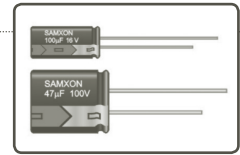


FEATURES

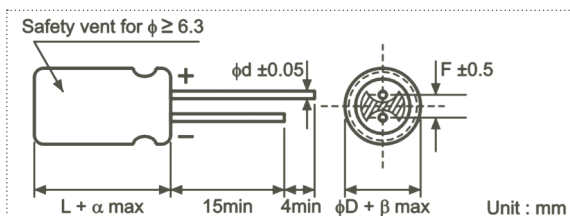
- Load life 105°C and low ESR.
- Excellent ripple current capability.
- Used in communication equipments, switching power supply, industrial measuring instruments, etc.



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	$I \leq 0.01CV$ 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.)
For capacitance value >1000µF, add 0.02 per another 1000µF	
Low Temperature Characteristics	Impedance ratio max. at 120Hz
	Working Voltage (V)
	Z-25°C / Z+20°C
High Temperature Loading	Test time
	Test temperature
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
Industrial Standard	JIS C - 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	5.0	5.0
φd		0.5	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)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	RS	228	M	1V	K	30	RR

Type (Radial Bulk)
 Case Length (30mm)
 Diameter (16mm)
 Voltage (35V)
 Tolerance (±20%)
 Capacitance (2200µF)
 Series
 E-CAP



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			
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 16	0.078	1061
					10 x 12.5	0.104	759			
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			
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 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)		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
								10 x 12.5	0.156	667
150	157	8 x 12	0.169	561	8 x 12	0.169	561	10 x 16	0.109	921
180	187	8 x 12	0.169	561	10 x 12.5	0.104	759	8 x 20	0.118	798
								10 x 16	0.109	921
220	227	8 x 12	0.169	561	8 x 16	0.113	737	10 x 16	0.109	921
					10 x 12.5	0.104	759			
270	277	8 x 12	0.169	561	10 x 16	0.078	1061	10 x 25	0.072	1263
		10 x 12.5	0.104	759						
330	337	8 x 12	0.169	561	8 x 20	0.090	921	12.5 x 20	0.059	1456
		10 x 12.5	0.104	759	10 x 16	0.078	1061			
390	397	10 x 12.5	0.104	759	10 x 16	0.078	1061	12.5 x 20	0.059	1456
470	477	8 x 16	0.113	737	10 x 16	0.078	1061	12.5 x 25	0.050	1620
		10 x 12.5	0.104	759						
560	567	10 x 16	0.078	1061	10 x 20	0.060	1228	12.5 x 25	0.050	1620
680	687	10 x 16	0.078	1061	10 x 20	0.060	1228			
820	827	10 x 20	0.060	1228	10 x 25	0.055	1447			
					12.5 x 20	0.046	1666			
1000	108	10 x 20	0.060	1228	12.5 x 25	0.039	1863			
1200	128	10 x 20	0.060	1228						
1500	158	10 x 25	0.055	1447						
		12.5 x 20	0.046	1666						
1800	188	12.5 x 25	0.039	1863						
2200	228	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

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 \ Freq. (Hz)	120	1k	10k	100k
Cap (µF) ≤ 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.