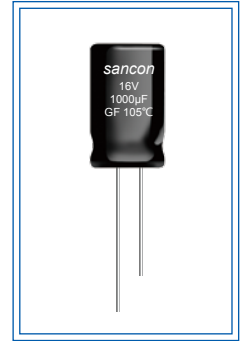


GF (CD288HE)

- 高频超低阻抗, 105°C, 寿命: 2000-4000 小时。
Super Low ESR at high frequency, Life time: 2000-4000 hrs at 105°C.
- 适用于电脑主机板, 开关电源、高保真音响, 高分辨数码彩电等电子线路中。
Used in main board, switching power supply, hi-fi acoustics, numeral color-TV circuits, etc.
- 符合 RoHS。Adapted to the RoHS directive.

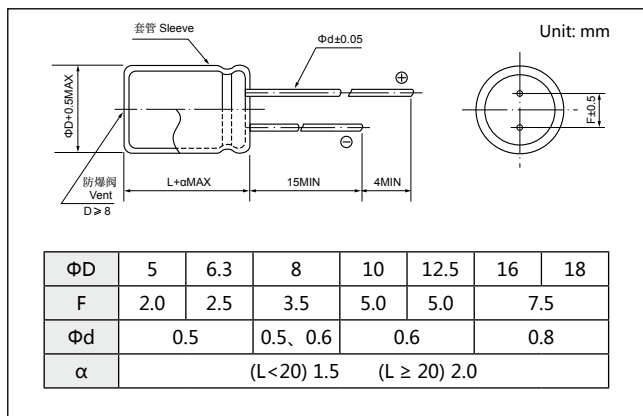


主要技术性能 Specifications

项目 Item	特性 Performance Characteristics																																															
工作温度范围 Operating Temperature Range	-40~+105°C	-25~+105°C																																														
额定电压范围 Rated Voltage Range	6.3~100V	160~450V																																														
标称电容量范围 Nominal Capacitance Range	1~18000µF																																															
标称电容量允许偏差 Capacitance Tolerance	±20%(+20°C, 120Hz)																																															
漏电流 Leakage Current	I ≤ 0.01CV 或 3µA (2 分钟) 取较大值 (at 20°C , after 2 minutes , Whichever is greater)	CV ≤ 1000 : I=0.01CV+40 (µA) max CV > 1000 : I=0.04CV+100 (µA) max 20°C 1 分钟额定电压下的漏电流 After 1 minute application of rated voltage at 20°C																																														
损耗角正切值 (tgδ) Dissipation Factor (+20°C , 120Hz)	<table border="1"> <tr> <td>U_R(V)</td> <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> <td>160-250</td> <td>400-450</td> </tr> <tr> <td>tgδ</td> <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> <td>0.20</td> <td>0.24</td> </tr> </table> <p>容量大于 1000µF 者, 每增加 1000µF, 其损耗角正切值增加 0.02 When nominal capacitance exceeds 1000µF, add 0.02 to the value above for each 1000µF increase.</p>												U _R (V)	6.3	10	16	25	35	50	63	100	160-250	400-450	tgδ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24														
U _R (V)	6.3	10	16	25	35	50	63	100	160-250	400-450																																						
tgδ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.20	0.24																																						
温度特性 Temperature Characteristics (Impedance ratio at 120Hz)	<table border="1"> <tr> <td>U_R(V)</td> <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> <td>160-250</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z-25°C /+20°C</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> <td>5</td> <td>6</td> </tr> <tr> <td>Z-40°C /+20°C</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>-</td> <td>-</td> <td>-</td> </tr> </table>												U _R (V)	6.3	10	16	25	35	50	63	100	160-250	400	450	Z-25°C /+20°C	4	3	2	2	2	2	2	2	3	5	6	Z-40°C /+20°C	8	6	4	3	3	3	3	3	-	-	-
U _R (V)	6.3	10	16	25	35	50	63	100	160-250	400	450																																					
Z-25°C /+20°C	4	3	2	2	2	2	2	2	3	5	6																																					
Z-40°C /+20°C	8	6	4	3	3	3	3	3	-	-	-																																					
耐久性 Load Life	+105°C 施加带额定纹波电流的额定电压 2000 小时, 恢复 16 小时后: After applying rated voltage with specified ripple current for specified time at +105°C and then resumed 16 hours: 电容量变化率 Capacitance change : ±20% 初始测量值以内 ±20% of the initial measured value 漏 电 流 Leakage current : ≤ 初始规定值 ≤ the initial specified value 损耗角正切值 Dissipation factor : ≤ 2 倍初始规定值 ≤ 200% of the initial specified value										<table border="1"> <tr> <td>ΦD</td> <td>Life Time (hrs)</td> </tr> <tr> <td>Φ5-6</td> <td>2000</td> </tr> <tr> <td>Φ8-10</td> <td>3000</td> </tr> <tr> <td>≥ Φ12.5</td> <td>4000</td> </tr> </table>		ΦD	Life Time (hrs)	Φ5-6	2000	Φ8-10	3000	≥ Φ12.5	4000																												
ΦD	Life Time (hrs)																																															
Φ5-6	2000																																															
Φ8-10	3000																																															
≥ Φ12.5	4000																																															
高温贮存 Shelf Life	+105°C, 1000 小时贮存后, 恢复 16 小时后: After storage for 1000 hours at +105°C, and then resumed 16 hours : 电容量变化率 Capacitance change : ±20% 初始测量值以内 ±20% of the initial measured value 漏 电 流 Leakage current : ≤ 2 倍初始规定值 ≤ 200% of the initial specified value 损耗角正切值 Dissipation factor : ≤ 2 倍初始规定值 ≤ 200% of the initial specified value																																															

Low Impedance

外形图及尺寸 Diagram of Dimensions



纹波电流修正系数 Multiplier for Ripple Current

频率系数 Frequency coefficient

Frequency(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
4700~18000	0.85	0.95	0.98	1.00

额定值标准 Standard Size

V(Code) Item Cap.(μF) Code		6.3(0J)			10(1A)			16(1C)		
		Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz
10	100	-	-	-	-	-	-	5x11	1.3	90
22	220	-	-	-	-	-	-	5x11	0.65	120
47	470	-	-	-	-	-	-	5x11	0.45	130
100	101	5x11	0.3	220	5x11	0.198	280	5x11	0.198	200
					6.3x11	0.185	360	6.3x11	0.25	345
120	121	-	-	-	6.3x11	-	6.3x11	0.198	345	
150	151	-	-	-	6.3x11	0.198	345	8x11.5	0.117	645
180	181	6.3x11	0.198	345	6.3x11	0.198	345	8x11.5	0.117	645
220	221	6.3x11	0.198	345	6.3x11	0.198	345	6.3x11	0.198	560
								8x11.5	0.117	645
270	271	6.3x11	0.198	345	8x12	0.117	645	8x11.5	0.117	645
330	331	6.3x11	0.198	345	6.3x11	0.198	345	8x11.5	0.117	645
		8x11.5	0.117	645	8x11.5	0.117	645			
390	391	8x11.5	0.117	645	8x11.5	0.017	645	10x12.5	0.072	870
470	471	6.3x11	0.198	345	6.3x11	0.145	380	8x11.5	0.093	720
		8x11.5	0.117	645	8x11.5	0.117	502	10x12.5	0.072	870
560	561	8x11.5	0.117	645	10x12.5	0.072	870	10x12.5	0.072	870
680	681	8x11.5	0.117	645	8x11.5	0.117	645	8x16	0.078	845
					10x12.5	0.072	870	10x16	0.054	1216
820	821	8x16	0.078	845	8x16	0.078	845	8x16	0.048	7801216
		10x12.5	0.072	870				10x20	0.041	1406
1000	102	8x11.5	0.072	780	10x12.5	0.078	845	8x20	0.062	1056
		10x12.5	0.072	870	8x20	0.062	1056	10x20	0.052	1120
1200	122	8x14	0.078	845	10x16	0.030	1300	10x25	0.038	1820
		10x12.5	0.072	870	10x20	0.041	1406			
1500	152	8x16	0.078	845	10x16	0.054	1216	10x20	0.038	1820
		10x16	0.054	1216	10x20	0.041	1406	12.5x20	0.032	1906
1800	182	10x25	0.038	1656	10x20	0.041	1406	10x25	0.038	1656
					12.5x20	0.032	1906			
2200	222	10x25	0.038	1656	10x25	0.038	1656	12.5x20	0.035	1850
		16x15	0.045	1886	12.5x20	0.032	1906	12.5x25	0.027	2132
2700	272	10x30	0.028	1916	12.5x25	0.027	2132	12.5x30	0.023	2532
		12.5x20	0.032	1906				16x20	0.027	2480
3300	332	10x25	0.035	1820	12.5x30	0.023	2532	12.5x30	0.023	2430
		12.5x20	0.032	1906	16x20	0.032	2218	18x20	0.031	2503
3900	392	12.5x20	0.032	1906	12.5x35	0.020	2751	16x25	0.025	2560
					16x20	0.032	2218	18x20	0.031	2503
4700	472	12.5x25	0.027	2130	12.5x25	0.027	2132	16x30	0.020	3037
		16x20	0.032	2216				18x25	0.022	2779
5600	562	12.5x30	0.023	2532	16x25	0.025	2560	16x35	0.018	3132
		16x20	0.032	2218	18x20	0.031	2503	18x30	0.018	3608
6800	682	12.5x40	0.017	2198	16x30	0.020	3037	16x40	0.018	3620
		16x25	0.025	2560	18x25	0.022	2779	-	-	-
18x20	0.031	2503	-	-				-		
8200	822	16x30	0.020	3035	16x35	0.018	3132	18x35	0.017	3646
					18x30	0.018	3608			
10000	103	16x35	0.018	31321	18x35	0.017	3646	18x40	0.014	3789
		18x25	0.022	2779						
12000	123	16x40	0.015	3894	18x40	0.014	3789	-	-	-
		18x30	0.018	3608						
15000	153	18x35	0.017	3646	-	-	-	-	-	
18000	183	18x40	0.014	3789	-	-	-	-	-	

Low Impedance

额定值标准 Standard Size

V(Code)		25(1E)			35(1V)			50(1H)		
Cap.(μF)	Item Code	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple	Case size	Impedance	Rated ripple
		ΦD×L (mm)	(Ω)MAX 20°C /100KHz	(mArms) 105°C /100KHz	ΦD×L (mm)	(Ω)MAX 20°C /100KHz	(mArms) 105°C /100KHz	ΦD×L (mm)	(Ω)MAX 20°C /100KHz	(mArms) 105°C /100KHz
1	010	-	-	-	-	-	-	5x11	2.9	81
2.2	2R2	5x11	1.5	80	-	-	-	5x11	2.5	88
3.3	3R3	-	-	-	-	-	-	5x11	2	98
4.7	4R7	5x11	1.2	90	5x11	0.85	120	5x11	1.7	106
								6.3x11	1.5	129
10	100	5x11	0.65	80	-	-	-	5x11	1.7	106
22	220	5x11	1.95	125	5x11	0.65	180	5x11	0.39	159
								6.3x11	0.36	220
33	330	-	-	-	6.3x11	0.37	240	6.3x11	0.270	300
39	390	-	-	-	-	-	-	6.3x11	0.270	300
								8x11.5		
47	470	-	-	-	6.3x11	0.28	345	6.3x11	0.270	300
56	560	-	-	-	6.3x11	0.198	345	8x11.5	0.153	560
68	680	-	-	-	6.3x11	0.198	345	8x11.5	0.153	560
82	820	6.3x11	0.198	345	8x11.5	0.117	645	8x11.5	0.153	560
100	101	6.3x11	0.198	345	8x11.5	0.117	645	10x12.5	0.108	765
120	121	8x11.5	0.117	645	8x11.5	0.117	645	8x16	0.108	735
								10x12.5	0.108	765
150	151	8x11.5	0.117	645	8x11.5	0.117	645	10x16	0.076	1056
180	181	8x11.5	0.117	645	10x12.5	0.072	870	8x20	0.082	915
								10x16	0.076	1056
220	221	8x11.5	0.117	645	8x16	0.078	845	10x20	0.054	1226
		8x16	0.100	800	10x12.5	0.072	870	12.5x15	0.055	1266
270	271	10x12.5	0.072	870	10x16	0.054	1037	10x25	0.050	1446
330	331	8x16	0.078	645	8x20	0.06	1056	10x30	0.039	1696
		10x12.5	0.072	870	10x16	0.054	1216	12.5x20	0.041	1666
390	391	8x16	0.068	980	10x20	0.041	1406	12.5x20	0.041	1666
		10x16	0.054	1216	12.5x15	0.044	1456	16x15	0.050	1696
470	471	8x20	0.062	1056	10x16	0.048	1400	10x30	0.039	1696
		10x12.5	0.068	990	10x20	0.045	1406	12.5x25	0.031	1956
10x16	0.054	1216								
560	561	10x20	0.041	1406	10x20	0.045	1430	12.5x25	0.031	1956
		12.5x15	0.044	1456	10x25	0.038	1656			
680	681	10x20	0.041	1406	10x30	0.028	1916	12.5x30	0.027	2318
					12.5x20	0.032	1906	16x20	0.031	2218
820	821	10x20	0.041	1406	12.5x25	0.027	2132	12.5x35	0.023	2518
								18x20	0.032	2498
1000	102	10x20	0.038	1820	12.5x20	0.035	2018	16x25	0.023	2563
		10x25	0.032	1906	12.5x25	0.027	2132			
		12.5x20	0.032	1906	16x20	0.032	2218			
1200	122	12.5x25	0.027	2132	12.5x30	0.023	2532	16x30	0.020	3018
					16x20	0.032	2218	18x25	0.023	2748
1500	152	12.5x20	0.032	2010	12.5x35	0.020	2751	16x35	0.017	3158
		12.5x25	0.027	2132	16x25	0.025	2560			
1800	182	12.5x30	0.025	2532	12.5x40	0.017	3198	16x40	0.017	3600
		16x20	0.032	2218	16x25	0.025	2560	18x30	0.019	3200
					18x20	0.031	2503			
2200	222	12.5x35	0.023	2751	16x30	0.020	3037	18x30	0.019	3200
		18x20	0.027	2503	18x25	0.022	2779	18x35	0.016	3688
2700	272	16x25	0.025	2412	16x35	0.018	3132	18x40	0.014	3808
		16x30	0.021	2430	18x30	0.018	3608	-	-	-
3300	332	16x30	0.020	3037	18x35	0.017	3646	-	-	-
		18x25	0.022	2779				-	-	-
3900	392	16x35	0.018	3132	18x40	0.014	3789	-	-	-
		18x30	0.018	3608	-	-	-	-	-	-
4700	472	18x35	0.017	3646	-	-	-	-	-	
5600	562	18x40	0.014	3789	-	-	-	-	-	

Low Impedance

额定值标准 Standard Size

V(Code) Item		63(1J)			100(2A)			160(2C)		
		Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz
4.7	4R7	-	-	-	5X11	1.8	35	8X11.5	3.602	125
10	100	-	-	-	-	-	-	8X11.5	3.602	155
15	150	-	-	-	6.3X11	0.864	120	-	-	-
22	220	6.3X11	0.864	120	8X11.5	0.75	205	10X12.5	2.712	185
27	270	-	-	-	8X11.5	0.454	237	-	-	-
33	330	6.3X11	0.864	120	8X11.5	0.454	285	10X20	1.485	271
39	390	8X11.5	0.454	237	8X16	0.324	305	-	-	-
47	470	8X11.5	0.454	237	10X12.5	0.310	293	10X20	1.485	325
56	560	8X11.5	0.454	237	8X20	0.238	367	-	-	-
68	680	8X11.5	0.454	237	10X16	0.223	362	-	-	-
82	820	10X12.5	0.310	293	10X20	0.151	471	-	-	-
		-	-	-	12.5X16	0.166	471			
100	101	8X16	0.30	320	10X25	0.144	536	16X25	0.324	680
		10X12.5	0.310	293	16X20	0.09	900			
120	121	10X16	0.223	342	10X30	0.108	668	-	-	-
		-	-	-	12.5X20	0.115	695			
150	151	8X20	0.238	367	16X20	0.09	900	-	-	-
		10X20	0.151	471	12.5X25	0.086	789			
180	181	12.5X15	0.166	471	18X16	0.086	925	-	-	-
		10X20	0.151	471	12.5X25	0.086	789			
220	221	10X25	0.144	536	16X20	0.066	1046	16X35	0.27	1230
		12.5X20	0.115	695						
		16X15	0.101	800						
270	271	16X15	0.101	800	12.5X35	0.059	1056	-	-	-
		-	-	-	16X25	0.052	1256			
		10X30	0.108	668	12.5X40	0.051	1186			
330	331	12.5X20	0.115	695	18X20	0.058	1246	-	-	-
		12.5X25	0.086	789	16X30	0.039	1576			
		18X15	0.086	925	18X25	0.041	1496			
390	391	12.5X25	0.072	820	16X35	0.032	1796	18X40	0.162	1313
		16X20	0.066	1046	18X30	0.034	1636			
		16X25	0.052	1256	18X40	0.029	2028			
560	561	12.5X35	0.059	1056	18X35	0.029	1796	-	-	-
		16X25	0.052	1256						
		18X20	0.058	1246						
680	681	12.5X40	0.051	1186	18X40	0.026	2338	-	-	-
		16X30	0.039	1576						
		18X25	0.041	1496						
1000	102	16X30	0.039	1576	-	-	-	-	-	-
		16X35	0.032	1796	-	-	-	-	-	-
1200	122	16X40	0.029	2028	-	-	-	-	-	-
		18X30	0.034	1636	-	-	-	-	-	-
1500	152	18X35	0.029	1796	-	-	-	-	-	-
1800	182	18X40	0.026	2338	-	-	-	-	-	-

Low Impedance

V(Code) Item		200(2D)			250(2E)			400(2G)			450(2W)		
		Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz	Case size ΦD×L (mm)	Impedance (Ω)MAX 20°C /100KHz	Rated ripple (mArms) 105°C /100KHz
2.2	2R2	-	-	-	-	-	-	-	-	-	8X11.5	11.6	50
3.3	3R3	-	-	-	8X11.5	4.5	92	8X11.5	12.0	93	10X16	10.0	142
4.7	4R7	-	-	-	10X12.5	3.95	95	10X12.5	10.0	188	10X20	5.8	185
10	100	10X12.5	2.700	167	10X12.5	2.58	135	10X16	6.5	198	10X25	3.85	245
22	220	10X16	2.025	213	12.5X20	2.34	245	12.5X20	3.36	200	12.5X25	2.80	485
33	330	10X20	1.485	271	12.5X25	1.62	345	16X25	1.78	310	16X25	2.20	665
47	470	12.5X20	0.963	371	12.5X25	1.62	395	18X25	1.4	613	18X25	1.05	537
											16X35		625
68	680	-	-	-	-	-	-	-	-	-	18X35	0.75	582
100	101	16X30	0.324	972	16X30	0.63	705	18X40	0.61	910	18X40	0.74	715
220	221	18X35	0.189	1148	18X40	0.37	838	-	-	-	-	-	-
470	471	18X50	0.072	1386	-	-	-	-	-	-	-	-	-

可根据客户需要定制产品 Customer products are available on request.