5	5.0	5.0	7.5
Φd	0.5	0.5	0.6	0.6	0.6	0.8
α	(L <20) 1.5			(L ≥20) 2.0		
β	(D <20) 0.5			(D ≥20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	100k
Cap (µF)					
15~33	0.45	0.55	0.70	0.90	1.00
39~330	0.60	0.70	0.85	0.95	1.00
390~1000	0.65	0.75	0.90	0.98	1.00
1200~4700	0.75	0.80	0.95	1.00	1.00

PART NUMBER SYSTEM (EXAMPLE : 10V 3300µF)



GT

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
120	127							6.3 x 11	0.220	340
220	227				6.3 x 11	0.220	340	6.3 x 11	0.220	340
330	337	6.3 x 11	0.220	340				8 x 12	0.130	640
470	477				6.3 x 11	0.220	340	8 x 12	0.130	640
								8 x 16	0.087	840
					8 x 12	0.130	640	10 x 12.5	0.080	865
680	687	8 x 12	0.130	640	8 x 16	0.087	840	8 x 16	0.087	840
					10 x 12.5	0.080	865	8 x 20	0.069	1050
820	827	10 x 12.5	0.080	865				10 x 16	0.060	1210
1000	108	8 x 16	0.087	840	8 x 20	0.069	1050	8 x 20	0.069	1050
		10 x 12.5	0.080	865	10 x 16	0.060	1210	10 x 16	0.060	1210
								10 x 20	0.046	1400
1200	128	8 x 20	0.069	1050	10 x 20	0.046	1400	10 x 20	0.046	1400
		10 x 16	0.060	1210				10 x 25	0.042	1650
1500	158	10 x 20	0.046	1400	10 x 25	0.042	1650	10 x 20	0.046	1400
								10 x 30	0.031	1910
								12.5 x 20	0.035	1900
2200	228	10 x 25	0.042	1650	10 x 30	0.031	1910	12.5 x 25	0.030	2124
					12.5 x 20	0.035	1900			
2700	278	10 x 30	0.031	1910						
3300	338	12.5 x 20	0.035	1900	12.5 x 25	0.030	2124	12.5 x 25	0.030	2124
								16 x 20	0.035	2210
3900	398	12.5 x 25	0.030	2124						
4700	478							16 x 25	0.028	2552

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

+105°C, High Ripple Current (高紋波), Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
47	476							6.3 x 11	0.300	295
56	566				6.3 x 11	0.220	340	6.3 x 11	0.300	295
100	107	6.3 x 11	0.220	340	6.3 x 11	0.220	340	8 x 12	0.170	555
120	127							8 x 16	0.120	730
150	157				8 x 12	0.130	640	10 x 12.5	0.120	760
180	187							8 x 12	0.170	555
220	227	6.3 x 11	0.220	340	8 x 12	0.130	640	8 x 16	0.120	730
		8 x 12	0.130	640	8 x 16	0.087	840	10 x 12.5	0.120	760
270	277				10 x 12.5	0.080	865	10 x 16	0.084	1050
								10 x 20	0.060	1220
330	337	8 x 16	0.087	840	10 x 12.5	0.080	865	10 x 16	0.084	1050
		10 x 12.5	0.080	865	10 x 16	0.060	1210	10 x 25	0.055	1440
470	477	8 x 12	0.130	640	8 x 20	0.069	1050	10 x 16	0.084	1050
		8 x 16	0.087	840	10 x 16	0.060	1210	10 x 20	0.060	1220
		8 x 20	0.069	1050	10 x 16	0.060	1210	10 x 30	0.043	1690
		10 x 16	0.060	1210	10 x 20	0.046	1400	12.5 x 20	0.045	1660
560	567				10 x 25	0.042	1650	10 x 20	0.060	1220
								12.5 x 25	0.034	1950
680	687	8 x 20	0.069	1050	10 x 20	0.046	1400			
		10 x 16	0.060	1210	10 x 30	0.031	1910	12.5 x 20	0.045	1660
		10 x 20	0.046	1400	12.5 x 20	0.035	1900			
820	827	10 x 20	0.046	1400	10 x 25	0.042	1650	12.5 x 20	0.045	1660
		10 x 25	0.042	1650	10 x 25	0.042	1650	12.5 x 25	0.034	1950
1000	108	10 x 16	0.060	1210						
		10 x 20	0.046	1400	12.5 x 20	0.035	1900			
		10 x 25	0.042	1650				12.5 x 25	0.034	1950
		10 x 30	0.031	1910	12.5 x 25	0.030	2124			
		12.5 x 20	0.035	1900						
1500	158	12.5 x 20	0.035	1900	12.5 x 25	0.030	2124			
		12.5 x 25	0.030	2124						
2200	228	12.5 x 25	0.030	2124	12.5 x 30	0.026	2524			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size ΦD x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
15	156				6.3 x 11	0.960	115
22	226				6.3 x 11	0.960	115
27	276				8 x 12	0.504	232
33	336	6.3 x 11	0.960	115	8 x 12	0.504	232
39	396				8 x 16	0.360	300
47	476	6.3 x 11	0.960	115	10 x 12.5	0.344	314
56	566	8 x 12	0.504	232	8 x 20	0.264	362
68	686	8 x 12	0.504	232	10 x 16	0.248	357
82	826	8 x 16	0.360	300	10 x 20	0.168	466
		10 x 12.5	0.344	314			
100	107	10 x 12.5	0.344	314	10 x 16	0.248	357
					10 x 20	0.168	466
					10 x 25	0.160	531
120	127	8 x 20	0.264	362	10 x 30	0.120	663
		10 x 16	0.248	357	12.5 x 20	0.128	690
150	157				10 x 20	0.168	466
180	187	10 x 20	0.168	466	12.5 x 25	0.096	922
220	227	10 x 16	0.248	357	12.5 x 25	0.096	922
		10 x 25	0.160	531			
		10 x 20	0.168	466			
270	277	10 x 30	0.120	663			
		12.5 x 20	0.128	690			
330	337	10 x 20	0.168	466	12.5 x 30	0.080	905
		12.5 x 20	0.128	690			
390	397	12.5 x 25	0.096	922			
		12.5 x 20	0.128	690			
470	477	12.5 x 20	0.128	690	16 x 25	0.058	1250
		12.5 x 25	0.096	922			
680	687	12.5 x 25	0.096	922			
		12.5 x 40	0.057	1300			
820	827	16 x 25	0.058	1250			
		1000	108	16 x 25	0.058	1250	
1200	128	16 x 25	0.058	1250			

Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 100kHz

Case Size ΦD x L (mm)

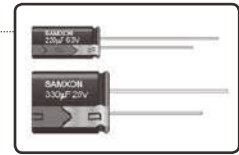
Maximum Impedance (Ω) at 20°C 100kHz

+105°C, Higher Ripple Current (較高紋波), Lower Impedance (較低阻抗品)

GK  
Series

FEATURES

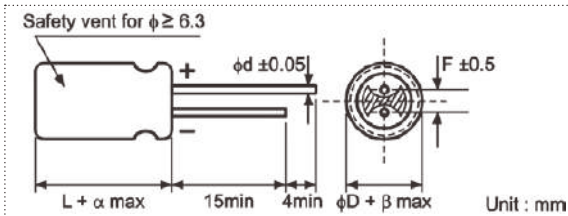
- Load life of 2,000~5,000 hours at 105°C.
- Enabled high ripple current by a reduction of impedance at high frequency range.
- Lowest impedance for personal computer and storage equipment.



SPECIFICATIONS

Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C								
Rated Working Voltage Range	6.3 to 25V								
Nominal Capacitance Range	100 to 3900µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25				
	tan δ (max.)	0.22	0.19	0.16	0.14				
For capacitance value >1000µF, add 0.02 per another 1000µF									
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V)	6.3	10	16	25				
Z-25°C / Z+20°C						2	2	2	2
High Temperature Loading	Test time	ΦD	6.3	8	10	12.5	Post test requirements at +20°C		
	Load life		2,000h	3,000h	4,000h	5,000h	Leakage current : ≤ Initial specified value		
	Test temperature	+105°C					Cap. change : within ±25% of the initial measured value		
Test conditions : Rated DC working voltage with rated ripple current						tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits								
		Leakage current : ≤ Initial specified value			Cap. change : within ±25% of the initial measured value			tan δ : ≤ 200% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

CASE SIZE TABLE



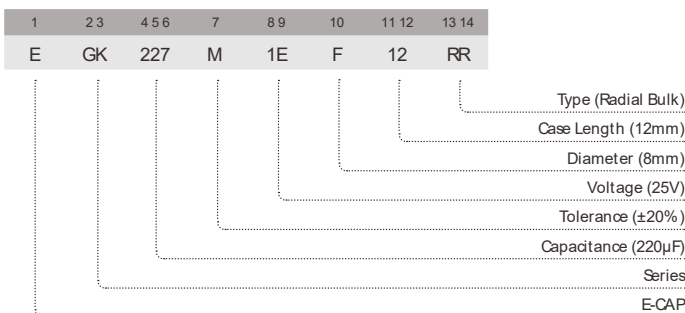
ΦD	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5
F	2.5	3.5	3.5	5.0	5.0
Φd	0.5	0.5	0.6	0.6	0.6
α	(L < 20) 1.5		(L ≥ 20) 2.0		
β	(D < 20) 0.5		(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (µF)	120	1k	10k	100k
Freq. (Hz)	100~180	0.40	0.75	0.90	1.00
	220~560	0.50	0.85	0.94	1.00
	680~1800	0.60	0.87	0.95	1.00
	2200~3900	0.75	0.90	0.95	1.00

PART NUMBER SYSTEM (EXAMPLE : 25V 220µF)



GK

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
120	127							6.3 x 11	0.130	405
220	227	6.3 x 11	0.130	405	6.3 x 11	0.130	405	8 x 12	0.072	760
330	337	6.3 x 11	0.130	405	8 x 12	0.072	760	8 x 12	0.072	760
470	477	8 x 12	0.072	760	8 x 12	0.072	760	8 x 16	0.056	995
560	567	8 x 12	0.072	760				10 x 12.5	0.053	1030
680	687				8 x 16	0.056	995	8 x 20	0.041	1250
					10 x 12.5	0.053	1030	10 x 16	0.038	1430
820	827	8 x 16	0.056	995						
1000	108	10 x 12.5	0.053	1030	8 x 20	0.041	1250	10 x 20	0.023	1820
					10 x 16	0.038	1430			
1200	128	8 x 20	0.041	1250	10 x 20	0.023	1820	10 x 25	0.022	2150
		10 x 16	0.038	1430						
1500	158	10 x 20	0.023	1820	10 x 25	0.022	2150	12.5 X 20	0.021	2360
2200	228	10 x 25	0.022	2150	12.5 x 20	0.021	2360	12.5 X 25	0.018	2770
3300	338	12.5 x 20	0.021	2360	12.5 x 25	0.018	2770			
3900	398	12.5 x 25	0.018	2770						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		25V (1E)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current
100	107	6.3 x 11	0.130	405
220	227	8 x 12	0.072	760
330	337	8 x 16	0.056	995
		10 x 12.5	0.053	1030
470	477	8 x 20	0.041	1250
		10 x 16	0.038	1430
680	687	10 x 20	0.023	1820
820	827	10 x 25	0.022	2150
1000	108	12.5 x 20	0.021	2360
1500	158	12.5 x 25	0.018	2770

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

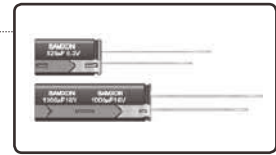
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, Highest Ripple Current (更高紋波), Lowest Impedance (更低阻抗品), Long Life (長壽命)



FEATURES

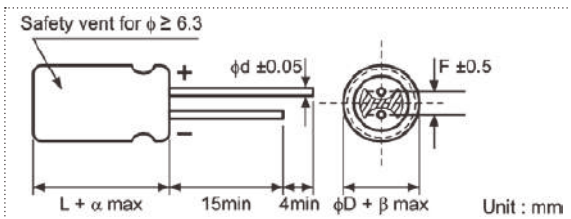
- Load life of 5,000~6,000 hours at 105°C.
- Enabled high ripple current by a reduction of impedance at high frequency range.
- Lowest impedance for personal computer and storage equipment.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C							
Rated Working Voltage Range	6.3 to 50V							
Nominal Capacitance Range	100 to 8200µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	
For capacitance value >1000µF add 0.02 per another 1000µF								
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	6.3	10	16	25	35	50	
Z-25°C / Z+20°C		2	2	2	2	2	2	
High Temperature Loading	Test time	ΦD	6.3	8~16	Post test requirements at +20°C			
		Load life	5,000h	6,000h	Leakage current : ≤ Initial specified value			
	Test temperature	: +105°C				Cap. change : within ±25% of the initial measured value (6.3, 10V: within ±30%)		
Test conditions		: Rated DC working voltage with rated ripple current				tan δ		: ≤ 200% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current		: ≤ Initial specified value					
	Cap. change		: within ±25% of the initial measured value (6.3, 10V: within ±30%)					
tan δ		: ≤ 200% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



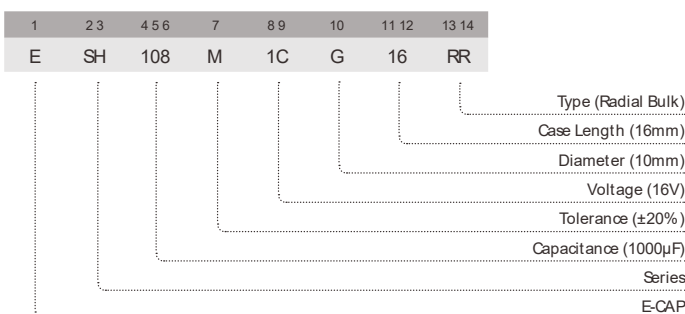
Φ D	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16
F	2.5	3.5	3.5	5.0	5.0	7.5
Φ d	0.5	0.5	0.6	0.6	0.6	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
Cap (µF)	120	1k	10k	100k
100~180	0.40	0.75	0.90	1.00
220~560	0.50	0.85	0.94	1.00
680~1800	0.60	0.87	0.95	1.00
2200~3900	0.75	0.90	0.95	1.00
4700~8200	0.85	0.95	0.98	1.00

PART NUMBER SYSTEM (EXAMPLE : 16V 100µF)



SH

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
220	227							6.3 x 11	0.110	500
330	337				6.3 x 11	0.110	500			
470	477	6.3 x 11	0.110	500				8 x 12	0.062	900
680	687				8 x 12	0.062	900	8 x 16	0.048	1210
								10 x 12.5	0.045	1240
820	827	8 x 12	0.062	900						
1000	108				8 x 16	0.048	1210	8 x 20	0.033	1410
					10 x 12.5	0.045	1240	10 x 16	0.032	1650
1200	128	8 x 16	0.048	1210						
		10 x 12.5	0.045	1240						
1500	158	8 x 20	0.033	1410	8 x 20	0.033	1410	10 x 20	0.020	1960
					10 x 16	0.032	1650			
						0.032	1760*		0.028	2500*
1800	188	10 x 16	0.032	1650	10 x 20	0.020	1960	10 x 25	0.018	2250
2200	228	10 x 20	0.020	1960	10 x 25	0.018	2250	12.5 x 20	0.017	2480
2700	278	10 x 25	0.018	2250				12.5 x 25	0.015	2900
3300	338				12.5 x 20	0.017	2480	12.5 x 30	0.013	3450
								16 x 20	0.015	3250
3900	398	12.5 x 20	0.017	2480	12.5 x 25	0.015	2900	12.5 x 35	0.012	3570
4700	478	12.5 x 25	0.015	2900	12.5 x 30	0.013	3450			
					16 x 20	0.015	3250	16 x 25	0.013	3630
5600	568	12.5 x 30	0.013	3450	12.5 x 35	0.012	3570			
6800	688	12.5 x 35	0.012	3570	16 x 25	0.013	3630			
		16 x 20	0.015	3250						
8200	828	16 x 25	0.013	3630						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107	6.3 x 11	0.110	500	6.3 x 11	0.110	500	8 x 12	0.074	724
150	157	6.3 x 11	0.110	500				10 x 12.5	0.061	979
220	227				8 x 12	0.062	900	10 x 16	0.042	1370
330	337	8 x 12	0.062	900	10 x 12.5	0.045	1240	10 x 20	0.028	1870
390	397	8 x 16	0.048	1210	8 x 20	0.033	1410			
470	477	10 x 12.5	0.045	1240	10 x 16	0.032	1650	12.5 x 20	0.027	2050
560	567	8 x 20	0.033	1410	10 x 20	0.020	1960	12.5 x 25	0.023	2410
680	687	10 x 16	0.032	1650	10 x 20	0.020	1960	12.5 x 30	0.021	2860
			0.032	1760*						
820	827	10 x 20	0.020	1960*						
1000	108	10 x 25	0.018	2250	12.5 x 20	0.017	2480	16 x 25	0.021	3010
1200	128				12.5 x 25	0.015	2900			
1500	158	12.5 x 20	0.017	2480						
1800	188	12.5 x 25	0.015	2900						
2200	228	12.5 x 30	0.013	3450	16 x 25	0.013	3630			
		16 x 20	0.015	3250						
2700	278	12.5 x 35	0.012	3570						
3300	338	16 x 25	0.013	3630						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

\* Special item with higher ripple current & longer life of 10,000 hrs.

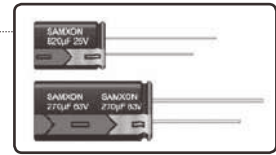
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, Highest Ripple Current (更高紋波), Longest Life Assurance (更長壽命), Lower Impedance (較低阻抗)



FEATURES

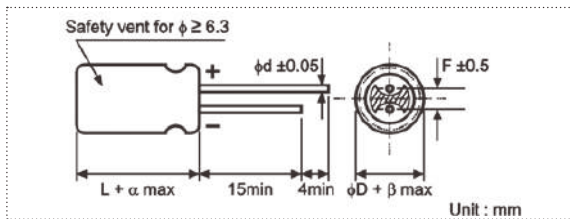
- Higher ripple current than GT series and Lower Impedance than GY series.
- Load life of 6,000~10,000 hours at 105°C.
- Enabled high ripple current by a reduction of impedance at high frequency range.
- Lowest impedance for personal computer and storage equipment.



SPECIFICATIONS

Item	Performance Characteristics									
Operating Temperature Range	-40 to +105°C									
Rated Working Voltage Range	6.3 to 100V									
Nominal Capacitance Range	33 to 8200µF									
Capacitance Tolerance	±20% at 120Hz, +20°C									
Leakage Current	I ≤ 0.01CV or 3(µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C									
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	80	100
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08
	For capacitance > 1000µF, add 0.02 per another 1000µF									
Low Temperature Characteristics	Impedance ratio max. at 120Hz									
	Working Voltage (V)	6.3	10	16	25	35	50	63	80	100
	Z-25°C / Z+20°C	2	2	2	2	2	2	2	2	2
High Temperature Loading	Test time	ΦD	6.3V	10-50V	63-100V	Post test requirements at +20°C				
		≤6.3	6,000h	7,000h	6,000h	Leakage current : ≤Initial specified value				
		8 x 12	8,000h	9,000h	8,000h	Cap. change : within ±25% of the initial measured value (6.3, 10V: within ±30%)				
		10 x 12.5	9,000h	9,000h	9,000h	tan δ : ≤200% of the initial specified value				
		8 x 16, 8 x 20	9,000h	10,000h	9,000h					
	10 x 16, 10 x 20, 10 x 25, ≥12.5	10,000h								
	Test temperature	: +105°C								
	Test conditions	: Rated DC working voltage with rated ripple current								
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits									
	Leakage current	: ≤Initial specified value								
	Cap. change	: within ±25% of the initial measured value (6.3, 10V: within ±30%)								
	tan δ	: ≤200% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)									

CASE SIZE TABLE



ΦD	5	6.3	8(L<20)	8(L≥20)	10	12.5	16	18
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5				(L ≥ 20) 2.0			
β	(D < 20) 0.5				(D ≥ 20) 1.0			

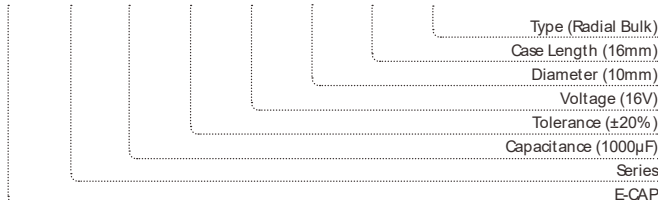
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)	120	1K	10K	100K
Cap (µF)	33~270	0.50	0.73	0.92	1.00
	330~680	0.55	0.77	0.94	1.00
	820~1800	0.60	0.80	0.96	1.00
	2200~8200	0.70	0.85	0.98	1.00

PART NUMBER SYSTEM (EXAMPLE : 16V 1000µF)

1	23	456	7	89	10	11 12	13 14
E	SK	108	M	1C	G	16	RR



SK

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
270	277							6.3 x 12	0.170	700
330	337				6.3 x 12	0.170	700			
470	477	6.3 x 12	0.170	540				8 x 12	0.075	1200
560	567				8 x 12	0.075	1200	8 x 16	0.059	1600
680	687				8 x 16	0.059	1600	8 x 16	0.059	1600
								10 x 12.5	0.053	1700
820	827	8 x 12	0.075	945	10 x 12.5	0.053	1700	8 x 20	0.041	1960
1000	108	8 x 16	0.059	1250	8 x 16	0.059	1600	8 x 16	0.059	1600
					8 x 20	0.041	1960	10 x 16	0.038	2000
1200	128	10 x 12.5	0.053	1330	10 x 16	0.038	2000			
1500	158	8 x 20	0.041	1500				10 x 16	0.038	2000
								10 x 20	0.028	2500
1800	188	10 x 16	0.038	1760	10 x 20	0.028	2500	10 x 25	0.024	2900
2200	228				10 x 25	0.024	2900	10 x 20	0.028	2500
								12.5 x 20	0.025	2600
2700	278	10 x 20	0.028	1960	12.5 x 20	0.025	2600	12.5 x 25	0.019	3200
3300	338	10 x 25	0.024	2250	12.5 x 25	0.019	3200	12.5 x 25	0.019	3200
								16 x 20	0.021	3330
3900	398	12.5 x 20	0.025	2480				12.5 x 35	0.016	4120
4700	478	12.5 x 25	0.019	2900	12.5 x 30	0.018	3660	16 x 25	0.017	3810
					16 x 20	0.021	3330			
5600	568	12.5 x 30	0.018	3450	12.5 x 35	0.016	4120			
					16 x 25	0.017	3810			
6800	688	12.5 x 35	0.016	3570						
		16 x 20	0.021	3250						
8200	828	16 x 25	0.017	3630						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

+105°C, Highest Ripple Current (更高紋波), Longest Life Assurance (更長壽命), Lower Impedance (較低阻抗)



STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
56	566							6.3 x 12	0.220	500
100	107				6.3 x 12	0.170	700	8 x 12	0.120	950
120	127							8 x 16	0.082	1230
150	157	6.3 x 12	0.170	700				10 x 12.5	0.073	1280
180	187				8 x 12	0.075	1200	8 x 20	0.058	1580
220	227				8 x 16	0.059	1600	10 x 16	0.053	1650
270	277				10 x 12.5	0.053	1700			
330	337	8 x 12	0.075	1200	8 x 20	0.041	1960	10 x 16	0.053	1650
390	397	8 x 16	0.059	1600	10 x 16	0.038	2000	10 x 20	0.038	2060
470	477	8 x 12	0.075	1200	10 x 16	0.038	2000	10 x 20	0.038	2060
		10 x 12.5	0.053	1700				12.5 x 20	0.032	2300
560	567	8 x 20	0.041	1960	10 x 20	0.028	2500			
680	687	8 x 16	0.059	1600	10 x 20	0.028	2500	12.5 x 25	0.025	2800
		10 x 16	0.038	2000	10 x 25	0.024	2900			
820	827				12.5 x 20	0.025	2600	12.5 x 30	0.023	3370
								16 x 20	0.026	3070
1000	108	10 x 20	0.028	2500	12.5 x 20	0.025	2600	12.5 x 20	0.032	2300
								12.5 x 35	0.021	3810
1200	128	10 x 25	0.024	2900	12.5 x 25	0.019	3200			
1500	158	12.5 x 20	0.025	2600	12.5 x 30	0.018	3660			
								16 x 20	0.021	3330
1800	188	12.5 x 25	0.019	3200	12.5 x 35	0.016	4120			
					16 x 25	0.017	3810			
2200	228	12.5 x 30	0.018	3660						
		16 x 20	0.021	3330						
2700	278	12.5 x 35	0.016	4120						
3300	338	16 x 25	0.017	3810						

Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		63V (1J)			80V (1K)			100V (2A)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
33	336							8 x 12	0.290	620
47	476				8 x 12	0.290	620	8 x 16 10 x 12.5	0.200 0.170	780 780
56	566				8 x 16	0.200	780	10 x 12.5	0.170	780
68	686				10 x 12.5	0.170	780	8 x 20 10 x 12.5	0.160 0.170	1040 780
82	826	8 x 12	0.180	720	8 x 20	0.160	1040	10 x 16	0.110	1040
100	107	8 x 16	0.130	990	10 x 16	0.110	1040	10 x 16	0.110	1040
		10 x 12.5	0.110	990				10 x 20	0.084	1430
120	127	10 x 12.5	0.110	990				12.5 x 16	0.110	1430
								10 x 25	0.069	1620
150	157	8 x 20	0.096	1200	10 x 20	0.084	1430	10 x 20	0.084	1430
					12.5 x 16	0.110	1430	12.5 x 20	0.062	1750
180	187	10 x 16	0.076	1200	10 x 25	0.069	1620			
220	227				12.5 x 20	0.062	1750	12.5 x 25	0.047	2210
270	277	10 x 20	0.056	1570	12.5 x 25	0.047	2210	12.5 x 30	0.042	2400
		12.5 x 16	0.072	1570				16 x 20	0.048	1950
330	337	10 x 20	0.056	1570	12.5 x 30	0.042	2400	12.5 x 35	0.036	2600
		10 x 25	0.046	1990	16 x 20	0.048	1950			
390	397	12.5 x 20	0.041	1990	12.5 x 35	0.036	2600	12.5 x 40	0.032	2860
		12.5 x 25	0.031	2460				16 x 25	0.038	2430
470	477	12.5 x 25	0.031	2460	12.5 x 40	0.032	2860	18 x 20	0.045	2270
		12.5 x 30	0.028	2760	16 x 25	0.038	2430	16 x 31.5	0.032	2640
560	567	12.5 x 30	0.028	2760	18 x 20	0.045	2270	18 x 25	0.036	2500
		16 x 20	0.032	2380	16 x 31.5	0.032	2640	16 x 35.5	0.029	2860
680	687	12.5 x 35	0.024	3040	16 x 31.5	0.032	2640	18 x 31.5	0.030	2860
					16 x 35.5	0.029	2860	16 x 40	0.027	3510
820	827	16 x 25	0.025	2890	18 x 25	0.036	2500	18 x 35.5	0.027	3510
					16 x 40	0.027	3510	18 x 40	0.026	3860
1000	108				16 x 40	0.027	3510			
1200	128				18 x 35.5	0.027	3510			
					18 x 40	0.026	2860			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

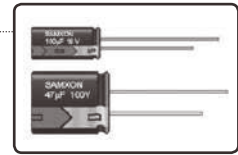
Maximum Impedance (Ω) at 20°C 100kHz

+105°C, High Ripple Current (高紋波), Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



FEATURES

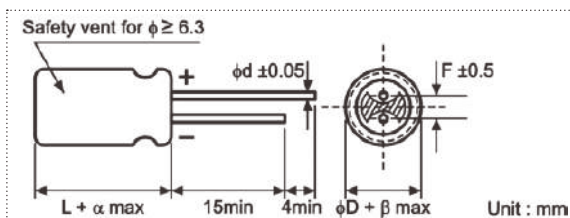
- Load life 105°C and low ESR.
- Excellent ripple current capability.
- Used in communication equipments, switching power supply, industrial measuring instruments, etc.



SPECIFICATIONS

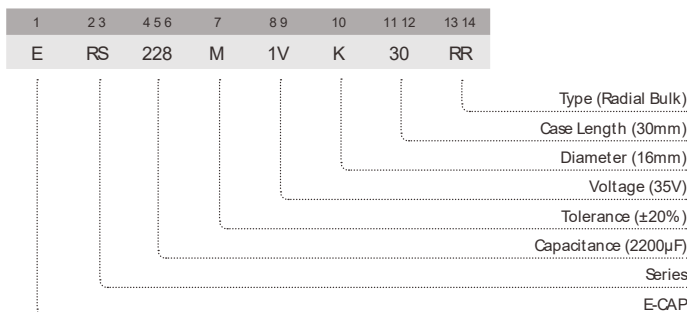
Item	Performance Characteristics										
Operating Temperature Range	-40 to +105°C										
Rated Working Voltage Range	6.3 to 100V										
Nominal Capacitance Range	15 to 4700µF										
Capacitance Tolerance	±20% at 120Hz, +20°C										
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C										
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100		
	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08		
For capacitance value >1000µF, add 0.02 per another 1000µF											
Low Temperature Characteristics	Impedance ratio max. at 120Hz										
	Working Voltage (V)	6.3	10	16	25	35	50	63	100		
	Z-25°C / Z+20°C	4	3	3	3	3	3	2	2		
	Z-40°C / Z+20°C	8	6	4	4	3	3	3	3		
High Temperature Loading	Test time	ΦD	6.3	8	10	12.5	Post test requirements at +20°C				
	Load life	3,000h	4,000h	5,000h	7,000h	Leakage current : ≤ Initial specified value					
Shelf Life	Test temperature	+105°C								Cap. change	within ±25% of the initial measured value
	Test conditions	Rated DC working voltage with rated ripple current								tan δ	≤ 200% of the initial specified value
Industrial Standard	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits										
	Leakage current	≤ Initial specified value									Cap. change
	tan δ	≤ 200% of the initial specified value									

CASE SIZE TABLE



ΦD	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5
F	2.5	3.5	3.5	5.0	5.0
Φd	0.5	0.5	0.6	0.6	0.6
α	(L < 20) 1.5		(L ≥ 20) 2.0		
β	(D < 20) 0.5		(D ≥ 20) 1.0		

PART NUMBER SYSTEM (EXAMPLE : 35V 2200µF)



RS Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107							6.3 x 11	0.286	298
120	127							6.3 x 11	0.286	298
150	157				6.3 x 11	0.286	298	6.3 x 11	0.286	298
								8 x 12	0.169	561
180	187				6.3 x 11	0.286	298	6.3 x 11	0.286	298
								8 x 12	0.169	561
220	227	6.3 x 11	0.286	298	6.3 x 11	0.286	298	6.3 x 11	0.286	298
								8 x 12	0.169	561
270	227	6.3 x 11	0.286	298	6.3 x 11	0.286	298	8 x 12	0.169	561
					8 x 12	0.169	561			
330	337	6.3 x 11	0.286	298	6.3 x 11	0.286	298	8 x 12	0.169	561
		8 x 12	0.169	561	8 x 12	0.169	561			
390	397	8 x 12	0.169	561	8 x 12	0.169	561	8 x 12	0.169	561
470	477	8 x 12	0.169	561	8 x 12	0.169	561	8 x 12	0.169	561
								10 x 12.5	0.104	759
560	567	8 x 12	0.169	561	8 x 12	0.169	561	10 x 12.5	0.104	759
680	687	8 x 12	0.169	561	8 x 12	0.169	561	8 x 16	0.113	737
								10 x 12.5	0.104	759
820	827	8 x 12	0.169	561						
		10 x 12.5	0.104	759	10 x 12.5	0.104	759	10 x 16	0.078	1061
1000	108	8 x 12	0.169	561	8 x 16	0.113	737	10 x 16	0.078	1061
		10 x 12.5	0.104	759	10 x 16	0.078	1061			
1200	128	8 x 16	0.113	737	10 x 20	0.060	1228	10 x 20	0.060	1228
		10 x 12.5	0.104	759						
1500	158	8 x 20	0.090	921	10 x 20	0.060	1228	10 x 20	0.060	1228
		10 x 16	0.078	1061						
1800	188	10 x 20	0.060	1228	10 x 20	0.060	1228	10 x 25	0.055	1447
								12.5 x 20	0.046	1666
2200	228	10 x 20	0.060	1228	10 x 20	0.060	1228	12.5 x 20	0.046	1666
2700	278	10 x 25	0.055	1447	10 x 25	0.055	1447	12.5 x 25	0.039	1863
		12.5 x 20	0.046	1666	12.5 x 20	0.046	1666			
3300	338	10 x 25	0.055	1447	12.5 x 25	0.039	1863			
		12.5 x 20	0.046	1666						
3900	398	12.5 x 20	0.046	1666						
4700	478	12.5 x 25	0.039	1863						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, High Ripple Current (高紋波), Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
33	336							6.3 x 11	0.390	259
39	396							6.3 x 11	0.390	259
47	476				6.3 x 11	0.286	298	6.3 x 11	0.390	259
56	566				6.3 x 11	0.286	298	8 x 12	0.221	487
68	686				6.3 x 11	0.286	298	8 x 12	0.221	487
82	826	6.3 x 11	0.286	298	8 x 12	0.169	561	8 x 12	0.221	487
100	107	6.3 x 11	0.286	298	8 x 12	0.169	561	10 x 12.5	0.156	667
120	127	8 x 12	0.169	561	8 x 12	0.169	561	8 x 16	0.156	640
150	157	8 x 12	0.169	561	8 x 12	0.169	561	10 x 12.5	0.156	667
180	187	8 x 12	0.169	561	8 x 12	0.169	561	10 x 16	0.109	921
220	227	8 x 12	0.169	561	10 x 12.5	0.104	759	8 x 20	0.118	798
270	277	8 x 12	0.169	561	10 x 12.5	0.104	759	10 x 16	0.109	921
330	337	8 x 12	0.169	561	8 x 16	0.113	737	10 x 16	0.109	921
390	397	10 x 12.5	0.104	759	10 x 12.5	0.104	759	10 x 16	0.104	759
470	477	10 x 12.5	0.104	759	10 x 16	0.078	1061	10 x 16	0.078	1061
560	567	8 x 12	0.169	561	8 x 20	0.090	921	12.5 x 20	0.059	1456
680	687	10 x 12.5	0.104	759	10 x 16	0.078	1061	10 x 16	0.078	1061
820	827	10 x 12.5	0.104	759	10 x 16	0.078	1061	12.5 x 20	0.059	1456
1000	108	8 x 16	0.113	737	10 x 16	0.078	1061	12.5 x 25	0.050	1620
1200	128	10 x 12.5	0.104	759	10 x 16	0.078	1061	10 x 16	0.078	1061
1500	158	10 x 16	0.078	1061	10 x 16	0.078	1061	12.5 x 25	0.050	1620
1800	188	10 x 16	0.078	1061	10 x 20	0.060	1228	12.5 x 25	0.050	1620
2200	228	10 x 16	0.078	1061	10 x 20	0.060	1228	10 x 25	0.055	1447
		10 x 20	0.060	1228	12.5 x 20	0.046	1666	12.5 x 20	0.046	1666
		10 x 20	0.060	1228	12.5 x 25	0.039	1863	12.5 x 25	0.039	1863
		10 x 25	0.055	1447						
		12.5 x 20	0.046	1666						
		12.5 x 25	0.039	1863						
		12.5 x 25	0.039	1863						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
15	156				6.3 x 11	1.560	101
22	226	6.3 x 11	1.560	101			
27	276	6.3 x 11	1.560	101	8 x 12	0.819	203
33	336	6.3 x 11	1.560	101			
39	396	8 x 12	0.819	203	8 x 16	0.585	263
47	476	8 x 12	0.819	203	10 x 12.5	0.559	253
56	566	8 x 12	0.819	203	8 x 20	0.429	317
68	686	8 x 12	0.819	203	10 x 16	0.403	313
82	826	10 x 12.5	0.559	253	10 x 20	0.273	409
100	107	8 x 16	0.585	263	10 x 20	0.273	409
		10 x 12.5	0.559	253			
120	127	10 x 16	0.403	313	12.5 x 20	0.208	605
150	157	8 x 20	0.429	317			
180	187	10 x 20	0.273	409	12.5 x 25	0.156	688
220	227	10 x 20	0.273	409	12.5 x 25	0.156	688
270	277	12.5 x 20	0.208	605			
330	337	12.5 x 20	0.208	605			
390	397	12.5 x 25	0.156	688			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Cap (µF)	120	1k	10k	100k
≤180	0.40	0.75	0.90	1.00
220~560	0.50	0.85	0.94	1.00
680~1800	0.60	0.87	0.95	1.00
2200~3900	0.75	0.90	0.95	1.00
4700	0.85	0.95	0.98	1.00

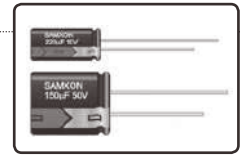
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



FEATURES

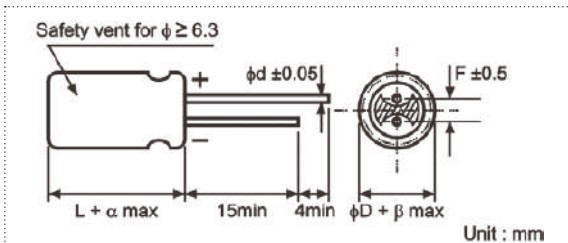
- Low impedance for high frequency.
- Load life of 4,000~10,000 hours at 105°C.



SPECIFICATIONS

Item	Performance Characteristics
Operating Temperature Range	-40 to +105°C
Rated Working Voltage Range	6.3 to 100V
Nominal Capacitance Range	2.2 to 15000µF
Capacitance Tolerance	±20% at 120Hz, +20°C
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C
tan δ (120Hz, +20°C)	Working Voltage (V)
	tan δ (max.)
Low Temperature Characteristics	Impedance ratio max. at 120Hz
	Rated Voltage (V)
	Z-25°C / Z+20°C
High Temperature Loading	Test time
	Test temperature
	Test conditions
	Post test requirements at +20°C
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits
	Leakage current
	Cap. change
Industrial Standard	JISC - 5101-4 (IEC 60384-4)

CASE SIZE TABLE



Φ D	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α		(L < 20) 1.5			(L ≥ 20) 2.0		
β		(D < 20) 0.5			(D ≥ 20) 1.0		

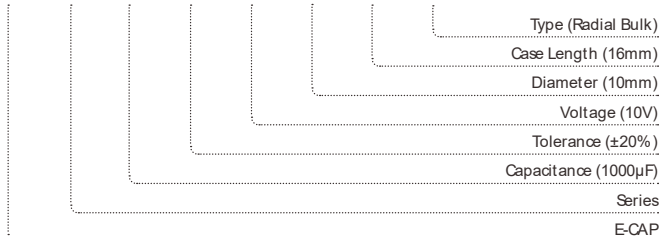
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	120	1k	10k	100k
2.2~10	0.42	0.60	0.80	1.00
22~33	0.55	0.75	0.90	1.00
47~330	0.70	0.85	0.95	1.00
470~1000	0.75	0.90	0.98	1.00
2200~15000	0.80	0.95	1.00	1.00

PART NUMBER SYSTEM (EXAMPLE : 10V 1000µF)

1	23	456	7	89	10	11 12	13 14
E	GY	108	M	1A	G	16	RR



GY

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
47	476							5 x 11	0.900	150
100	107	5 x 11	0.900	150	5 x 11	0.900	150	6.3 x 11	0.400	250
220	227	6.3 x 11	0.400	250	6.3 x 11	0.400	250	6.3 x 11	0.400	250
330	337	6.3 x 11	0.400	250	8 x 12	0.250	400	8 x 12	0.250	400
470	477	8 x 12	0.250	400	8 x 12	0.250	400	8 x 12	0.250	400
								10 x 12.5	0.160	580
1000	108	10 x 12.5	0.160	580	10 x 16	0.120	770	10 x 16	0.120	770
								10 x 20	0.078	1050
2200	228	12.5 x 20	0.062	1300	12.5 x 20	0.062	1300	12.5 x 25	0.048	1650
3300	338	12.5 x 20	0.062	1300	12.5 x 25	0.048	1650	16 x 25	0.034	1850
4700	478	16 x 25	0.034	1850	16 x 25	0.034	1850	16 x 30	0.029	2000
6800	688	16 x 25	0.034	1850	16 x 30	0.029	2000	18 x 35	0.025	2200
10000	109	16 x 30	0.029	2000	18 x 35	0.025	2200			
15000	159	18 x 35	0.025	2200						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
2.2	225							5 x 11	2.500	43
3.3	335							5 x 11	2.200	53
4.7	475							5 x 11	1.900	88
10	106							5 x 11	1.500	100
22	226							5 x 11	0.900	150
33	336	5 x 11	0.900	150	5 x 11	0.900	150	6.3 x 11	0.400	250
47	476	5 x 11	0.900	150	6.3 x 11	0.400	250	6.3 x 11	0.400	250
100	107	6.3 x 11	0.400	250	6.3 x 11	0.400	250	8 x 12	0.250	400
					8 x 12	0.250	400			
220	227	8 x 12	0.250	400	10 x 12.5	0.160	580	10 x 16	0.120	770
330	337	8 x 12	0.250	400	10 x 16	0.120	770	10 x 20	0.078	1050
		10 x 12.5	0.160	580						
		8 x 16	0.220	510				10 x 20	0.078	1050
470	477	10 x 12.5	0.160	580	10 x 20	0.078	1050	12.5 x 20	0.062	1300
		10 x 16	0.120	770						
560	567							12.5 x 16	0.078	1050
680	687	10 x 12.5	0.160	580				12.5 x 20	0.062	1300
1000	108	10 x 20	0.078	1050	12.5 x 20	0.062	1300	16 x 25	0.034	1850
		12.5 x 20	0.062	1300	12.5 x 25	0.048	1650			
2200	228	12.5 x 25	0.048	1650	16 x 25	0.034	1850	18 x 35	0.025	2200
		16 x 25	0.034	1850	16 x 30	0.029	2000			
3300	338	16 x 30	0.029	2000	18 x 35	0.025	2200	18 x 35	0.025	2200
4700	478	18 x 35	0.025	2200						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+105°C, Longer Life Assurance (較長壽命), Low Impedance (低阻抗品)



STANDARD RATINGS

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
22	226	6.3 x 11	1.300	140	8 x 12	0.630	160
33	336	6.3 x 11	1.200	140	10 x 12.5	0.430	230
47	476	8 x 12	0.630	210	10 x 16	0.310	290
100	107	10 x 12.5	0.430	300	10 x 16	0.310	290
					12.5 x 20	0.160	430
220	227	10 x 20	0.210	520	16 x 25	0.073	900
330	337	12.5 x 20	0.160	660	16 x 25	0.073	900
470	477	12.5 x 25	0.120	750			
1000	108	16 x 30	0.054	1390			

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

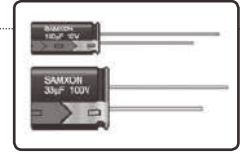
GY

Miniature Aluminum Electrolytic Capacitors

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

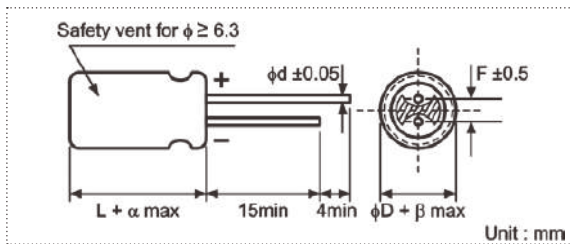
- Load life of 1,000~4,000 hours at 105°C
- Enabled high ripple current by a reduction of impedance at high frequency range.



SPECIFICATIONS

Item	Performance Characteristics
Operating Temperature Range	-55 to +105°C
Rated Working Voltage Range	6.3 to 100V
Nominal Capacitance Range	22 to 4700μF
Capacitance Tolerance	±20% at 120Hz, +20°C
Leakage Current	I ≤ 0.01CV or 3 (μA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C
tan δ (120Hz, +20°C)	Working Voltage (V)
	tan δ (max.)
Low Temperature Characteristics	Impedance ratio max. at 120 Hz
	Working Voltage (V)
	Z-25°C / Z+20°C
High Temperature Loading	Test time
	Test temperature
	Test conditions
	Post test requirements at +20°C
Shelf Life	Leakage current
	Cap. change
	tan δ
Industrial Standard	JISC - 5101-4 (IEC 60384-4) EIAJ RC - 2372

CASE SIZE TABLE



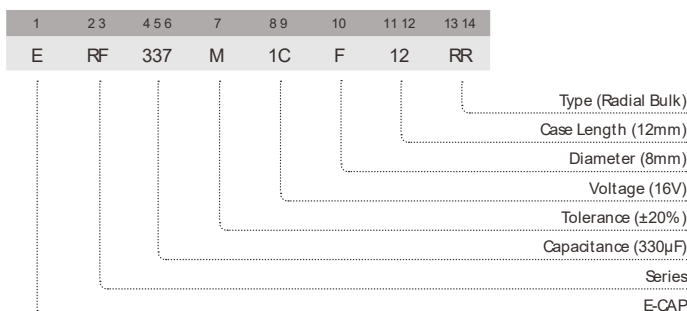
Φ D	6.3	8(L <20)	8(L <20)	10	12.5
F	2.5	3.5	3.5	5.0	5.0
Φ d	0.5	0.5	0.6	0.6	0.6
α	(L <20) 1.5			(L ≥20) 2.0	
β	(D <20) 0.5			(D ≥20) 1.0	

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)				
Cap (μF)	60	120	1k	10k	100k
22~330	0.55	0.75	0.85	0.90	1.00
390~1000	0.70	0.75	0.90	0.95	1.00
1200~2200	0.75	0.80	0.90	0.95	1.00
2700~4700	0.80	0.85	0.95	1.00	1.00

PART NUMBER SYSTEM (EXAMPLE : 16V 330μF)



-55°C~+105°C, Wide Temperature (寬溫度), High Ripple Current (高紋波), Low Impedance (低阻抗品)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107							6.3 x 11	0.220	340
120	127							6.3 x 11	0.220	340
150	157				6.3 x 11	0.220	340	6.3 x 11	0.220	340
180	187	6.3 x 11	0.220	340	6.3 x 11	0.220	340	6.3 x 11	0.220	340
220	227	6.3 x 11	0.220	340	6.3 x 11	0.220	340	8 x 12	0.130	640
270	277	6.3 x 11	0.220	340	6.3 x 11	0.220	340	8 x 12	0.130	640
330	337	6.3 x 11	0.220	340	8 x 12	0.130	640	8 x 12	0.130	640
390	397	8 x 12	0.130	640	8 x 12	0.130	640	8 x 12	0.130	640
470	477	8 x 12	0.130	640	8 x 12	0.130	640	8 x 12	0.130	640
								10 x 12.5	0.080	865
560	567	8 x 12	0.130	640	8 x 12	0.130	640	10 x 12.5	0.080	865
680	687	8 x 12	0.130	640	8 x 12	0.130	640	8 x 16	0.087	840
								10 x 12.5	0.080	865
820	827	8 x 12	0.130	640	10 x 12.5	0.080	865	10 x 16	0.060	1210
		10 x 12.5	0.080	865						
1000	108	8 x 12	0.130	640	8 x 16	0.087	840	10 x 16	0.060	1210
		10 x 12.5	0.080	865	10 x 16	0.060	1210			
1200	128	8 x 16	0.087	840	10 x 20	0.046	1400	10 x 20	0.046	1400
		10 x 12.5	0.080	865						
1500	158	10 x 16	0.060	1210	10 x 20	0.046	1400	10 x 20	0.046	1400
1800	188	10 x 20	0.046	1400	10 x 20	0.046	1400	12.5 x 20	0.035	1900
2200	228	10 x 20	0.046	1400	10 x 20	0.046	1400	12.5 x 20	0.035	1900
2700	278	10 x 25	0.042	1650	12.5 x 20	0.035	1900	12.5 x 25	0.030	2124
		12.5 x 20	0.035	1900						
3300	338	10 x 25	0.042	1650	12.5 x 25	0.030	2124			
		12.5 x 20	0.035	1900						
3900	398	12.5 x 20	0.035	1900						
4700	478	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

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STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
33	336							6.3 x 11	0.300	295
39	396							6.3 x 11	0.300	295
47	476				6.3 x 11	0.220	340	6.3 x 11	0.300	295
56	566				6.3 x 11	0.220	340	8 x 12	0.170	555
68	686				6.3 x 11	0.220	340	8 x 12	0.170	555
82	826	6.3 x 11	0.220	340	8 x 12	0.130	640	8 x 12	0.170	555
100	107	6.3 x 11	0.220	340	8 x 12	0.130	640	10 x 12.5	0.120	760
120	127	8 x 12	0.130	640	8 x 12	0.130	640	8 x 16	0.120	730
								10 x 12.5	0.120	760
150	157	8 x 12	0.130	640	8 x 12	0.130	640	10 x 16	0.084	1050
								8 x 20	0.091	910
180	187	8 x 12	0.130	640	10 x 12.5	0.080	865	10 x 16	0.084	1050
								8 x 16	0.087	840
220	227	8 x 12	0.130	640	10 x 12.5	0.080	865	10 x 16	0.084	1050
								10 x 16	0.060	1210
270	277	10 x 12.5	0.080	865	10 x 16	0.060	1210	10 x 25	0.055	1440
		8 x 12	0.130	640	8 x 20	0.069	1050	12.5 x 20	0.045	1660
330	337	10 x 12.5	0.080	865	10 x 16	0.060	1210			
		10 x 12.5	0.080	865	10 x 16	0.060	1210	12.5 x 20	0.045	1660
390	397	10 x 12.5	0.080	865	10 x 16	0.060	1210	12.5 x 20	0.045	1660
		8 x 16	0.087	840	10 x 16	0.060	1210	12.5 x 25	0.034	1950
470	477	10 x 12.5	0.080	865						
560	567	10 x 16	0.060	1210	10 x 20	0.046	1400	12.5 x 25	0.034	1950
680	687	10 x 16	0.060	1210	10 x 20	0.046	1400			
820	827	10 x 20	0.046	1400	12.5 x 20	0.035	1900			
1000	108	10 x 20	0.046	1400	12.5 x 25	0.030	2124			
1200	128	10 x 20	0.046	1400						
		10 x 25	0.042	1650						
1500	158	12.5 x 20	0.035	1900						
		12.5 x 25	0.030	2124						
1800	188	12.5 x 25	0.030	2124						
2200	228	12.5 x 25	0.030	2124						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

-55°C~+105°C, Wide Temperature (寬溫度), High Ripple Current (高紋波), Low Impedance (低阻抗品)



STANDARD RATINGS

Voltage (Code)		63V (1J)			100V (2A)		
Cap. (µF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
22	226	6.3 x 11	0.960	115			
33	336	6.3 x 11	0.960	115			
39	396	8 x 12	0.504	232	8 x 16	0.360	300
47	476	8 x 12	0.504	232	10 x 12.5	0.344	314
56	566	8 x 12	0.504	232	8 x 20	0.264	362
68	686	8 x 12	0.504	232	10 x 16	0.248	357
82	826	10 x 12.5	0.344	314	10 x 20	0.168	466
100	107	8 x 16	0.360	300	10 x 20	0.168	466
		10 x 12.5	0.344	314			
120	127	10 x 16	0.248	357	12.5 x 20	0.128	690
150	157	8 x 20	0.264	362			
180	187	10 x 20	0.168	466	12.5 x 25	0.096	922
220	227	10 x 20	0.168	466	12.5 x 25	0.096	922
270	277	12.5 x 20	0.128	690			
330	337	12.5 x 20	0.128	690			
390	397	12.5 x 25	0.096	922			

Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 100kHz

Case Size Φ D x L (mm)

Maximum Impedance (Ω) at 20°C 100kHz

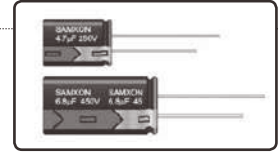
RF

Miniature Aluminum Electrolytic Capacitors

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FEATURES

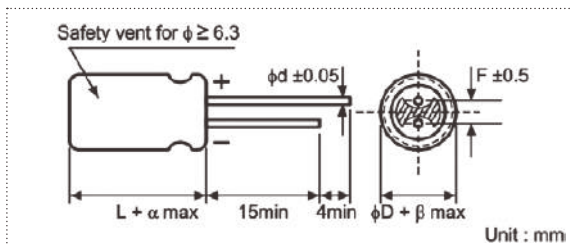
- High ripple current.
- For electronic ballast, power supply.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C				-25 to +105°C			
Rated Working Voltage Range	160 to 400V				450V to 500V			
Nominal Capacitance Range	1 to 220µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450	500
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.24
Surge Voltage	Working Voltage (V)	160	200	250	350	400	450	500
	Surge Voltage (V)	200	250	300	400	450	500	550
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	160	200	250	350	400	450	500
	Z-25°C / Z+20°C	3	3	3	5	5	6	6
High Temperature Loading	Test time	: 3,000 hours			Post test requirements at +20°C			
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value			
	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value			
					tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current : ≤ Initial specified value							
	Cap. change : within ±20% of the initial measured value							
	tan δ : ≤ 200% of the initial specified value							
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



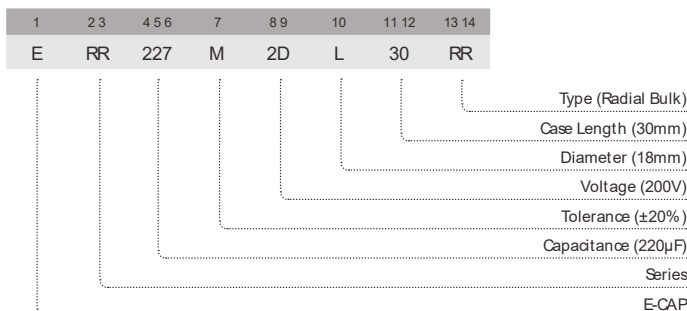
Φ D	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (µF)	120	1k	10k	100k
Freq. (Hz)	1~5.6	0.20	0.40	0.80	1.00
	6.8~180	0.40	0.75	0.90	1.00
	≥ 220	0.50	0.85	0.94	1.00

PART NUMBER SYSTEM (EXAMPLE : 200V 220µF)





STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475					8 x 12	160	10 x 12.5	150
5.6	565							10 x 12.5	180
6.8	685			8 x 12	204	8 x 12 10 x 12.5	215 250	10 x 16	280
10	106	10 x 16	320	10 x 16	320	10 x 16	320	10 x 20	350
22	226	10 x 20	500	10 x 16 10 x 20	453 500	10 x 16 10 x 20	453 500	12.5 x 20	650
33	336	10 x 20	650	10 x 16 10 x 20	589 650	10 x 16 12.5 x 20	640 800	16 x 20	900
47	476	10 x 20	750	12.5 x 20	980	12.5 x 20	980	16 x 20	1080
68	686	12.5 x 20	1180	12.5 x 25 16 x 20	1300 1300	16 x 20	1300	18 x 25	1470
82	826			16 x 20	1380	16 x 20	1380	18 x 25	1530
100	107	12.5 x 25 16 x 20	1420 1420	16 x 20	1420	16 x 25	1530		
150	157	16 x 25	1890	16 x 25	1890	18 x 25	1940		
220	227	18 x 25	2370	18 x 30	2648				

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)		500V (2H)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105	8 x 12	60				
1.5	155	8 x 12	90				
		10 x 12.5	100				
1.8	185	8 x 12	95				
		10 x 12.5	120				
2.2	225	8 x 12	95	8 x 12	105		
		10 x 12.5	140				
3.3	335	8 x 12	130				
		10 x 12.5	150				
4.7	475	8 x 12	171	8 x 16	176		
		10 x 16	220	10 x 20	220		
5.6	565	10 x 16	250	10 x 20	250		
6.8	685	10 x 16	280	10 x 12.5 10 x 20	228 280		
		10 x 16	317	10 x 20	397		
10	106	10 x 20	350	12.5 x 20	450	12.5 x 20	320
		12.5 x 15	487			12.5 x 25	440
15	156	12.5 x 20	550	12.5 x 25	600	16 x 20	440
				12.5 x 25	698	12.5 x 35	560
22	226	12.5 x 20	760	16 x 20	730	16 x 25	560
				16 x 20	891	18 x 20	560
33	336	12.5 x 25	861	16 x 20	891	16 x 30	700
		16 x 20	900	16 x 25	980	18 x 25	700
47	476	12.5 x 25	1027	16 x 25	1121		
		16 x 20	1073				
		16 x 25	1180	18 x 20	1093	18 x 30	880
		18 x 20	1180	18 x 25	1200		
68	686	16 x 25	1374				
		16 x 30	1488			18 x 35	1000
		18 x 25	1470				

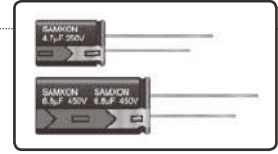
Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

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FEATURES

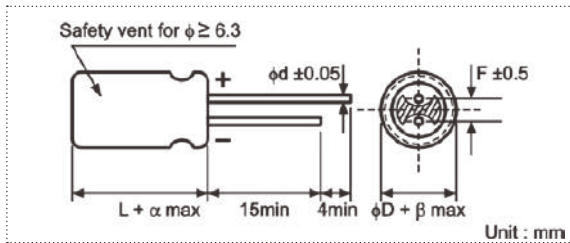
- High ripple current & load life 5,000 hours.
- For electronic ballast, power supply.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C				-25 to +105°C			
Rated Working Voltage Range	160 to 400V				450V to 500V			
Nominal Capacitance Range	1 to 220µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450	500
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.24
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	160	200	250	350	400	450	500
	Z-25°C / Z+20°C	3	3	3	5	5	6	6
High Temperature Loading	Test time	5,000 hours			Post test requirements at +20°C			
	Test temperature	+105°C			Leakage current : ≤ Initial specified value			
	Test conditions	Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value			
					tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current	≤ Initial specified value						
	Cap. change	within ±20% of the initial measured value						
	tan δ	≤ 200% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



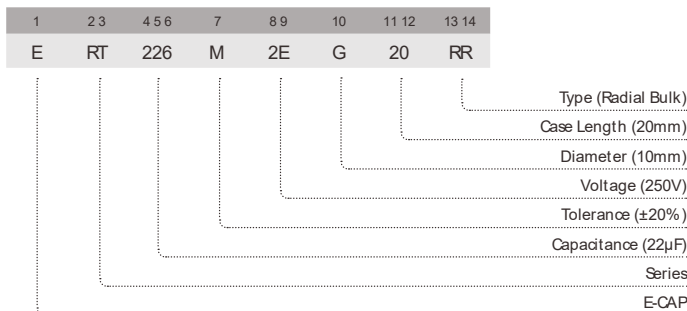
	Φ D 8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Cap (µF)	Freq. (Hz)			
	120	1k	10k	100k
1~5.6	0.20	0.40	0.80	1.00
6.8~180	0.40	0.75	0.90	1.00
≥ 220	0.50	0.85	0.94	1.00

PART NUMBER SYSTEM (EXAMPLE : 250V 22µF)





STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
3.3	335							8 x 12	110
4.7	475					8 x 12	160	10 x 12.5	150
5.6	565							10 x 12.5	180
6.8	685			8 x 12	204	8 x 12	215	10 x 16	280
						10 x 12.5	250		
10	106	10 x 16	320	10 x 16	320	10 x 16	320	10 x 20	350
15	156					10 x 16	380		
22	226	10 x 12.5	400	10 x 16	453	10 x 16	453	12.5 x 20	650
		10 x 20	500	10 x 20	500	10 x 20	500		
33	336	10 x 20	650	10 x 16	589	10 x 16	640	16 x 20	900
				10 x 20	650	12.5 x 20	800		
47	476	10 x 20	750	12.5 x 20	980	12.5 x 20	980	16 x 20	1080
							1200*		
68	686	10 x 20	950	12.5 x 25	1300	16 x 20	1300	18 x 25	1470
		12.5 x 20	1180	16 x 20	1300	16 x 25	1380		
82	826	10 x 20	1040	16 x 20	1380	16 x 20	1380	18 x 25	1530
							16 x 25		
100	107	12.5 x 25	1420	16 x 20	1420	12.5 x 30	1450		
		16 x 20	1420			16 x 25	1530		
150	157	16 x 25	1890	16 x 25	1890	18 x 25	1940		
220	227	18 x 25	2370	18 x 30	2648	18 x 35	2450		
330	337	18 x 30	2560	18 x 35	2780				
470	477	18 x 35	2760						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

RT

Miniature Aluminum Electrolytic Capacitors

\* Special item with higher ripple current.

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		400V (2G)		450V (2W)		500V (2H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105	8 x 12	60				
1.5	155	8 x 12	90				
		10 x 12.5	100				
1.8	185	8 x 12	95				
		10 x 12.5	120				
2.2	225	8 x 12	95	8 x 12	105		
		10 x 12.5	140				
3.3	335	8 x 12	130				
		10 x 12.5	150				
4.7	475	8 x 12	171	8 x 16	176		
				10 x 12.5	180		
		10 x 16	220	10 x 20	220		
5.6	565	10 x 16	250	10 x 20	250		
6.8	685	8 x 16	230	10 x 12.5	228		
		10 x 16	280	10 x 20	280		
10	106	10 x 16	317	10 x 20	397	12.5 x 20	320
		10 x 20	350	12.5 x 20	450		
15	156	10 x 16	380	12.5 x 25	600	12.5 x 25	440
		12.5 x 20	487			16 x 20	440
22	226	12.5 x 20	760	12.5 x 20	620	12.5 x 35	560
				12.5 x 25	698	16 x 25	560
				16 x 20	730	18 x 20	560
33	336	12.5 x 25	861	16 x 20	891	16 x 30	700
		16 x 20	900	16 x 25	980	18 x 25	700
47	476	12.5 x 25	1027	16 x 25	1121	18 x 30	880
		16 x 20	1073	18 x 20	1093		
		16 x 25	1180	18 x 25	1200		
		18 x 20	1180				
56	566	16 x 25	1250	16 x 25	1220		
		18 x 20	1250	18 x 20	1220		
68	686	16 x 25	1374			18 x 35	1000
		16 x 30	1488	18 x 25	1350		
		18 x 25	1470				
82	826	16 x 30	1600	18 x 30	1600		
		18 x 25	1600				
100	107	18 x 30	1850	18 x 35	2088		
120	127	18 x 30	2000	18 x 40	2325		

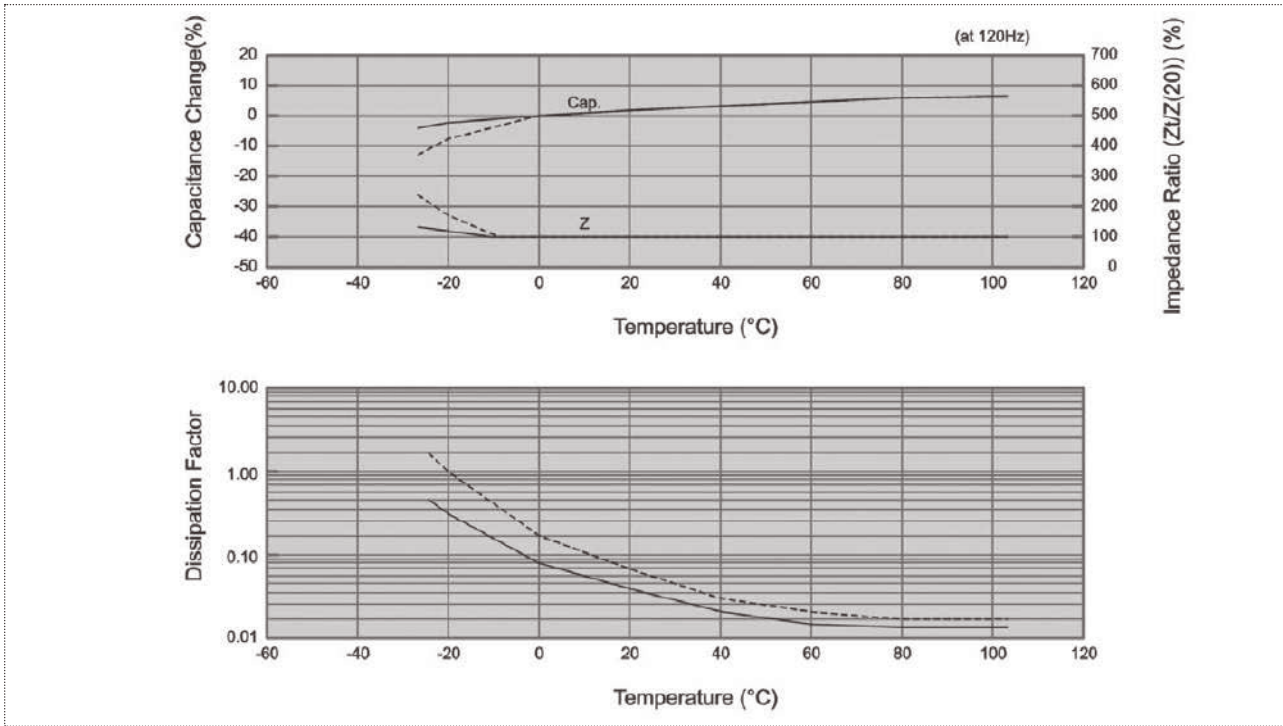
Maximum Allowable Ripple Current (mA<sub>rms</sub>) at 105°C 100kHz

Case Size Φ D x L (mm)

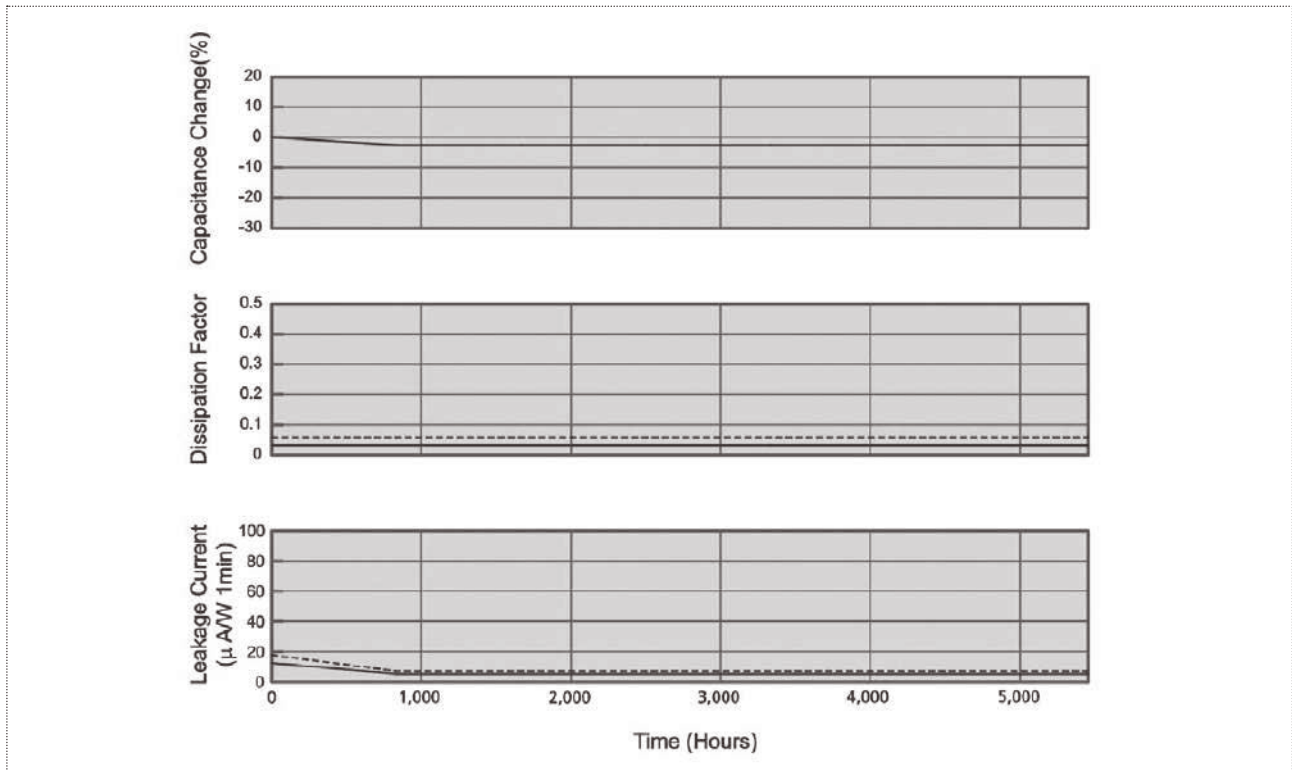
\* Special item with higher ripple current.

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

TEMPERATURE CHARACTERISTICS

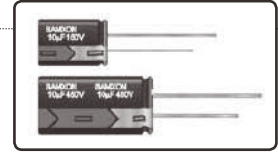


ENDURANCE



FEATURES

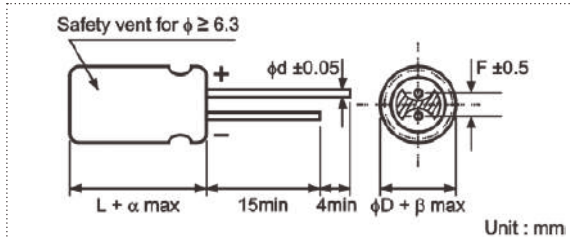
- Load life of 8,000~10,000 hours at 105°C.
- For electronic ballast.



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-25 to +105°C						
Rated Working Voltage Range	160 to 450V						
Nominal Capacitance Range	1 to 220µF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C						
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Rated Voltage (V)	160	200	250	350	400	450
	Z-25°C / Z+20°C	3	3	3	6	6	6
High Temperature Loading	Test time	ΦD	8~10	12.5~18	Post test requirements at +20°C		
		Load life	8,000h	10,000h	Leakage current : ≤ Initial specified value		
	Test temperature : +105°C	Test conditions : Rated DC working voltage with rated ripple current	tan δ : ≤ 200% of the initial specified value			Cap. change : within ±20% of the initial measured value	
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current : ≤ Initial specified value						
	Cap. change : within ±20% of the initial measured value						
	tan δ : ≤ 200% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)						

CASE SIZE TABLE



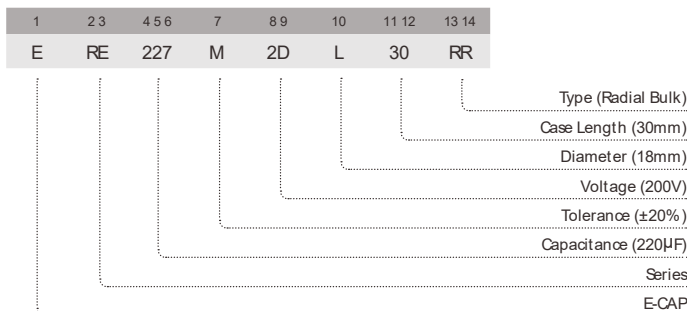
ΦD	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (µF)	120	1k	10k	100k
Freq. (Hz)	1~5.6	0.20	0.40	0.80	1.00
	6.8~180	0.40	0.75	0.90	1.00
	≥220	0.50	0.85	0.94	1.00

PART NUMBER SYSTEM (EXAMPLE : 200V 220µF)



## STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
6.8	685	8 x 12	160	8 x 12	160	8 x 12	150	10 x 16	220
10	106	10 x 16	250	10 x 16	250	10 x 12.5	228	10 x 16	254
						10 x 20	280	10 x 20	280
22	226	10 x 20	500	10 x 20	500	12.5 x 20	600	12.5 x 20	350
33	336	10 x 20	500	12.5 x 20	600	12.5 x 20	600	16 x 20	500
47	476	12.5 x 20	660	12.5 x 20	660	12.5 x 25	720	16 x 25	660
						16 x 20		18 x 20	
68	686	12.5 x 25	760	12.5 x 25	760	16 x 25	920	16 x 30	850
		16 x 20		16 x 20		18 x 20		18 x 25	
100	107	16 x 25	1120	16 x 25	1120	16 x 30	1200		
		18 x 20		18 x 20		18 x 25			
150	157	16 x 30	1360	16 x 30	1360	18 x 30	1500		
		18 x 25		18 x 25					
220	227	16 x 30	1400	18 x 30	1700				
		18 x 25							

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
1	105	8 x 12	38		
1.5	155	8 x 12	72		
		10 x 12.5	80		
1.8	185	8 x 12	76		
		10 x 12.5	96		
2.2	225	8 x 12	76		
		10 x 12.5	112		
3.3	335	10 x 12.5	120		
4.7	475	10 x 16	176	10 x 20	120
5.6	565	10 x 16	200	10 x 20	135
6.8	685	10 x 16	220	10 x 20	150
10	106	10 x 20	280	12.5 x 20	320
22	226	12.5 x 25	430	16 x 25	560
		16 x 20		18 x 20	
33	336	16 x 25	640	16 x 30	700
		18 x 20		18 x 25	
47	476	16 x 30	840	18 x 30	880
		18 x 25			
68	686	18 x 30	1000		

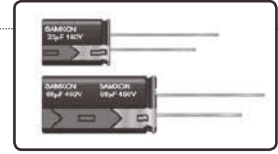
Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

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FEATURES

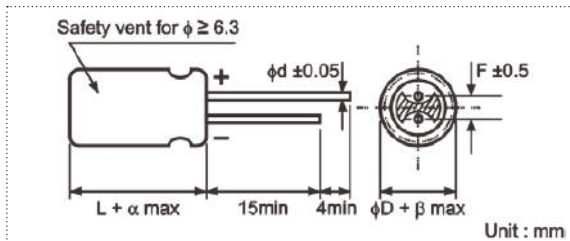
- High ripple current at high frequency, load life of 8,000~10,000 hours at 105°C.
- For electronic ballast, power supply input circuit.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C				-25 to +105°C			
Rated Working Voltage Range	160 to 400V				450 to 500V			
Nominal Capacitance Range	1 to 330µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450	500
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Rated Voltage (V)	160	200	250	350	400	450	500
	Z-25°C / Z+20°C	3	3	3	5	5	6	12
High Temperature Loading	Test time	Φ D	8~10	12.5~18	Post test requirements at +20°C			
		Load life	8,000h	10,000h	Leakage current : ≤ Initial specified value			
	Test temperature : +105°C	Test conditions : Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current : ≤ Initial specified value							
	Cap. change : within ±20% of the initial measured value							
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

CASE SIZE TABLE



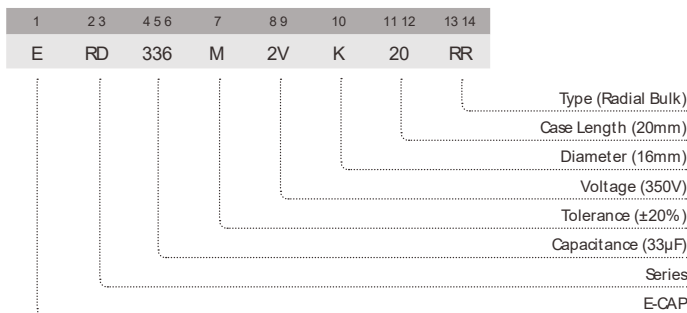
Φ D	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	120	1k	10k	100k
Cap (µF)				
1~5.6	0.20	0.40	0.80	1.00
6.8~180	0.40	0.75	0.90	1.00
≥220	0.50	0.85	0.94	1.00

PART NUMBER SYSTEM (EXAMPLE : 350V 33µF)





STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
10	106					10 x 16	342	10 x 20	350
22	226	10 x 20	500	10 x 16	544	10 x 16	508	12.5 x 20	480
				10 x 20	600	10 x 20	560		
33	336	10 x 20	580	10 x 20	650	12.5 x 20	710	16 x 20	640
						16 x 15	728		
47	476	10 x 20	750	10 x 20	697	12.5 x 20	834	16 x 25	800
				12.5 x 20	790	12.5 x 25	920		
68	686	12.5 x 20	950	12.5 x 20	861	16 x 20	1000	16 x 20	800
				12.5 x 25	950			16 x 20	1100
				16 x 20	1000			16 x 20	910
82	826	12.5 x 25	1060	16 x 20	1100	16 x 25	1200	18 x 25	1100
						18 x 20	1200		
100	107	12.5 x 25	1170	16 x 25	1300	16 x 25	1385	18 x 25	1110
		16 x 20	1280	18 x 20	1280	16 x 30	1500	18 x 25	1200
		16 x 25	1400	16 x 25	1400	18 x 25	1500	18 x 25	1665
18 x 20	1400	18 x 30	1800			18 x 30	2100		
220	227	16 x 30	1700	18 x 30	2000	18 x 40	2100		
		18 x 25	1500						
330	337	18 x 30	2000	18 x 40	2400				

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)		500V (2H)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105	6.3 x 11	34				
		8 x 12	41				
1.5	155	8 x 12	77				
		10 x 12.5	86				
1.8	185	8 x 12	81				
		10 x 12.5	103				
2.2	225	8 x 12	81				
		10 x 12.5	120				
3.3	335	8 x 12	110				
		10 x 12.5	128				
4.7	475	8 x 12	146				
		10 x 16	188	10 x 20	128		
5.6	565	10 x 16	214	10 x 20	144		
6.8	685	10 x 12.5	207				
		10 x 16	230	10 x 20	160		
10	106	10 x 16	276	10 x 20	309	12.5 x 20	280
		10 x 20	300	12.5 x 20	350	12.5 x 25	390
15	156	12.5 x 20	410	12.5 x 20	508	16 x 20	390
				12.5 x 25	560	16 x 25	500
				12.5 x 20	590	18 x 20	500
22	226	12.5 x 25	500	12.5 x 25	651	18 x 20	500
		16 x 20	600	16 x 20	680		
33	336	12.5 x 25	698	12.5 x 25	683	16 x 30	630
				16 x 25	785	16 x 30	630
				16 x 25	975*	18 x 25	630
				16 x 30	850	18 x 25	630
				18 x 25	850	18 x 25	630
47	476	16 x 20	764	16 x 25	1250*	18 x 30	750
		16 x 25	840	16 x 30	936	18 x 30	750
		18 x 20	840	18 x 30	1000		
68	686	18 x 25	1110	18 x 24	1450*		
				18 x 25	1054	18 x 35	890
				18 x 30	1550*	18 x 35	890
82	826	18 x 25	1550	18 x 30	1140	18 x 45	980
		18 x 40	1500				
120	127	18 x 35	2250*				

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

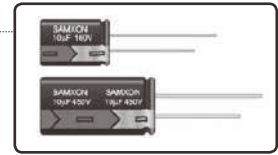
Case Size Φ D x L (mm)

\* Special item with higher ripple current.

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

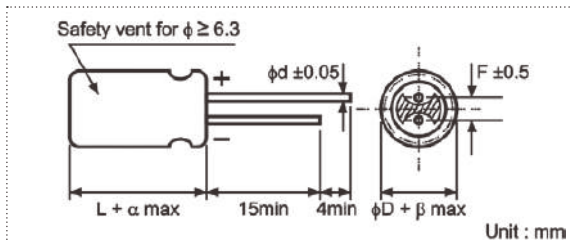
- High ripple current at high frequency, load life of 10,000~12,000 hours at 105°C.
- For electronic ballast.



SPECIFICATIONS

Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C				-25 to +105°C				
Rated Working Voltage Range	160 to 400V				450 to 500V				
Nominal Capacitance Range	1 to 220µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450	500	
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20	0.20	
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Rated Voltage (V)	160	200	250	350	400	450	500	
	Z-25°C / Z+20°C	3	3	3	5	5	6	12	
High Temperature Loading	Test time	Φ D	8~10	12.5~18	500V	Post test requirements at +20°C			
	Load life	10,000h	12,000h	10,000h	Leakage current : ≤ Initial specified value				
Shelf Life	Test temperature	+105°C						Cap. change	within ±20% of the initial measured value
	Test conditions	Rated DC working voltage with rated ripple current						tan δ	≤ 200% of the initial specified value
	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits								
Industrial Standard	Leakage current	≤ Initial specified value							
	Cap. change	within ±20% of the initial measured value							
	tan δ	≤ 200% of the initial specified value							
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

CASE SIZE TABLE



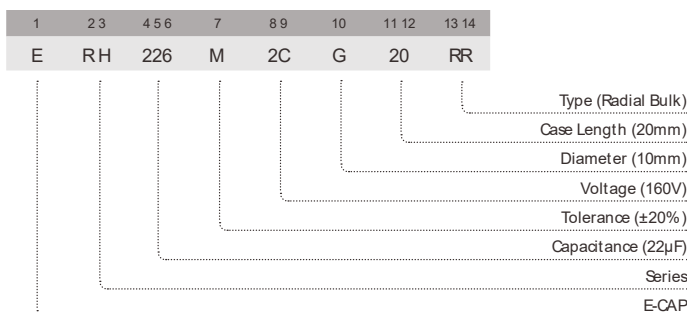
Φ D	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0		
β	(D < 20) 0.5			(D ≥ 20) 1.0		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	120	1k	10k	100k
Cap (µF)				
1~5.6	0.20	0.40	0.80	1.00
6.8~180	0.40	0.75	0.90	1.00
≥ 220	0.50	0.85	0.94	1.00

PART NUMBER SYSTEM (EXAMPLE : 160V 22µF)





STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
6.8	685							10 x 16	220
10	106	10 x 16	250	10 x 16	250	10 x 20	300	10 x 20	280
22	226	10 x 20	500	10 x 20	500	12.5 x 20	600	12.5 x 25	350
33	336	10 x 20	565	12.5 x 20	600	12.5 x 20	630	16 x 20	600
47	476	12.5 x 20	725	12.5 x 20	780	12.5 x 25	720	16 x 25	700
						16 x 20	750	18 x 20	750
68	686	12.5 x 25	950	12.5 x 25	950	16 x 25	1000	16 x 30	1100
		16 x 20	970	16 x 20	970	18 x 20	920	18 x 25	875
100	107	16 x 25	1280	16 x 25	1280	16 x 30	1400		
		18 x 20	1180	18 x 20	1180	18 x 25	1345		
150	157	16 x 30	1360	16 x 30	1360	18 x 30	1500		
		18 x 25	1360	18 x 25	1360				
220	227	16 x 30	1400	18 x 30	1700				
		18 x 25	1400						

Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)		500V (2H)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105	8 x 12	38				
1.5	155	8 x 12	72				
		10 x 12.5	80				
1.8	185	8 x 12	76				
		10 x 12.5	96				
2.2	225	8 x 12	76				
		10 x 12.5	112				
3.3	335	10 x 12.5	120				
4.7	475	10 x 16	176	10 x 20	120		
5.6	565	10 x 16	200	10 x 20	135		
6.8	685	10 x 16	220	10 x 20	150		
10	106	10 x 20	280	12.5 x 20	320	12.5 x 20	240
15	156			16 x 25	560	12.5 x 25	300
				18 x 20	560	16 x 20	300
22	226	12.5 x 25	430	16 x 25	560	16 x 25	430
		16 x 20	600	18 x 20	560	18 x 20	430
33	336	16 x 25	640	16 x 30	700	16 x 30	540
		18 x 20	640	18 x 25	700	18 x 25	540
47	476	16 x 30	840	18 x 30	900	18 x 30	640
		18 x 25	840				
68	686	18 x 30	1000			18 x 35	750
82	826					18 x 45	800

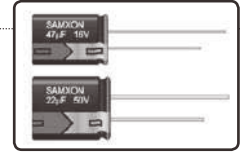
Maximum Allowable Ripple Current (mArms) at 105°C 100kHz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

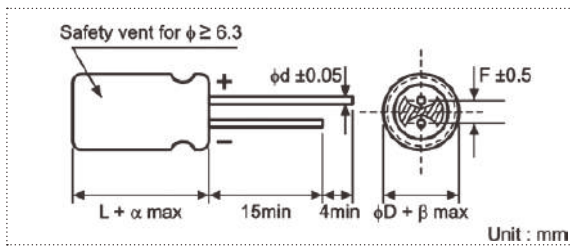
- Wide operating temperature range, it as long load life product at 125°C.
- Suitable for use in DC or pulse circuits in various electronic and industrial.



SPECIFICATIONS

Item	Performance Characteristics					
Operating Temperature Range	-40 to +125°C					
Rated Working Voltage Range	10 to 50V					
Nominal Capacitance Range	3.3 to 3900µF					
Capacitance Tolerance	±20% at 120Hz, +20°C					
Leakage Current	I ≤ 0.03CV or 4 (µA) whichever is greater measured after 1 minute application of rated working voltage at +20°C					
tan δ (120Hz, +20°C)	Working Voltage (V)	10	16	25	35	50
	tan δ (max.)	0.22	0.18	0.16	0.14	0.12
For capacitance value >1000µF, add 0.02 per another 1000µF						
Low Temperature Characteristics	Impedance ratio max. at 120Hz					
	Working Voltage (V)	10	16	25	35	50
	Z-25°C / Z+20°C	3	2	2	2	2
Z-40°C / Z+20°C		6	4	4	4	4
High Temperature Loading	Test time	Φ D	< 8	≥ 8	Post test requirements at +20	
	Load life		1,000h	2,000h	Leakage current : ≤ Initial specified value	
	Test temperature	+125°C			Cap. change : within ±20% of the initial measured value	
Test conditions		Rated DC working voltage with rated ripple current			tan δ : ≤ 200% of the initial specified value	
Shelf Life	At +125°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits					
Leakage current		: ≤ Initial specified value				
Cap. change		: within ±20% of the initial measured value				
tan δ		: ≤ 200% of the initial specified value				
Industrial Standard	JISC - 5101-4 (IEC 60384-4)					

CASE SIZE TABLE



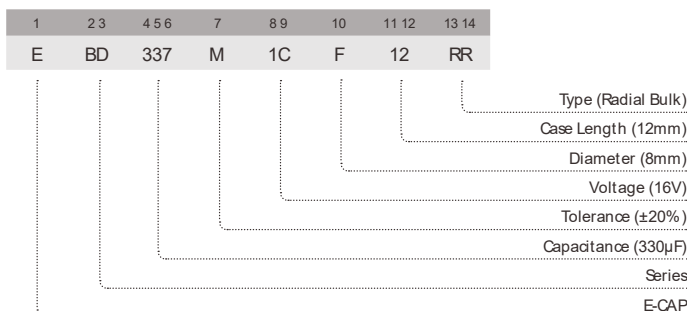
Φ D	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0				
β	(D < 20) 0.5			(D ≥ 20) 1.0				

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Rated Voltage	Coefficient Cap (µF)	Freq. (Hz)				
		50	120	300	1k	10k~100k
10~50V	≤ 47	0.75	1.00	1.35	1.57	2.00
	100~470	0.80	1.00	1.23	1.34	1.50
	≥ 560	0.85	1.00	1.10	1.13	1.15

PART NUMBER SYSTEM (EXAMPLE : 16V 330µF)





STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1E)		50V (1H)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
3.3	335									5 x 11	21
4.7	475									5 x 11	26
10	106									5 x 11	38
22	226							5 x 11	47	5 x 11	55
33	336					5 x 11	53	5 x 11	56	6.3 x 11	81
47	476			5 x 11	56	5 x 11	59	6.3 x 11	84	6.3 x 11	93
100	107	5 x 11	74	5 x 11	88	6.3 x 11	111	6.3 x 11	118	8 x 12	160
220	227	6.3 x 11	135	6.3 x 11	149	8 x 12	200	10 x 12.5	240		
330	337	6.3 x 11	167	8 x 12	221	8 x 12	238				
470	477	8 x 12	237	8 x 12	256	10 x 16	366				
1000	108					10 x 20	575				
2200	228					12.5 x 25	908				
3900	398					16 x 30	1356				

Maximum Allowable Ripple Current (mArms) at 125°C 120Hz

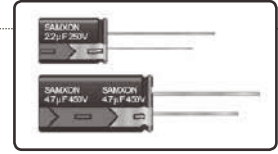
Case Size Φ D x L (mm)



Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

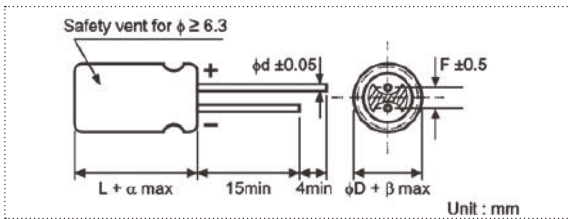
- High temperature, high ripple current at high frequency, load life of 1,000~4,000 hours at 130°C.
- Specially designed for electronic ballast and energy saving lamp.



SPECIFICATIONS

Item	Performance Characteristics											
Operating Temperature Range	-40 to +130°C	-25 to +130°C										
Rated Working Voltage Range	10 to 100V	200 to 450V										
Nominal Capacitance Range	1 to 4700µF											
Capacitance Tolerance	±20% at 120Hz, +20°C											
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C										
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63 100 200 250 350 400 450										
	tan δ (max.)	0.20 0.16 0.14 0.12 0.10 0.09 0.15 0.15 0.15 0.20 0.20 0.20										
Low Temperature Characteristics	Impedance ratio max. at 120Hz											
	Working Voltage (V)	10 16 25 35 50 63 100 200 250 350 400 450										
	Z-25°C / Z+20°C	3 2 2 2 2 2 2 3 3 5 6 6										
	Z-40°C / Z+20°C	6 4 3 3 3 3 3 - - - - -										
High Temperature Loading	Test time	ΦD 6.3 8-10 ≥12.5	Post test requirements at +20°C									
	Load life	1,000h 2,000h 4,000h	Leakage current : ≤ Initial specified value Cap. change : within ±30% of the initial measured value									
	Test temperature : +130°C Test conditions : Rated DC working voltage with rated ripple current		tan δ : ≤ 300% of the initial specified value (200~450V within 200%)									
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤ Initial specified value Cap. change : within ±30% of the initial measured value tan δ : ≤ 300% of the initial specified value (200~450V within 200%)											
Industrial Standard	JISC - 5101-4 (IEC 60384-4)											

CASE SIZE TABLE



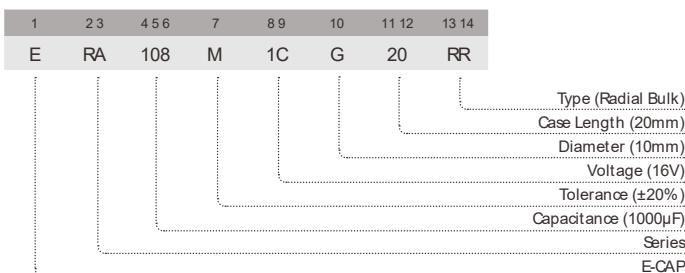
Φ D	6.3	8(L<20)	8(L≥20)	10	12.5	16	18
F	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α		(L < 20) 1.5		(L ≥ 20) 2.0			
β		(D < 20) 0.5		(D ≥ 20) 1.0			

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Rated Voltage	Coefficient	Freq. (Hz)	120	1k	10k	100k
	Cap (µF)					
10~100V	4.7		0.42	0.60	0.80	1.00
	10~33		0.55	0.75	0.90	1.00
	47~330		0.70	0.85	0.95	1.00
	470~1500		0.75	0.90	0.98	1.00
	2200~4700		0.80	0.95	1.00	1.00
200~450V	1~5.6		0.20	0.40	0.80	1.00
	6.8~15		0.30	0.60	0.90	1.00
	22~33		0.50	0.80	0.90	1.00

PART NUMBER SYSTEM (EXAMPLE : 16V 1000µF)





STANDARD RATINGS

Voltage (Code)		10V (1A)			16V (1C)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
330	337	8 x 12	0.220	360	8 x 12	0.220	360
470	477	10 x 12.5	0.150	620	10 x 12.5	0.150	620
1000	108	10 x 20	0.073	960	10 x 20	0.073	960
2200	228	12.5 x 25	0.040	1430	12.5 x 25	0.040	1430
3300	338	16 x 25	0.038	1900	16 x 30	0.034	2300
4700	478	16 x 30	0.034	2300	16 x 35	0.031	2550

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz Case Size Φ D x L (mm)  
 Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		25V (1E)			35V (1V)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107				8 x 12	0.220	360
220	227	8 x 12	0.220	360	10 x 12.5	0.150	620
330	337	10 x 12.5	0.150	620	10 x 16	0.100	800
470	477	10 x 16	0.100	800	10 x 20	0.073	960
1000	108	12.5 x 20	0.055	1100	12.5 x 25	0.040	1430
2200	228	16 x 30	0.034	2300	16 x 35	0.031	2550
3300	338	16 x 35	0.031	2550	18 x 35	0.028	2800

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz Case Size Φ D x L (mm)  
 Maximum Impedance (Ω) at 20°C 100kHz

Voltage (Code)		50V (1H)			63V (1J)			100V (2A)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
4.7	475	8 x 12	0.850	100				8 x 12	1.300	100
10	106	8 x 12	0.600	200				8 x 12	1.000	200
22	226	8 x 12	0.350	260				8 x 12	0.670	220
33	336	8 x 12	0.280	300	8 x 12	0.400	250	10 x 12.5	0.450	260
47	476	8 x 12	0.280	300	10 x 12.5	0.270	400	10 x 16	0.330	330
100	107	10 x 12.5	0.180	520	10 x 16	0.200	450	12.5 x 20	0.170	670
220	227	10 x 20	0.082	890	12.5 x 20	0.100	820	16 x 25	0.130	1100
330	337	12.5 x 20	0.065	1000	12.5 x 25	0.072	1000	16 x 30	0.100	1300
470	477	12.5 x 25	0.051	1200	16 x 25	0.069	1500	18 x 30	0.092	1600
1000	108	16 x 30	0.037	2180	16 x 30	0.056	1850			
1500	158				18 x 40	0.043	2350			
2200	228	18 x 40	0.029	2800						

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz Case Size Φ D x L (mm)  
 Maximum Impedance (Ω) at 20°C 100kHz

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STANDARD RATINGS

Voltage (Code)		200V (2D)		250V (2E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475	6.3 x 11	100	8 x 12	120
		8 x 12	120		
5.6	565	8 x 12	130	8 x 16	180
		8 x 16	180		
6.8	685	8 x 12	130	8 x 16	180
		8 x 16	180		
8.2	825	10 x 16	200	10 x 16	200
10	106	8 x 16	200	8 x 20	240
		8 x 20	240		
15	156	8 x 16	200	10 x 16	240
		8 x 20	240		
22	226	8 x 20	300	10 x 20	260
		10 x 16	240		
33	336	10 x 20	320	12.5 x 20	350

Maximum Allowable Ripple Current (mA rms) at 130°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		350V (2V)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1	105	6.3 x 11	60	6.3 x 11	60	8 x 12	59
		8 x 12	65	8 x 12	65		
1.5	155	8 x 12	75	8 x 12	75	8 x 12	68
		8 x 16	80	8 x 16	80		
1.8	185	8 x 12	75	8 x 12	75	8 x 12	68
		8 x 16	85	8 x 16	85		
2.2	225	8 x 12	75	8 x 12	75	8 x 12	68
		8 x 16	90	8 x 16	90		
2.7	275	8 x 20	110	8 x 20	110	8 x 16	88
		8 x 16	95	8 x 16	95		
3.3	335	8 x 16	100	8 x 16	100	8 x 16	90
		8 x 20	120	8 x 20	120		
4.7	475	8 x 20	120	8 x 20	120	10 x 16	112
		10 x 16	125	10 x 16	125		
5.6	565	10 x 16	130	10 x 16	130	10 x 16	115
		10 x 20	145	10 x 20	145		
6.8	685	10 x 20	150	10 x 20	150	10 x 20	135
8.2	825	10 x 20	168	10 x 20	168	10 x 20	150
10	106	12.5 x 20	186	12.5 x 20	186	12.5 x 20	170
15	156	12.5 x 25	226	12.5 x 25	226	12.5 x 25	200
22	226	16 x 25	283	16 x 25	283		
33	336	16 x 30	375	16 x 30	375		

Maximum Allowable Ripple Current (mA rms) at 130°C 100kHz

Case Size Φ D x L (mm)

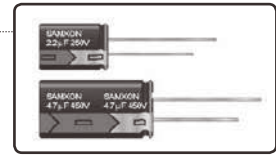
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+130°C, High Temperature (高温度), High Ripple Current (高纹波), Long Life Assurance (长寿命)



FEATURES

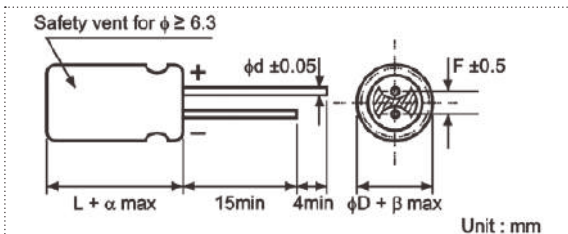
- High temperature, high ripple current at high frequency, load life of 3,000~4,000 hours at 130°C.
- Specially designed for electronic ballast and energy saving lamp.



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-40 to +130°C					-25 to +130°C	
Rated Working Voltage Range	160 to 400V					450V	
Nominal Capacitance Range	1.5 to 100μF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	I ≤ 0.02CV + 25 (μA) after 2 minutes application of rated working voltage at +20°C						
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Rated Voltage (V)	160	200	250	350	400	450
	Z-25°C / Z+20°C	3	3	3	5	5	6
High Temperature Loading	Test time	Φ D ≤ 12.5	> 12.5	Post test requirements at +20°C			
		Load life	3,000h	4,000h	Leakage current : ≤ Initial specified value		
	Test temperature : +130°C	Test conditions : Rated DC working voltage with rated ripple current		tan δ : ≤ 300% of the initial specified value		Cap. change : within ±30% of the initial measured value	
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current : ≤ Initial specified value						
	Cap. change : within ±30% of the initial measured value tan δ : ≤ 300% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)						

CASE SIZE TABLE



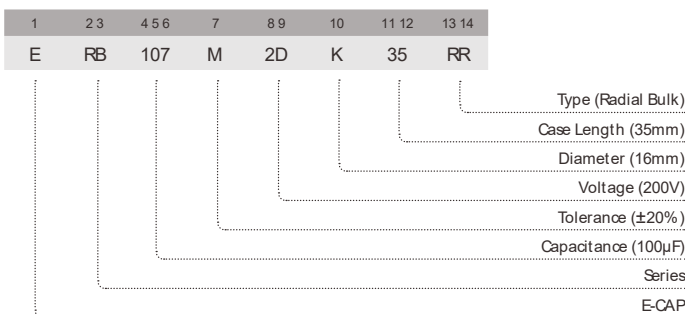
Φ D	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	3.5	3.5	5.0	5.0	7.5	7.5
Φ d	0.5	0.6	0.6	0.6	0.8	0.8
α	(L < 20) 1.5		(L ≥ 20) 2.0			
β	(D < 20) 0.5		(D ≥ 20) 1.0			

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
Cap (μF)	120	1k	10k	100k
1.5~5.6	0.20	0.40	0.80	1.00
6.8~100	0.40	0.75	0.90	1.00

PART NUMBER SYSTEM (EXAMPLE : 200V 100μF)



RB Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1.8	185							10 x 16	62
2.2	225							10 x 16	70
2.8	285							10 x 16	76
3.3	335							10 x 16	84
4.7	475					10 x 16	88	10 x 20	105
5.6	565					10 x 16	88	12.5 x 20	121
6.8	685					10 x 16	96	12.5 x 20	176
8.2	825	10 x 16	96	10 x 16	100	10 x 16	104	12.5 x 20	192
10	106	10 x 16	200	10 x 16	200	10 x 16	224	12.5 x 20	224
15	156	10 x 16	336	10 x 20	336	12.5 x 20	360	12.5 x 25	240
22	226	10 x 20	400	12.5 x 20	400	12.5 x 20	480	16 x 25	252
33	336	12.5 x 20	400	12.5 x 20	480	12.5 x 25	480		
47	476	12.5 x 25	528	12.5 x 25	528	16 x 25	518		
68	686	16 x 25	547	16 x 25	547				
100	107	16 x 25	806						

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
1.5	155			10 x 16	70
1.8	185	10 x 16	72	10 x 16	74
2.2	225	10 x 16	74	10 x 16	77
2.8	285	10 x 16	80	10 x 16	80
3.3	335	10 x 16	88	10 x 16	88
4.7	475	10 x 20	104	10 x 20	104
5.6	565	12.5 x 20	112	12.5 x 20	112
6.8	685	12.5 x 20	176	12.5 x 20	120
8.2	825	12.5 x 20	208	12.5 x 20	224
10	106	12.5 x 20	224	12.5 x 20	256
15	156	12.5 x 25	256	12.5 x 25	336

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size Φ D x L (mm)

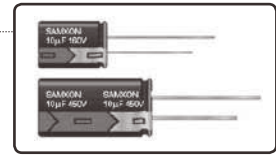
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

+130°C, High Temperature (高温度), High Ripple Current (高纹波), Longer Life Assurance (较长寿命)



FEATURES

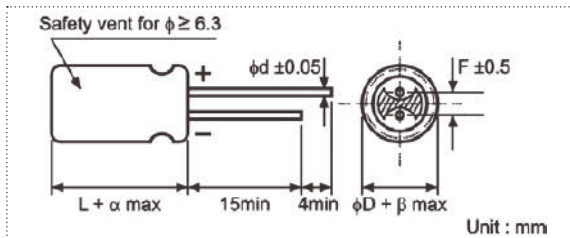
- High temperature, high ripple current at high frequency, load life of 5,000~6,000 hours at 130°C.
- Specially designed for electronic ballast and energy saving lamp.



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-25 to +130°C						
Rated Working Voltage Range	160 to 450V						
Nominal Capacitance Range	1.5 to 100µF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	I ≤ 0.02CV + 25 (µA) after 2 minutes application of rated working voltage at +20°C						
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	350	400	450
	tan δ (max.)	0.15	0.15	0.15	0.20	0.20	0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Rated Voltage (V) Z-25°C / Z+20°C	160	200	250	350	400	450
High Temperature Loading	Test time	ΦD ≤ 12.5	> 12.5	Post test requirements at +20°C			
	Load life	5,000h	6,000h	Leakage current : ≤ Initial specified value Cap. change : within ±30% of the initial measured value tan δ : ≤ 200% of the initial specified value			
Shelf Life	Test temperature	+130°C					Cap. change
	Test conditions	Rated DC working voltage with rated ripple current					tan δ
Industrial Standard	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current : ≤ Initial specified value Cap. change : within ±30% of the initial measured value tan δ : ≤ 200% of the initial specified value						

CASE SIZE TABLE



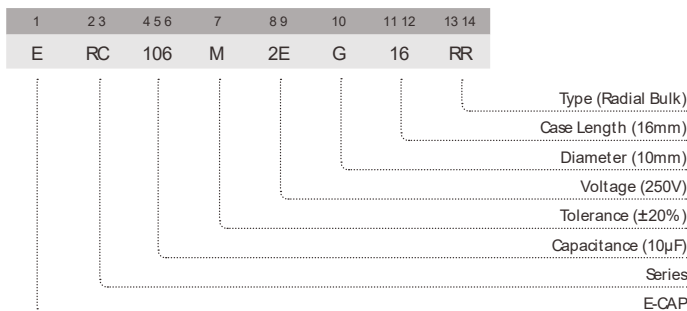
ΦD	10	12.5	16
F	5.0	5.0	7.5
Φd	0.6	0.6	0.8
α	(L < 20) 1.5		(L ≥ 20) 2.0
β	(D < 20) 0.5		(D ≥ 20) 1.0

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)	120	1k	10k	100k
Cap (µF)	1.5~5.6	0.20	0.40	0.80	1.00
	6.8~100	0.40	0.75	0.90	1.00

PART NUMBER SYSTEM (EXAMPLE : 250V 10µF)



Miniature Aluminum Electrolytic Capacitors RC

STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225							10 x 16	50
3.3	335							10 x 16	58
4.7	475					10 x 16	56	10 x 20	70
5.6	565					10 x 16	60	12.5 x 20	85
6.8	685					10 x 16	65	12.5 x 20	120
8.2	825	10 x 16	65	10 x 16	70	10 x 16	70	12.5 x 20	135
10	106	10 x 16	140	10 x 16	140	10 x 16	155	12.5 x 20	155
15	156	10 x 16	235	10 x 20	235	12.5 x 20	250	12.5 x 25	168
22	226	10 x 20	280	12.5 x 20	280	12.5 x 20	335	16 x 25	175
33	336	12.5 x 20	290	12.5 x 20	335	12.5 x 25	335		
47	476	12.5 x 25	365	12.5 x 25	365	16 x 25	360		
68	686	16 x 25	380	16 x 25	380				
100	107	16 x 25	565						

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

Case Size Φ D x L (mm)

Voltage (Code)		400V (2G)		450V (2W)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
1.5	155			10 x 16	50
1.8	185	10 x 16	50	10 x 16	52
2.2	225	10 x 16	52	10 x 16	54
2.8	285	10 x 16	56	10 x 16	56
3.3	335	10 x 16	62	10 x 16	62
4.7	475	10 x 20	72	10 x 20	72
5.6	565	12.5 x 20	78	12.5 x 20	78
6.8	685	12.5 x 20	120	12.5 x 20	84
8.2	825	12.5 x 20	145	12.5 x 20	156
10	106	12.5 x 20	155	12.5 x 20	179
15	156	12.5 x 25	180	12.5 x 25	235

Maximum Allowable Ripple Current (mArms) at 130°C 100kHz

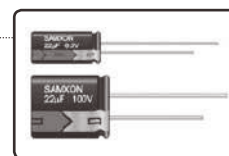
Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

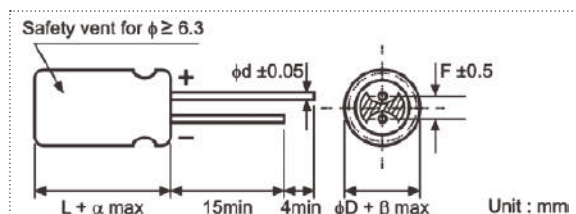
- Standard, for audio equipment.
- Low distortion ratio ensured with anti-vibration structures.



SPECIFICATIONS

Item	Performance Characteristics																											
Operating Temperature Range	-40 to +85°C																											
Rated Working Voltage Range	6.3 to 100V																											
Nominal Capacitance Range	2.2 to 10000µF																											
Capacitance Tolerance	±20% at 120Hz, +20°C																											
Leakage Current	I ≤ 0.01CV or 3 (µA) whichever is greater measured after 2 minutes application of rated working voltage at +20°C																											
tan δ (120Hz, +20°C)	<table border="1"> <tr> <th>Working Voltage (V)</th> <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> <th>tan δ (max.)</th> <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>	Working Voltage (V)	6.3	10	16	25	35	50	63	100	tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08									
	Working Voltage (V)	6.3	10	16	25	35	50	63	100																			
tan δ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08																				
For capacitance value >1000µF, add 0.02 per another 1000µF																												
Low Temperature Characteristics	Impedance ratio max. at 120Hz																											
	<table border="1"> <tr> <th>Working Voltage (V)</th> <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> <th>Z-25°C / Z+20°C</th> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <th>Z-40°C / Z+20°C</th> <td>8</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Working Voltage (V)	6.3	10	16	25	35	50	63	100	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	Z-40°C / Z+20°C	8	6	4	4	3	3	3	3
	Working Voltage (V)	6.3	10	16	25	35	50	63	100																			
Z-25°C / Z+20°C	4	3	2	2	2	2	2	2																				
Z-40°C / Z+20°C	8	6	4	4	3	3	3	3																				
High Temperature Loading	Test time : 1,000 hours Test temperature : +85°C Test conditions : Rated DC working voltage with rated ripple current																											
	Post test requirements at +20°C Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 150% of the initial specified value																											
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 150% of the initial specified value																											
Industrial Standard	JISC - 5101-4 (IEC 60384-4)																											

CASE SIZE TABLE



φD	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
φd	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α				(L < 20) 1.5				
β				(D < 20) 0.5				
					(L ≥ 20) 2.0			
					(D ≥ 20) 1.0			

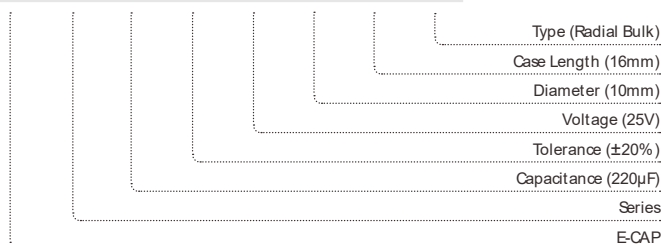
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (µF)	50	120	300	1k	10k~
	≤47	0.75	1.00	1.35	1.57	2.00
	68~470	0.80	1.00	1.23	1.34	1.50
	≥560	0.85	1.00	1.10	1.13	1.15

PART NUMBER SYSTEM (EXAMPLE : 25V 220µF)

1	23	456	7	89	10	11 12	13 14
E	FA	227	M	1E	G	16	RR



FA Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475							5 x 11	22
10	106					5 x 11	31	5 x 11	32
22	226	5 x 11	36	5 x 11	41	5 x 11	46	5 x 11	50
33	336	5 x 11	46	5 x 11	51	5 x 11	57	6.3 x 11	70
47	476	5 x 11	55	5 x 11	60	6.3 x 11	74	6.3 x 11	85
100	107	6.3 x 11	88	6.3 x 11	99	8 x 12	128	8 x 12	140
220	227	8 x 12	155	8 x 12	170	10 x 12.5	226	10 x 16	260
330	337	10 x 12.5	226	10 x 12.5	247	10 x 16	309	10 x 20	351
470	477	10 x 12.5	270	10 x 16	330	10 x 20	406	12.5 x 20	476
1000	108	10 x 20	485	12.5 x 20	601	12.5 x 25	723	16 x 25	854
2200	228	12.5 x 25	867	16 x 25	1047	16 x 25	1209	16 x 35	1570
3300	338	16 x 25	1135	16 x 30	1520	16 x 25	1720	18 x 40	1794
4700	478	16 x 30	1431	16 x 35	1840	18 x 35	2140		
6800	688	18 x 35	1810	18 x 40	2049				
10000	109	18 x 40	2100						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225			5 x 11	18			5 x 11	22
3.3	335			5 x 11	22			5 x 11	27
4.7	475	5 x 11	24	5 x 11	27			5 x 11	36
10	106	5 x 11	36	5 x 11	39	6.3 x 11	50	8 x 12	65
22	226	6.3 x 11	60	6.3 x 11	65	8 x 12	85	10 x 12.5	110
33	336	6.3 x 11	75	8 x 12	93	8 x 12	105	10 x 16	150
47	476	8 x 12	101	8 x 12	111	10 x 12.5	140	10 x 20	190
100	107	10 x 12.5	176	10 x 16	215	10 x 20	255	12.5 x 20	300
220	227	10 x 20	320	12.5 x 20	390	12.5 x 20	420	16 x 25	549
330	337	12.5 x 20	446	12.5 x 20	488	12.5 x 25	541	16 x 30	734
470	477	12.5 x 25	590	16 x 25	650	16 x 25	840	18 x 35	980
1000	108	16 x 25	1060	16 x 30	1143	18 x 35	1400		
2200	228	18 x 35	1840						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

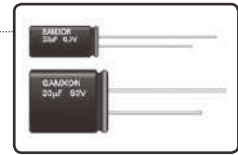
Case Size Φ D x L (mm)

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FEATURES

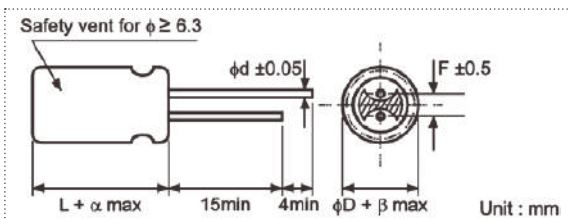
➤ Standard non-polarized series for entertainment electronics



SPECIFICATIONS

Item	Performance Characteristics																											
Operating Temperature Range	-40 to +85°C																											
Rated Working Voltage Range	6.3 to 100V																											
Nominal Capacitance Range	2.2 to 6800µF																											
Capacitance Tolerance	±20% at 120Hz, +20°C																											
Leakage Current	I ≤ 0.03CV or 3 (µA) whichever is greater measured after 5 minutes application of rated working voltage at +20°C																											
tan δ (120Hz, +20°C)	<table border="1"> <tr> <th>Working Voltage (V)</th> <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> <th>Tan δ (max.)</th> <td>0.26</td> <td>0.24</td> <td>0.22</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table>	Working Voltage (V)	6.3	10	16	25	35	50	63	100	Tan δ (max.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10									
	Working Voltage (V)	6.3	10	16	25	35	50	63	100																			
Tan δ (max.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10																				
For capacitance value >1000µF, add 0.02 per another 1000µF																												
Low Temperature Characteristics	Impedance ratio max. at 120Hz																											
	<table border="1"> <tr> <th>Working Voltage (V)</th> <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> <th>Z-25°C / Z+20°C</th> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <th>Z-40°C / Z+20°C</th> <td>10</td> <td>8</td> <td>6</td> <td>5</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> </tr> </table>	Working Voltage (V)	6.3	10	16	25	35	50	63	100	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	Z-40°C / Z+20°C	10	8	6	5	4	4	3	3
	Working Voltage (V)	6.3	10	16	25	35	50	63	100																			
Z-25°C / Z+20°C	4	3	2	2	2	2	2	2																				
Z-40°C / Z+20°C	10	8	6	5	4	4	3	3																				
High Temperature Loading	Test time : 1,000 hours Test temperature : +85°C Test conditions : Rated DC working voltage to each polarity every 250 hours																											
	Post test requirements at +20°C Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value																											
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value																											
Industrial Standard	JISC - 5101-4 (IEC 60384-4)																											

CASE SIZE TABLE



ΦD	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16	18
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α				(L < 20) 1.5	(L ≥ 20) 2.0			
β				(D < 20) 0.5	(D ≥ 20) 1.0			

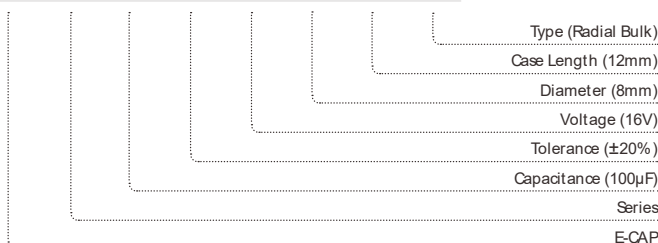
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Cap (µF)	50	120	300	1k	10k~
≤47		0.75	1.00	1.35	1.57	2.00
68~470		0.80	1.00	1.23	1.34	1.50
≥560		0.85	1.00	1.10	1.13	1.15

PART NUMBER SYSTEM (EXAMPLE : 16V 100µF)

1	23	456	7	89	10	11 12	13 14
E	NP	107	M	1C	F	12	RR



NP

Miniature Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475							5 x 11	26
10	106					5 x 11	42	5 x 11	42
22	226			5 x 11	57	5 x 11	57	6.3 x 11	65
33	336	5 x 11	64	5 x 11	64	5 x 11	70	6.3 x 11	80
47	476	5 x 11	76	5 x 11	76	6.3 x 11	95	6.3 x 11	95
100	107	6.3 x 11	125	6.3 x 11	125	8 x 12	160	8 x 12	160
220	227	8 x 12	215	8 x 12	215	10 x 12.5	275	10 x 16	305
330	337	8 x 12	265	10 x 16	345	10 x 16	375	12.5 x 20	450
470	477	10 x 12.5	370	10 x 16	410	10 x 20	485	12.5 x 20	540
1000	108	10 x 20	650	12.5 x 20	720	12.5 x 25	855	16 x 25	950
2200	228	12.5 x 25	1160	16 x 25	1280	16 x 30	1510	18 x 35	1620
3300	338	16 x 25	1570	16 x 30	1690	18 x 35	1980		
4700	478	16 x 30	2020	18 x 35	2160				
6800	688	18 x 35	2600						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225			5 x 11	25			6.3 x 11	34
3.3	335			5 x 11	27	5 x 11	28	6.3 x 11	39
4.7	475	5 x 11	34	5 x 11	34	6.3 x 11	34	6.3 x 11	47
10	106	5 x 11	43	6.3 x 11	52	6.3 x 11	57	8 x 12	71
22	226	6.3 x 11	73	8 x 12	89	8 x 12	95	10 x 16	135
33	336	8 x 12	100	8 x 12	105	10 x 12.5	135	12.5 x 20	220
47	476	8 x 12	120	10 x 12.5	150	10 x 16	180	12.5 x 20	240
68	686			10 x 16	198				
100	107	10 x 16	230	10 x 20	265	12.5 x 20	320	16 x 25	425
220	227	12.5 x 20	410	12.5 x 25	480	16 x 25	575	18 x 35	720
330	337	12.5 x 20	505	16 x 25	650	16 x 30	655		
470	477	12.5 x 25	655	16 x 30	835	18 x 35	965		
1000	108	16 x 30	1140						

Maximum Allowable Ripple Current (mArms) at 85°C 120Hz

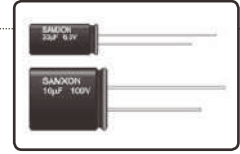
Case Size Φ D x L (mm)

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FEATURES

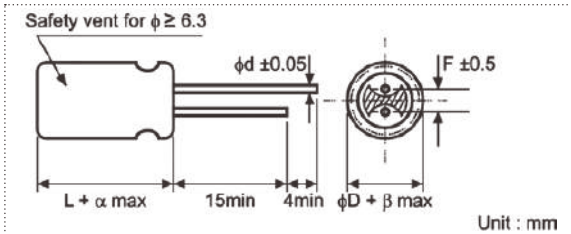
- Nonpolar, high temperature.
- Suitable for use in polarity and change circuits.



SPECIFICATIONS

Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C								
Rated Working Voltage Range	6.3 to 100V								
Nominal Capacitance Range	2.2 to 1000µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 0.03CV or 3 (µA) whichever is greater measured after 5 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V)	6.3	10	16	25	35	50	63	100
	tan δ (max.)	0.26	0.24	0.22	0.20	0.16	0.14	0.12	0.10
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V)	6.3	10	16	25	35	50	63	100
	Z-25°C / Z+20°C	4	3	2	2	2	2	2	2
	Z-40°C / Z+20°C	8	6	4	4	3	3	3	3
High Temperature Loading	Test time	: 1,000 hours			Post test requirements at +20°C				
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value				
	Test conditions	: Rated DC working voltage to each polarity every 250 hours			Cap. change : within ±20% of the initial measured value				
					tan δ : ≤ 200% of the initial specified value				
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits								
	Leakage current	: ≤ Initial specified value							
	Cap. change	: within ±20% of the initial measured value							
	tan δ	: ≤ 200% of the initial specified value							
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

CASE SIZE TABLE



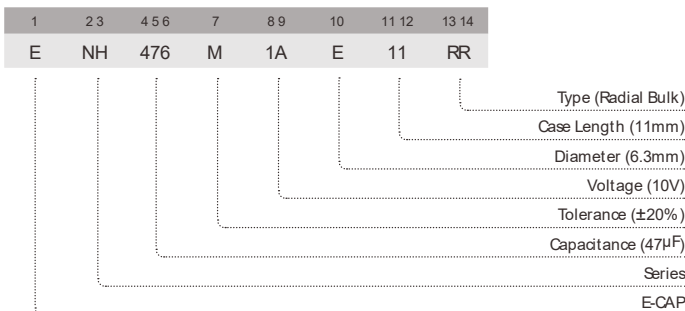
ΦD	5	6.3	8 (L < 20)	8 (L ≥ 20)	10	12.5	16
F	2.0	2.5	3.5	3.5	5.0	5.0	7.5
Φd	0.5	0.5	0.5	0.6	0.6	0.6	0.8
α	(L < 20) 1.5			(L ≥ 20) 2.0			
β	(D < 20) 0.5			(D ≥ 20) 1.0			

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	10k~
Cap (µF)					
≤47	0.75	1.00	1.35	1.57	2.00
68~220	0.80	1.00	1.23	1.34	1.50
≥560	0.85	1.00	1.10	1.13	1.15

PART NUMBER SYSTEM (EXAMPLE : 10V 47µF)



STANDARD RATINGS

Voltage (Code)		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7	475							5 x 11	23
10	106					5 x 11	30	5 x 11	34
22	226			5 x 11	42	6.3 x 11	51	6.3 x 11	55
33	336	5 x 11	46	6.3 x 11	57	6.3 x 11	63	8 x 12	79
47	476	6.3 x 11	61	6.3 x 11	67	8 x 12	89	10 x 12.5	100
100	107	8 x 12	104	10 x 12.5	125	10 x 12.5	139	10 x 16	164
220	227	10 x 12.5	168	10 x 16	204	10 x 20	279	12.5 x 25	336
330	337	10 x 16	229	10 x 20	275	12.5 x 20	346	12.5 x 25	414
470	477	10 x 20	330	12.5 x 20	371	12.5 x 25	460	16 x 25	543
1000	108	12.5 x 25	550	16 x 25	668	16 x 25	746	16 x 30	871

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2.2	225			5 x 11	18			6.3 x 11	22
3.3	335			5 x 11	22	6.3 x 11	26	8 x 12	32
4.7	475	5 x 11	25	6.3 x 11	29	6.3 x 11	31	8 x 12	39
10	106	6.3 x 11	40	8 x 12	51	8 x 12	53	10 x 12.5	64
22	226	8 x 12	68	10 x 12.5	82	10 x 16	96	10 x 20	114
33	336	10 x 12.5	89	10 x 16	107	10 x 20	129	12.5 x 20	164
47	476	10 x 12.5	111	10 x 20	146	10 x 20	157	12.5 x 25	200
100	107	10 x 20	196	12.5 x 25	264	12.5 x 25	275	16 x 25	304
220	227	12.5 x 25	364	16 x 25	443	16 x 30	486		
330	337	16 x 25	493	16 x 30	593				
470	477	16 x 25	586						

Maximum Allowable Ripple Current (mArms) at 105°C 120Hz

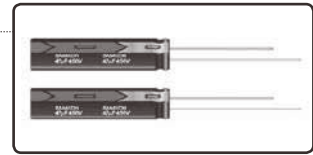
Case Size Φ D x L (mm)

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FEATURES

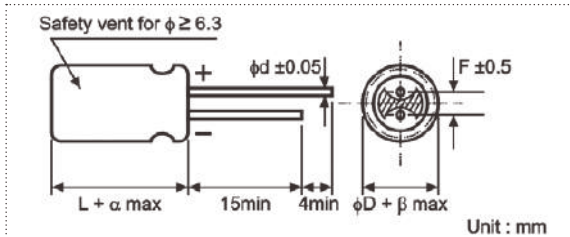
- 105°C high temperature and high voltage, load life : 2,000 hours.
- For slim size adaptor, LCD / LED-TV and LCD-Monitor power.



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-25 to +105°C						
Rated Working Voltage Range	200 to 450V						
Nominal Capacitance Range	22 to 270µF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	I ≤ 0.03CV + 40 (µA) after 2 minutes application of rated working voltage at +20°C						
tan δ (120Hz, +20°C)	Working Voltage (V)	200	220	250	400	420	450
	tan δ (max.)	0.20	0.20	0.20	0.24	0.24	0.24
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Rated Voltage (V) Z-25°C / Z+20°C	200	220	250	400	420	450
High Temperature Loading	Test time	: 2,000 hours			Post test requirements at +20°C		
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value		
Shelf Life	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value		
					tan δ : ≤ 200% of the initial specified value		
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current	: ≤ Initial specified value					
Industrial Standard	Cap. change	: within ±20% of the initial measured value					
	tan δ	: ≤ 200% of the initial specified value					
Industrial Standard	JISC - 5101-4 (IEC 60384-4)						

CASE SIZE TABLE



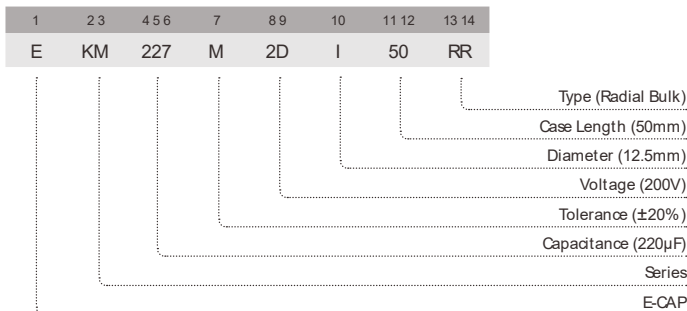
Φ D	10	12.5
F	5.0	5.0
Φ d	0.6	0.6
α	2.0	
β	1.0	

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)	50	120	300	1k	10k~
Rated Voltage	200~450V	0.80	1.00	1.25	1.40	1.60

PART NUMBER SYSTEM (EXAMPLE : 200V 220µF)



KM

Miniature Aluminum Electrolytic Capacitors