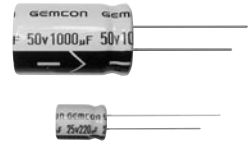


# GSR Radial Leads, 85°C Standard series

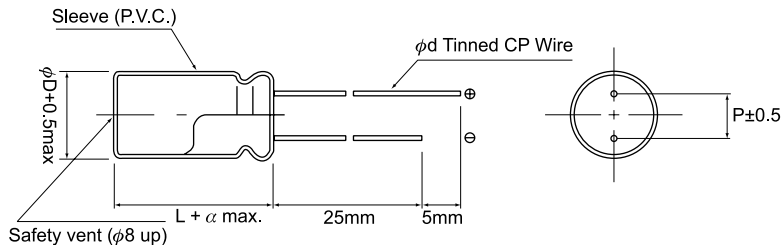
- Standard designed with variety sizes.
- Suitable for general consumer electronics application.
- Life guaranteed 2,000 hours/85°C.



• Specifications

Item	Performance Characteristics												
Operating Temperature range	-40 + 85°C						-25 + 85°C						
Rated Voltage	6.3V ~ 100V						160V ~ 450V						
Capacitance Range	0.1 ~ 47,000 µF												
Capacitance Tolerance	±20% (120Hz, 20°C)												
Leakage Current	I ≤ 0.02CV or 4 µA, whichever is greater after 2 minutes application of rated voltage.						I ≤ 0.03CV + 10 µA max. after 2 minutes application of rated voltage.						
Dissipation Factor (120Hz, 20°C)	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160~250	350~450		
	Tan δ (max.)	0.24	0.20	0.17	0.15	0.12	0.10	0.10	0.10	0.10	0.20	0.25	
	For capacitance of more than 1,000µF, add 0.02 for every increase of 1,000µF.												
Temperature Characteristics (120Hz)	Impedance Ratio / Stability at Low Temperature												
	Rated voltage (V)	6.3	10	16	25	35	50	63	100	160~200	250~350	400	450
	Z (-25°C) / Z (20°C)	5	4	3	2	2	2	2	2	3	4	6	15
	Z (-40°C) / Z (20°C)	12	10	8	5	4	3	3	3	4	8	10	-
Load Life	After 2,000 hours application of WV at 85°C, capacitor shall meet the characteristics requirements mentioned below.												
	Capacitance change	Within ±20% of initial value											
	Tan δ	200% or less of initial specified value											
	Leakage current	Initial specified value or less											
Shelf Life	At 85°C, no voltage applied for 1,000 hours, the capacitor shall meet the limits as in load life.												

• Dimension (mm)



φD	5	6.3	8	10	13	16	18	20	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φd	0.5		0.6		0.8		1.0			
α	L < 20 : 1.5 mm, L ≥ 20 : 2.0 mm									

## • Standard Products Table

Dφ x L (mm)

WV(SV) Cap (μF)	6.3 (8)		10 (13)		16 (20)		25 (32)		35 (44)		50 (63)		63 (75)	
0.1											5 x 11	1.3		
0.22											5 x 11	2.9		
0.33											5 x 11	4.3		
0.47											5 x 11	6.2		
1											5 x 11	17		
2.2											5 x 11	28		
3.3											5 x 11	35		
4.7											5 x 11	40		
10					5 x 11	50	5 x 11	55	5 x 11	60	5 x 11	60	5 x 11	65
22	5 x 11	65	5 x 11	65	5 x 11	75	5 x 11	80	5 x 11	90	5 x 11	95	5 x 11	100
33	5 x 11	80	5 x 11	85	5 x 11	90	5 x 11	95	5 x 11	105	5 x 11	125	6.3 x 11	140
47	5 x 11	95	5 x 11	100	5 x 11	110	5 x 11	115	6.3 x 11	145	8 x 11	175	8 x 11	185
									5 x 11	130	6.3 x 11	155	6.3 x 11	170
100	5 x 11	135	5 x 11	145	6.3 x 11	170	6.3 x 11	190	6.3 x 11	210	8 x 11	260	10 x 12	300
					5 x 11	160	5 x 11	180					8 x 11	280
220	5 x 11	200	6.3 x 11	240	6.3 x 11	260	8 x 11	330	10 x 12	385	10 x 12	430	10 x 16	490
			5 x 11	220			6.3 x 11	280	8 x 11	350	10 x 16	450		
330	6.3 x 11	270	6.3 x 11	290	8 x 11	370	10 x 12	440	10 x 12	490	10 x 16	590	10 x 20	710
	5 x 11	230			6.3 x 11	320	8 x 11	390			10 x 20	620		
470	6.3 x 11	320	6.3 x 11	350	8 x 11	440	10 x 12	550	10 x 16	650	13 x 20	760	13 x 20	900
			8 x 11	400			10 x 16	580			10 x 20	760		
1000	8 x 11	540	10 x 12	650	10 x 16	790	10 x 20	960	13 x 20	1150	13 x 25	1350	16 x 32	1400
			8 x 14	660	10 x 12	700	10 x 16	860	10 x 25	1100	16 x 25	1450	16 x 25	1300
2200	10 x 20	1000	10 x 20	1100	13 x 20	1300	13 x 25	1550	16 x 25	1800	16 x 36	2100	18 x 36	2300
	10 x 16	890	10 x 16	990	10 x 20	1000	16 x 25	1700	16 x 32	1910	16 x 32	1980	22 x 36	2550
3300	10 x 20	1190	13 x 20	1450	13 x 25	1700	16 x 25	1980	16 x 36	2280	18 x 36	2500	20 x 40	2700
					13 x 20	1550	13 x 25	1800	16 x 32	2100	22 x 30	2450	25 x 30	2600
4700	13 x 20	1550	13 x 25	1800	16 x 25	2100	16 x 32	2450	18 x 36	2700	20 x 40	2900	22 x 50	3400
					13 x 25	1850	16 x 25	2200	16 x 36	2500	25 x 30	2900	25 x 40	3200
6800	13 x 25	1920	16 x 25	2250	16 x 36	2650	18 x 36	2900	20 x 40	3000	22 x 50	3500	25 x 50	3900
					16 x 25	2250	16 x 36	2600	18 x 40	2800	25 x 40	3300		
10000	16 x 25	2350	16 x 36	2700	18 x 36	2950	20 x 40	3000	22 x 50	3700	25 x 50	4000		
			16 x 32	2550	16 x 36	2710	18 x 40	2800	25 x 40	3600				
15000	16 x 36	2850	18 x 36	3100	20 x 40	3400	22 x 50	3800	25 x 50	4300				
	16 x 32	2550	16 x 36	2880	18 x 40	3100	25 x 40	3600						
22000	18 x 36	3200	18 x 40	3400	22 x 50	4200	25 x 50	4500						
	22 x 30	3200	25 x 30	3300	25 x 40	4000								
33000	22 x 50	3900	22 x 50	4500	25 x 50	4800								
	25 x 40	3800	25 x 40	4800										
47000	22 x 50	3900	25 x 50	5000										

Case Size ripple

Ripple current (mA) at 85°C 120 Hz

• Standard Products Table

Dφ x L (mm)

WV(SV) Cap (μF)	100 (125)		160 (200)		200 (250)		250 (300)		350 (400)		400 (450)		450 (500)	
0.1	5 x 11	2.1			6.3 x 11	2.1								
0.22	5 x 11	4.7			6.3 x 11	4.7								
0.33	5 x 11	7			6.3 x 11	7								
0.47	5 x 11	10	6.3 x 11	15	6.3 x 11	15	6.3 x 11	15			6.3 x 11	12		
1	5 x 11	21	6.3 x 11	22	6.3 x 11	22	6.3 x 11	22	6.3 x 11	22	8 x 11	25	8 x 11	23
											6.3 x 11	20		
2.2	5 x 11	30	6.3 x 11	33	6.3 x 11	33	6.3 x 11	33	8 x 11	38	10 x 12	45	10 x 12	35
									6.3 x 11	30	8 x 11	38	8 x 11	28
3.3	5 x 11	40	6.3 x 11	40	6.3 x 11	40	8 x 11	46	10 x 12	55	10 x 12	55	10 x 16	45
							6.3 x 11	40	8 x 11	43	8 x 11	48	10 x 12	40
4.7	5 x 11	45	6.3 x 11	50	8 x 11	55	8 x 11	55	10 x 12	65	10 x 16	70	10 x 20	55
					6.3 x 11	50	6.3 x 11	50	8 x 11	55	10 x 12	60	10 x 12	46
10	6.3 x 11	75	8 x 11	80	10 x 12	95	10 x 16	105	10 x 20	115	13 x 20	130	13 x 20	90
	5 x 11	70			8 x 11	80	10 x 12	100	10 x 12	90	10 x 16	90	10 x 20	80
22	6.3 x 11	130	10 x 16	155	10 x 20	170	13 x 20	190	13 x 25	200	16 x 25	240	16 x 25	165
			10 x 12	130	10 x 16	150	10 x 20	150	13 x 20	150	13 x 25	200	13 x 25	140
33	8 x 11	180	10 x 20	205	13 x 20	230	13 x 20	230	16 x 25	275	16 x 32	300	16 x 36	230
			10 x 16	180	10 x 20	200	10 x 20	200	13 x 25	240	16 x 25	240	16 x 25	180
47	10 x 12	230	13 x 20	270	13 x 20	270	13 x 25	300	16 x 36	380	16 x 36	370	18 x 40	300
	8 x 11	200	10 x 20	210			13 x 20	270	16 x 25	300	16 x 25	280	16 x 32	220
68	10 x 12	270	13 x 20	350	13 x 25	350	16 x 25	380	16 x 25	400	16 x 32	340	18 x 36	260
100	10 x 20	370	13 x 25	430	16 x 32	530	16 x 32	520	18 x 40	590	20 x 40	550	22 x 40	350
	10 x 16	340			16 x 25	450	16 x 25	440	18 x 36	520	18 x 36	440	18 x 40	280
220	13 x 25	620	16 x 36	800	18 x 36	810	20 x 40	740	22 x 50	850	25 x 50	750		
	13 x 20	550	16 x 32	580	16 x 36	700	18 x 36	680	22 x 50	760	22 x 50	650	25 x 50	350
330	13 x 25	760	18 x 40	940	20 x 40	1130	22 x 50	1170						
			18 x 36	800	18 x 40	950	20 x 40	1000	25 x 50	1000				
470	16 x 25	1000	22 x 40	1410	22 x 50	1490	25 x 50	1600						
			18 x 40	1200	22 x 40	1300	22 x 50	1400						
1000	18 x 40	1380	25 x 50	1900										
	18 x 36	1350												
2200	22 x 50	2400												
	22 x 50	2400												
3300	25 x 50	2900												
													Case Size	Ripple

Ripple current (mA) at 85°C 120 Hz

• Frequency coefficient of allowable ripple current

WV	Cap(μF)	Frequency	50 Hz	120 Hz	300 Hz	1 KHz	10 KHz~
6.3~100		~ 68	0.75	1	1.35	1.57	2.00
		100 ~ 470	0.80	1	1.23	1.34	1.50
		1,000 ~ 47,000	0.85	1	1.10	1.13	1.15
160~450		0.47 ~ 220	0.80	1	1.25	1.40	1.60
		330 ~ 1,000	0.95	1	1.10	1.13	1.15

• Allowable ripple vs. Ambient temperature

Ambient Temp. (°C)	~ +70	+85
Compensating Coefficient	1.27	1.0