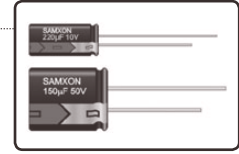


**FEATURES**

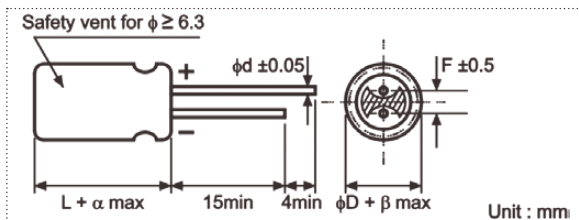
- Low impedance for high frequency.
- Life time: 1,000~4,000 hours at 105°C.



**SPECIFICATIONS**

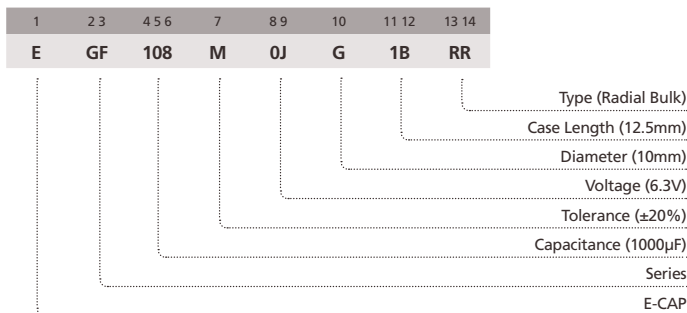
Item	Performance Characteristics																		
Operating Temperature Range	-40 to +105°C																		
Rated Working Voltage Range	6.3 to 100V																		
Nominal Capacitance Range	3.3 to 4700µF																		
Capacitance Tolerance	±20% at 120Hz, +20°C																		
Leakage Current	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	φD	L ≤ 7	D5-6.3	D8-10	D12.5	Post test requirements at +20°C												
	Load life	1,000h	2,000h	3,000h	4,000h	Leakage current : ≤ Initial specified value													
Test temperature : +105°C											Cap. change : within ±25% of the initial measured value								
Test conditions : Rated DC working voltage											tan δ : ≤ 150% of the initial specified value								
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																		
	tan δ : ≤ 150% of the initial specified value																		
Industrial Standard	JIS C - 5101-4 (IEC 60384-4)																		

**CASE SIZE TABLE**



φD	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
φd	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 (mArms) at 105°C 100kHz

Case Size  $\Phi$ D x L (mm)

Maximum Impedance ( $\Omega$ ) 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			
					8 x 20	0.069	1050						
					10 x 12.5	0.080	865						
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 12.5	0.080	865
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									
560	567	10 x 16	0.060	1210	10 x 20	0.046	1400	12.5 x 25	0.034	1950			
		10 x 12.5	0.080	865									
680	687	10 x 16	0.060	1210	10 x 20	0.046	1400	12.5 x 25	0.034	1950			
		10 x 20	0.046	1400									
820	827	10 x 20	0.046	1400	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						
1000	108	10 x 20	0.046	1400	12.5 x 20	0.035	1900						
1200	128	10 x 20	0.046	1400									
		10 x 25	0.042	1650									
1500	158	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  $\Phi$ D x L (mm)

Maximum Impedance ( $\Omega$ ) at 20°C 100kHz

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**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  $\Phi$ D x L (mm)

Maximum Impedance ( $\Omega$ ) at 20°C 100kHz

**RIPPLE CURRENT MULTIPLIER**

**Frequency Coefficient**

Coefficient Cap. (μF)	Freq. (Hz)			
	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

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