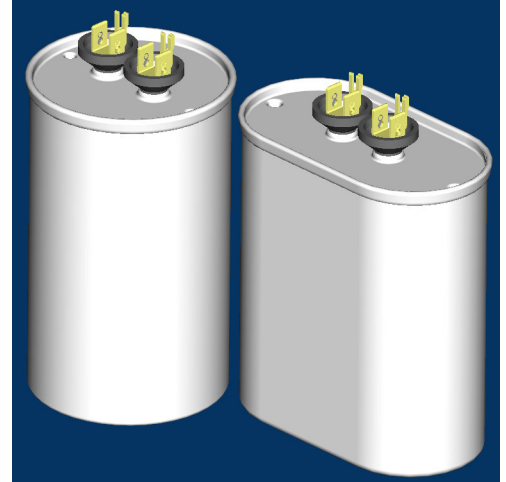


## 600 Volts AC

This series of Gem III is specifically designed for general purpose AC applications in power supplies, UPS and power conversion equipment. Application Data is provided starting on page 12 that gives the Equivalent Series Resistance (ESR) for each unit. This allows the user to calculate the losses for each design/application and to ensure that they are kept within the permissible limits. Any questions regarding the suitability of a capacitor for a particular application may be referred to RBC Engineers through your RBC sales representative.



### SPECIFICATIONS:

- Available Capacitance Range:** 1.5 to 45  $\mu$ F
- Capacitance Tolerance:**  $\pm$  6%
- Capacitance Variation with Temperature:** See chart E-3 on page 15.
- Rated Voltage:** See Rating Tables. Rating is the 60Hz RMS voltage for a sinusoidal waveform. For other waveforms refer to the Application Note on page 15.
- Leakage Current:** 30  $\mu$ A maximum
- Frequency:** 50/60 Hz. For higher frequencies refer to the Application.
- Operating Temperature:** -40 °C to +70 °C
- Storage Temperature:** -40 °C to +90 °C
- Operating Life:** 60,000 hours with 94% survival
- Dissipation Factor:** 0.1% maximum
- Case Material/Finish:** Unpainted Aluminum Contact factory for material / finish to meet UL outdoor standards if required.
- Terminations:** 0.250" x 0.031" quick connect blades.
- Dielectric Fluid:** Dielektrol VI
- Internal Protection:** UL recognized Pressure Sensitive Interrupter. See Ratings Table for RBC's Code Number listed under RBC's UL. File E7793 (N). For UL submittals with these capacitors use the RBC 'Pxxx' number **not** the Catalog Number. The corresponding generic UL designation that includes the Available Fault Current (AFC) rating is given below. All these capacitors are capable of interrupting available fault currents of up to 10,000 amperes.

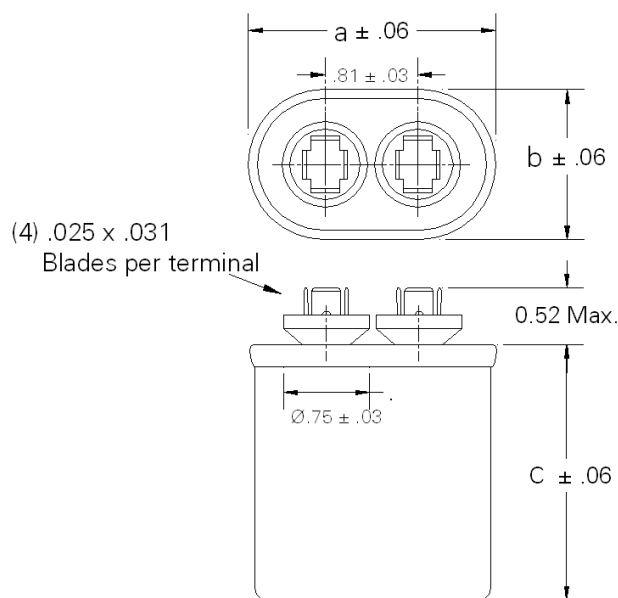
Case Style	RBC Code	Generic UL Code
A	P961	A1000AFC
B	P962	B1000AFC
C	P963	C1000AFC
D	P964	D1000AFC

## 600 Volts AC

### \*STANDARD RATINGS

### Case Style A, B, C and D

Capacitance (μF)	Catalog Number	Case Style	Height C(in.)	UL Code
<b>600 Volts AC Nominal</b>				
1.5	97F8240	A	2.12	P961
2.0	97F8241	A	2.12	P961
2.5	97F8242	A	2.88	P961
3.0	97F8243	A	2.88	P961
4.0	97F8244	A	2.88	P961
5.0	97F8245	A	3.88	P961
6.0	97F8246	A	3.88	P961
7.0	97F8247	A	4.75	P961
8.0	97F8248	A	4.75	P961
10	97F8249	B	3.88	P962
12	97F8250	B	3.88	P962
15	97F8251	B	3.88	P962
18	97F8252	B	4.75	P962
20	97F8253	B	4.75	P962
25	97F8254	C	4.75	P963
30	97F8255	D	3.88	P964
35	97F8256	D	4.75	P964
40	97F8257	D	4.75	P964
45	97F8258	D	4.75	P964



Case Style	a	b
A	2.16	1.31
B	2.69	1.56
C	2.91	1.91
D	3.66	1.97

\* It is RBC's goal to serve you with the most cost effective and the highest quality capacitor designs. Standardization to the catalog type shown is a major program at RBC.

However, RBC remains sensitive to your needs and requirements, and will continue to offer the above ratings (and more) in case configurations to meet your application (s).

## 97F8200 Series 600 Volts AC

The 97F8000 series of capacitors on the attached product sheet may be used in AC applications where the voltage waveform is non-sinusoidal. This Application Note is provided to assist in the correct use of the capacitors where higher frequency harmonic currents are present. If you need further assistance please contact RBC's Capacitors Operation through your normal sales channel.

Higher frequency currents are commonly encountered in the filter circuits of Static Power Converters. These frequencies range from 180 to 1500 Hz for a 60 Hz system in various combinations of the odd harmonics depending on the type of converter. Generally, there are not significant harmonic currents above the 25<sup>th</sup> harmonic.

These capacitors can carry a total current of up to 15 amperes RMS (fundamental plus harmonics). The Equivalent Series Resistance (ESR) for each Catalog Number is shown in the ESR tables on this page. This value may be used to calculate the expected watts loss for a particular application. The user must determine the total RMS current (fundamental **plus** harmonics) for the application. The watts loss is then calculated using the equation:

$$W = I^2 \times ESR$$

Where **I** = Total RMS current  
 And **ESR** = Value from ESR tables.

The calculated watts from this equation must not exceed the allowable watts loss shown on the curve corresponding to the particular capacitor. Two sets of curves are shown, one for natural circulation and one for forced air circulation.

### NOTES

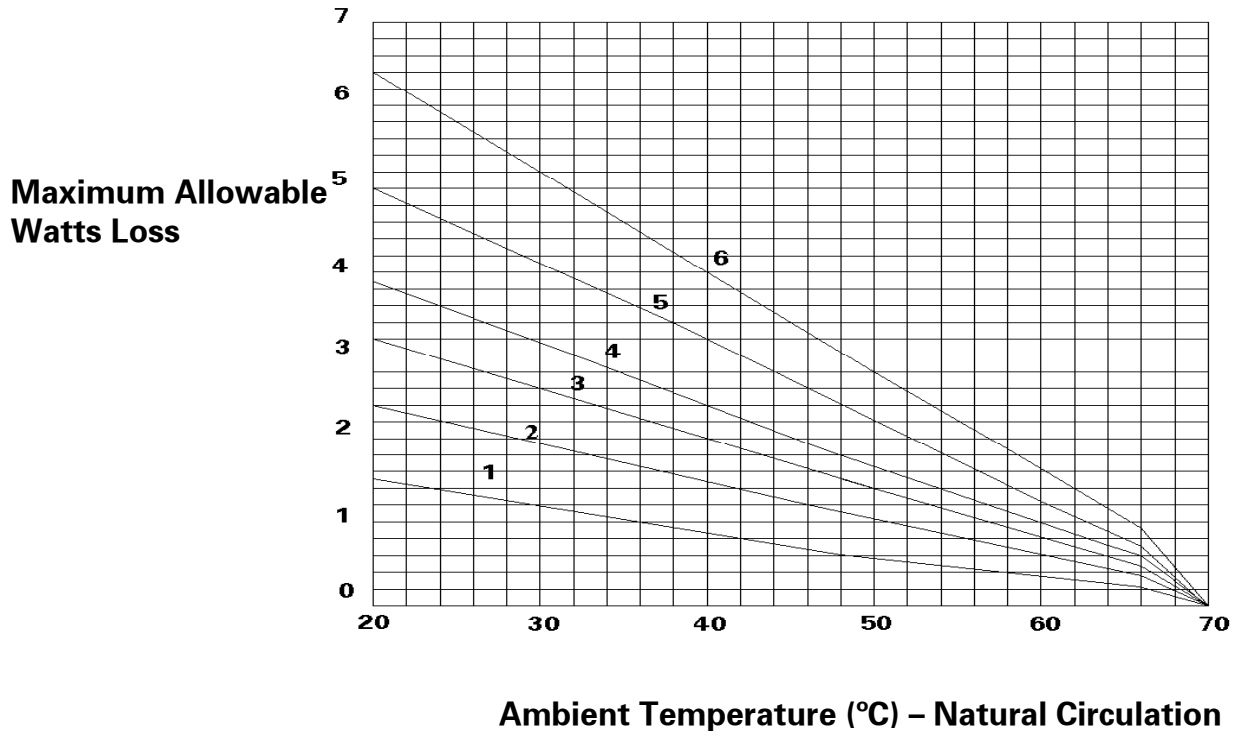
- (1) In no case should the **total RMS current** of **15 amperes** be exceeded for any of these capacitors.
- (2) Running the capacitors at case temperatures above 70 °C will have a significant effect on expected life. (See chart G-1 on page 14 )
- (3) Running the capacitors at voltages above the nominal rated voltage will also result in significantly reduced life. (See chart G-2 on page 14)

**ERS Values for 97F8200 (600 Volt) Series. Curves Numbers refer to Graphs on next Page.**

Catalog Number	µF	ESR ohms	Curve Number
<b>600 Volts AC Nominal</b>			
97F8240	1.5	0.1277	1
97F8241	2.0	0.0971	1
97F8242	2.5	0.0984	2
97F8243	3.0	0.0831	2
97F8244	4.0	0.0639	2
97F8245	5.0	0.0723	3
97F8246	6.0	0.0615	3
97F8247	7.0	0.0739	4
97F8248	8.0	0.0657	4
97F8249	10.0	0.0404	4
97F8250	12.0	0.0366	4
97F8251	15.0	0.0309	4
97F8252	18.0	0.0361	5
97F8253	20.0	0.0334	5
97F8254	25.0	0.0294	5
97F8255	30.0	0.0220	5
97F8256	35.0	0.0258	6
97F8257	40.0	0.0240	6
97F8258	45.0	0.0225	6

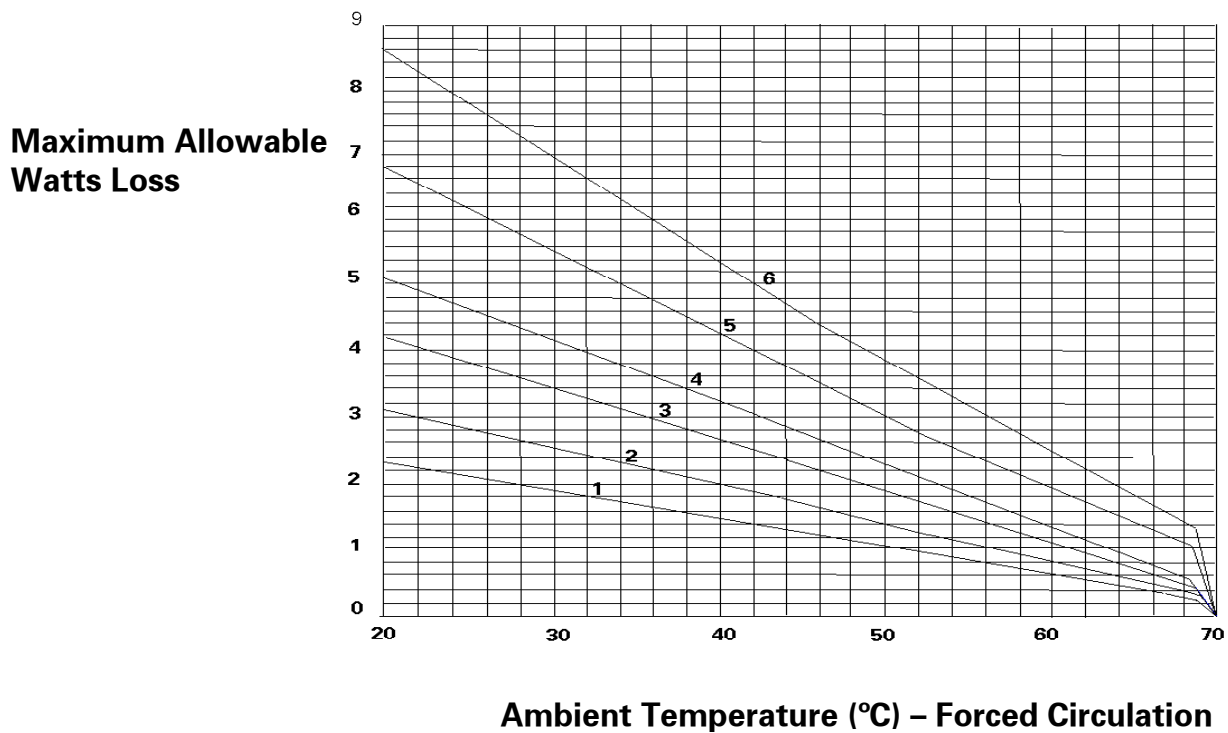


## Natural Circulation

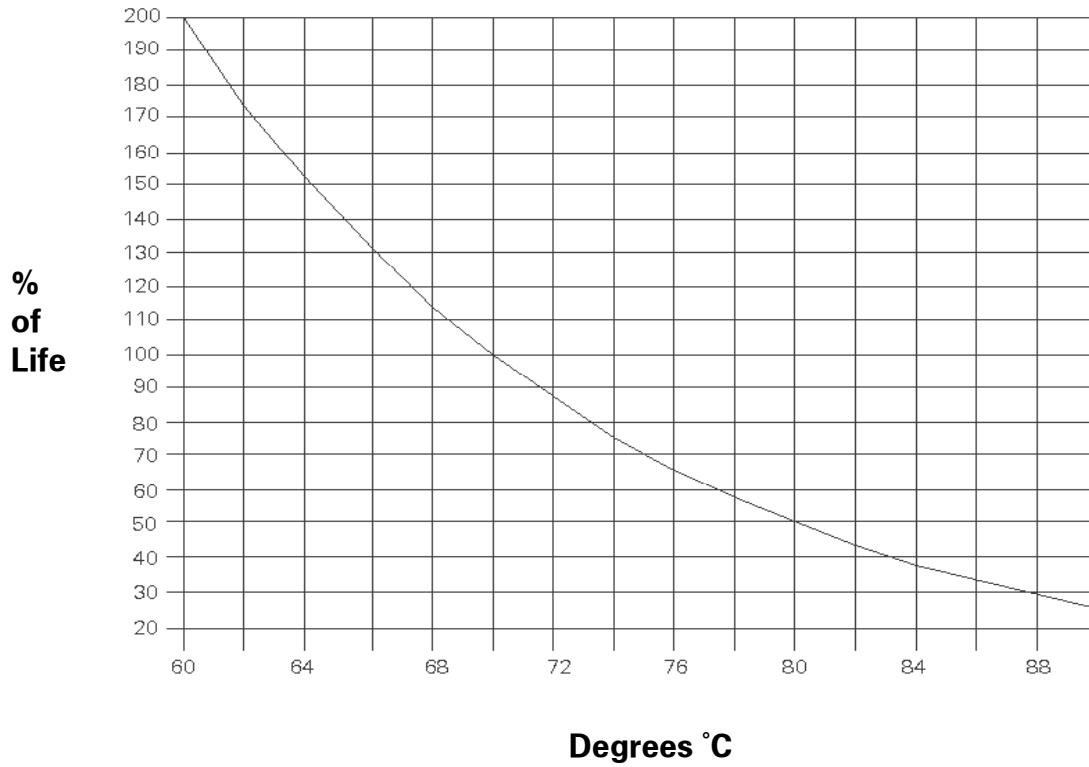


# Allowable Watts Loss - 97F8200 (600 Volt) Series

## Forced Circulation

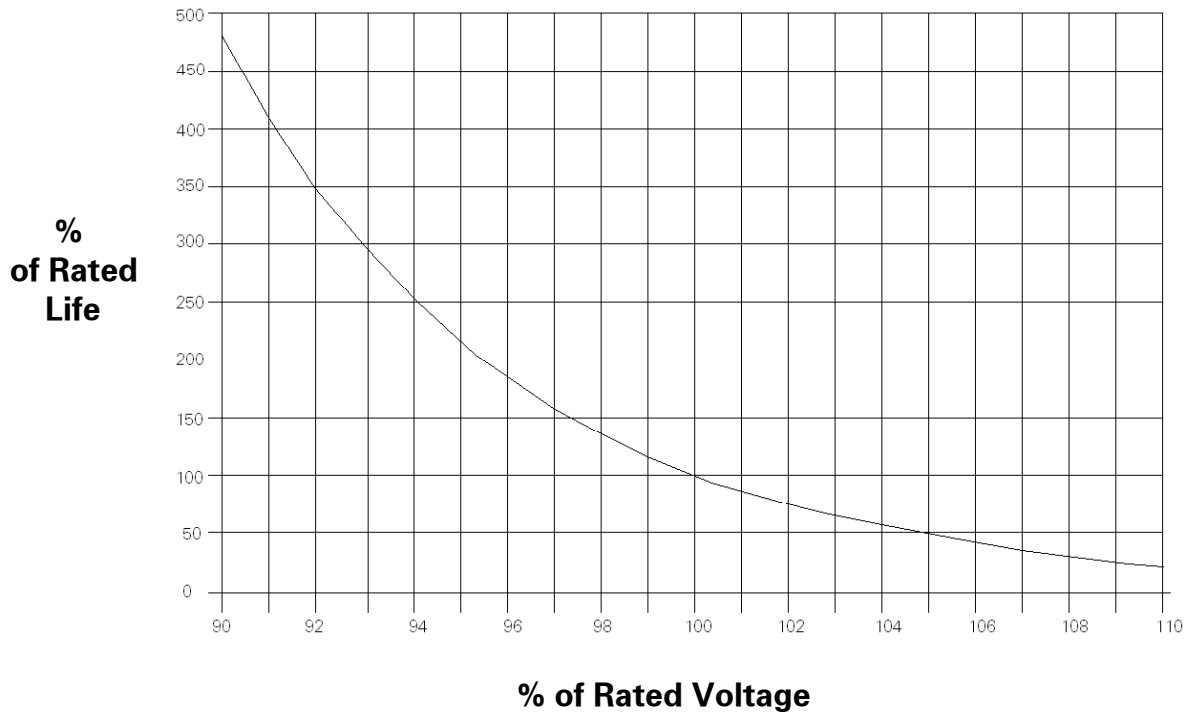


**Life  
Vs  
Temperature**



**Chart G-1**

**Life  
Vs  
Voltage**



**Chart G-2**



Percent Capacitance Vs Temperature

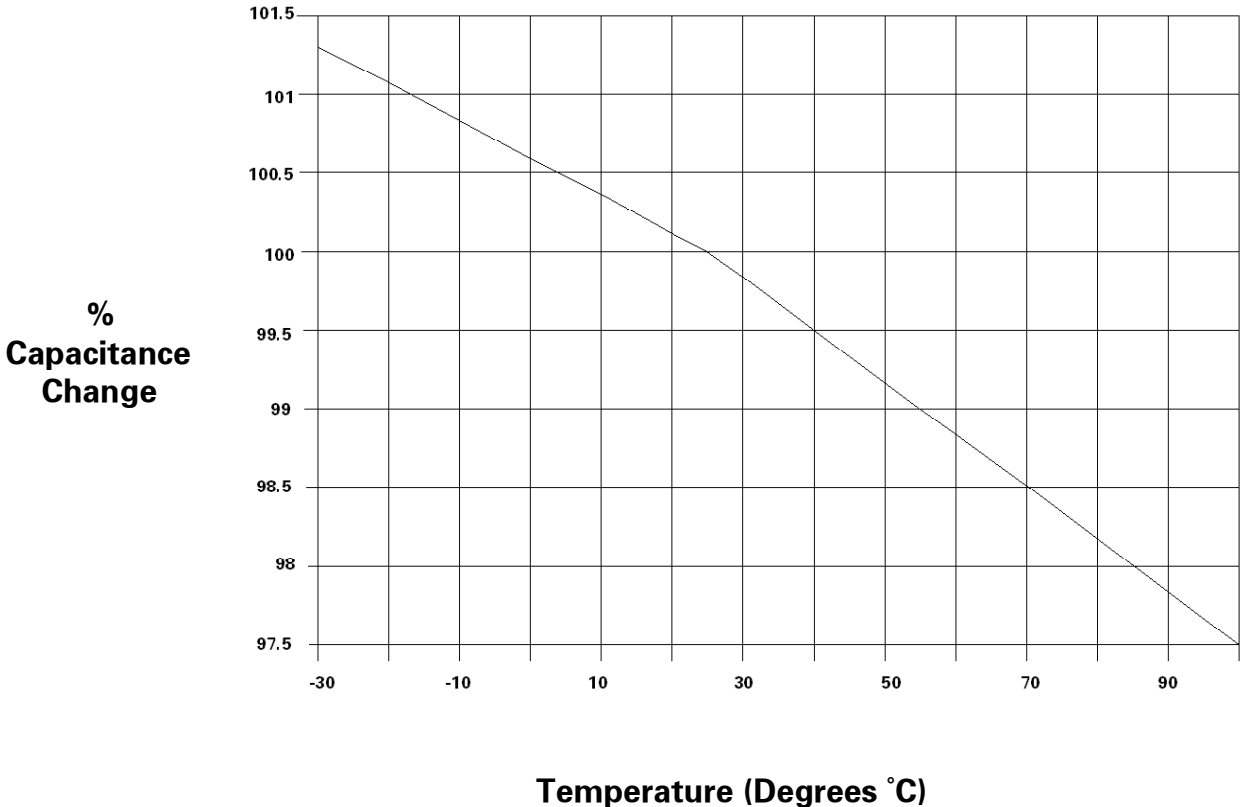


Chart E-3

