

## GR Series

### +105°C, High Ripple Current(高纹波), Low Impedance(低阻抗抗品)

#### FEATURES

1. Low impedance for high frequency.
2. Life time: 2000~4000 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 4700µF																											
Capacitance Tolerance	±20% (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> <td>Working Voltage (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> </tr> <tr> <td>tan δ (max.)</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> </tr> </table> <p>For capacitance value &gt; 1000µF, add 0.02 per another 1000µF</p>	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																				
Low Temperature Characteristics	Impedance ratio max. at 120Hz																											
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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	3	3	3	3	3																				

#### High Temperature Loading

Test conditions

Duration :	φD	5 ~ 6.3	8 ~ 10	12.5
Load life	2000h	3000h	4000h	

Ambient temp. : +105°C

Applied voltage : Rated DC working voltage with rated ripple current

Post test requirements at +20°C

Leakage current : ≤ Initial specified value  
Cap. change : within ±25% of initial measured value  
tan δ : ≤ 150% of initial specified value

#### Shelf Life

Test conditions

Duration : 1000 hours  
Ambient temp. : +105°C  
Applied voltage : (None)

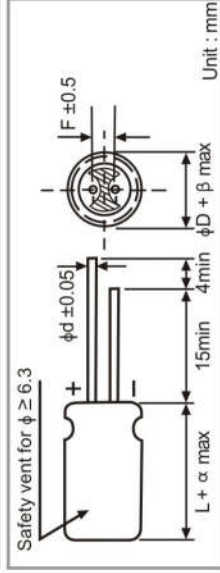
Post test requirements at +20°C

Same limits for high temperature loading.

#### Others

JIS C - 5101 ( IEC 60384 )

#### CASE SIZE TABLE



φD	5	6.3	8(L<20)	8(L≥20)	10	12.5		
F	2.0	2.5	3.5	5.0	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			



## GR Series

### +105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

#### STANDARD RATINGS

Voltage (Code)		6.3V (0J)			10V (1A)			16V (1C)		
Cap.( $\mu$ F)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107							6.3x11	0.220	340
120	127							6.3x11	0.220	340
150	157				6.3x11	0.220	340	8x12	0.130	640
180	187	6.3x11	0.220	340	6.3x11	0.220	340	6.3x11	0.220	340
220	227	6.3x11	0.220	340	6.3x11	0.220	340	8x12	0.130	640
270	277	6.3x11	0.220	340	6.3x11	0.220	340	8x12	0.130	640
330	337	6.3x11	0.220	340	6.3x11	0.220	340	8x12	0.130	640
390	397	8x12	0.130	640	8x12	0.130	640	8x12	0.130	640
470	477	8x12	0.130	640	8x12	0.130	640	8x12	0.130	640
560	567	8x12	0.130	640	8x12	0.130	640	10x12.5	0.080	865
680	687	8x12	0.130	640	8x12	0.130	640	10x12.5	0.080	865
820	827	8x12	0.130	640	10x12.5	0.080	865	10x12.5	0.080	865
1000	108	8x12	0.130	640	8x16	0.087	640	10x16	0.060	1210
1200	128	8x16	0.087	840	10x16	0.060	1210	10x20	0.046	1400
1500	158	10x12.5	0.080	865	10x20	0.046	1400	10x20	0.046	1400
1800	188	8x20	0.069	1050	10x20	0.046	1400	10x25	0.042	1650
2200	228	10x16	0.060	1210	10x20	0.046	1400	12.5x20	0.035	1900
2700	278	10x20	0.046	1400	10x20	0.046	1400	12.5x25	0.030	2124
3300	338	10x25	0.042	1650	10x25	0.042	1650			
3900	398	12.5x20	0.035	1900	12.5x20	0.035	1900			
4700	478	12.5x25	0.030	2124	12.5x25	0.030	2124			

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

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

Case Size  $\phi$ 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.



## GR Series

### +105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

#### STANDARD RATINGS

Voltage (Code)		25V (1E)			35V (1V)			50V (1H)		
Cap.( $\mu$ F)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
33	336							6.3x11	0.300	295
39	396							6.3x11	0.300	295
47	476				6.3x11	0.220	340	6.3x11	0.300	295
56	566				6.3x11	0.220	340	8x12	0.170	555
68	686				6.3x11	0.220	340	8x12	0.170	555
82	826	6.3x11	0.220	340	8x12	0.130	640	8x12	0.170	555
100	107	6.3x11	0.220	340	8x12	0.130	640	10x12.5	0.120	760
120	127	8x12	0.130	640	8x12	0.130	640	8x16	0.120	730
150	157	8x12	0.130	640	8x12	0.130	640	10x12.5	0.120	760
180	187	8x12	0.130	640	10x12.5	0.080	865	10x16	0.084	1050
220	227	8x12	0.130	640	8x12	0.087	840	8x20	0.091	910
270	277	8x12 10x12.5	0.130 0.080	640 865	10x12.5	0.080	865	10x16	0.084	1050
330	337	8x12 10x12.5	0.130 0.080	640 865	8x12 10x12.5	0.130 0.080	640 840	12.5x20	0.045	1660
390	397	10x12.5	0.080	865	10x16	0.060	1210	12.5x20	0.045	1660
470	477	8x16 10x12.5	0.087 0.080	840 865	10x16	0.060	1210	12.5x25	0.034	1950
560	567	10x16	0.060	1210	10x20	0.046	1400	12.5x25	0.034	1950
680	687	10x16	0.060	1210	10x20	0.046	1400			
820	827	10x20	0.046	1400	10x25	0.042	1650			
1000	108	10x20	0.046	1400	12.5x20	0.035	1900			
1200	128	10x20	0.046	1400	12.5x20	0.035	1900			
1500	158	10x25 12.5x20	0.042 0.035	1650 1900	12.5x25	0.030	2124			
1800	188	12.5x25	0.030	2124						
2200	228	12.5x25	0.030	2124						

Maximum Allowable Ripple Current (mA rms) at 105°C 100kHz  
Maximum Impedance ( $\Omega$ ) at 20°C 100kHz

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

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## GR Series

### +105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

#### STANDARD RATINGS

Voltage (Code)		63V (1J)			100V(2A)		
Cap.( $\mu$ F)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
15	156				6.3x11	0.960	115
22	226	6.3x11	0.960	115			
27	276	6.3x11	0.960	115	8x12	0.504	232
33	336	6.3x11	0.960	115			
39	396	8x12	0.504	232	8x16	0.360	300
47	476	8x12	0.504	232	10x12.5	0.344	314
56	566	8x12	0.504	232	8x20	0.264	362
68	686	8x12	0.504	232	10x16	0.248	357
82	826	10x12.5	0.344	314	10x20	0.168	466
100	107	8x16	0.360	300	10x20	0.168	466
		10x12.5	0.344	314			
120	127	10x16	0.248	357	12.5x20	0.128	690
150	157	8x20	0.264	362			
180	187	10x20	0.168	466	12.5x25	0.096	922
220	227	10x20	0.168	466	12.5x25	0.096	922
270	277	12.5x20	0.128	690			
330	337	12.5x20	0.128	690			
390	397	12.5x25	0.096	922			

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

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

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

#### RIPPLE CURRENT MULTIPLIER

##### Frequency Coefficient

Cap( $\mu$ F)	Coefficient	Freq.(Hz)	120	1k	10k	100k
~180		~180	0.40	0.75	0.90	1.00
		220 ~ 560	0.50	0.85	0.94	1.00
680 ~ 1800		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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