

660 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 that gives the Equivalent Series Resistance (ESR) for each units. 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:

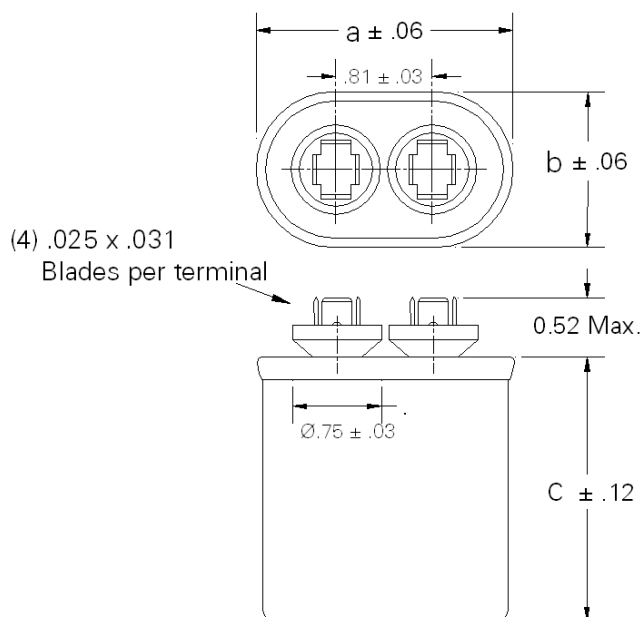
- Available Capacitance Range:** 2 to 45 μ F
- Capacitance Tolerance:** \pm 6%
- Capacitance Variation with Temperature:** See chart E-3 on page 21.
- Rated Voltage:** See Rating Tables. Rating is the 60Hz RMS voltage for a sinusoidal waveform. For other waveforms refer to the Application Note on page 6.
- Leakage Current:** 30 μ A maximum
- Frequency:** 50/60 Hz. For higher frequencies refer to the Application Note.
- 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
- 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	P851	A10000AFC
B	P852	B10000AFC
C	P853	C10000AFC

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2003 Revision

Case Style	a	b
A	2.16	1.31
B	2.69	1.556
C	2.91	1.91
D	3.66	1.97



Capacitance (μF)	Catalog Number	Case Style	Height C(in.)	UL Code	ESR ohms	Curve Number
2	27L6095	A	3.88	P851	0.0971	1
2.5	27L6093	A	3.88	P851	0.0984	2
3	27L6094	A	3.88	P851	0.0831	2
4	27L6012	A	3.88	P851	0.0639	2
5	27L6013	A	3.88	P851	0.0723	2
6	27L6014	A	4.75	P851	0.0615	3
7	27L6015	A	4.75	P851	0.0739	3
8	27L6016	A	4.75	P851	0.0657	4
10	27L6017	B	3.88	P852	0.0404	4
12	27L6018	B	4.75	P852	0.0366	4
15	27L6073	C	4.75	P853	0.0309	4
18	27L6089	D	3.88	P854	0.0361	4
20	27L6082	D	4.75	P854	0.0334	5
25	27L6022	D	4.75	P854	0.0294	5
30	27L6023	D	4.75	P854	0.0220	5

27L Series 660 Volts AC (series section)

The 27L 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 Capacitor's 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 25th 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

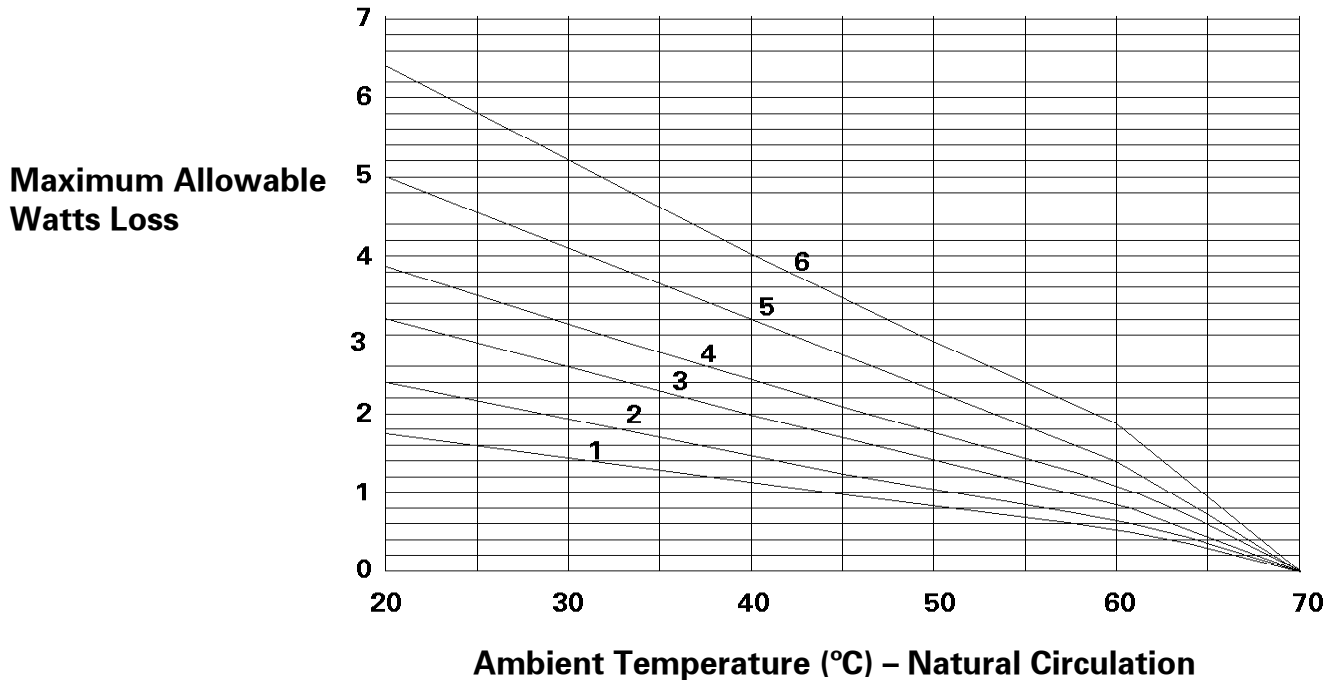
And **ESR** = Value from ESR tables.

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

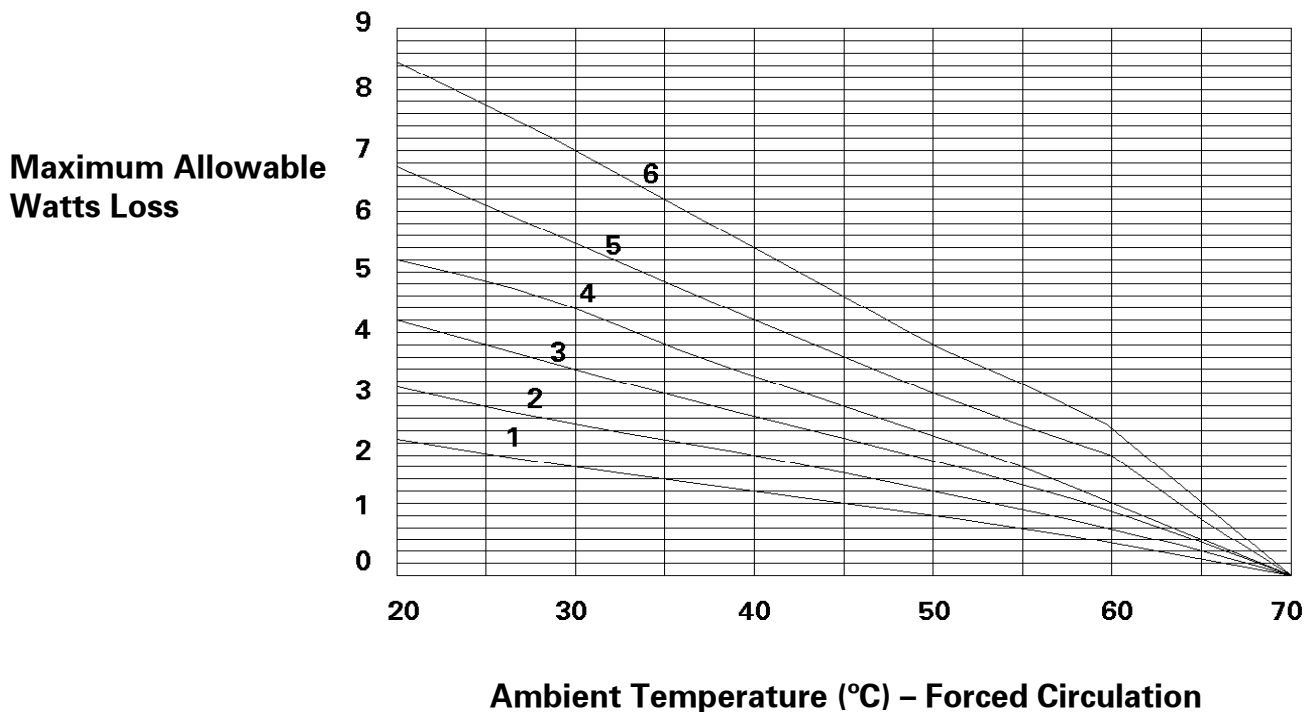
- (1) In no case should the **total RMS current** of **15 amperes** be exceeded for any of these capacitor
- (2) Running the capacitors at case temperatures above 70 °C will have a significant effect on expected life. (See chart G-1 on page 20)
- (3) Running the capacitors at voltages above the nominal rated voltage will also result in significantly reduced life. (See chart G-2 on page 20)

Natural Circulation



Allowable Watts Loss - 27L (660 Volt) Series Section

Forced Circulation



Life vs Temperature

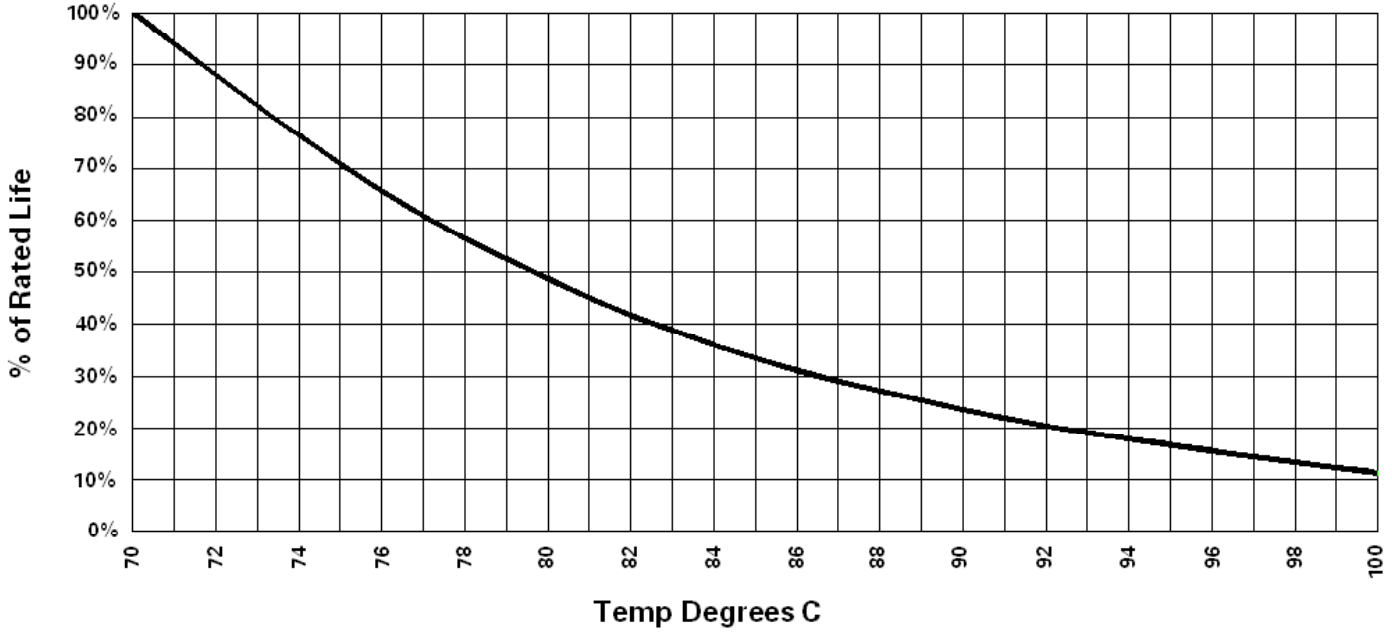


Chart G-1

Life vs Voltage

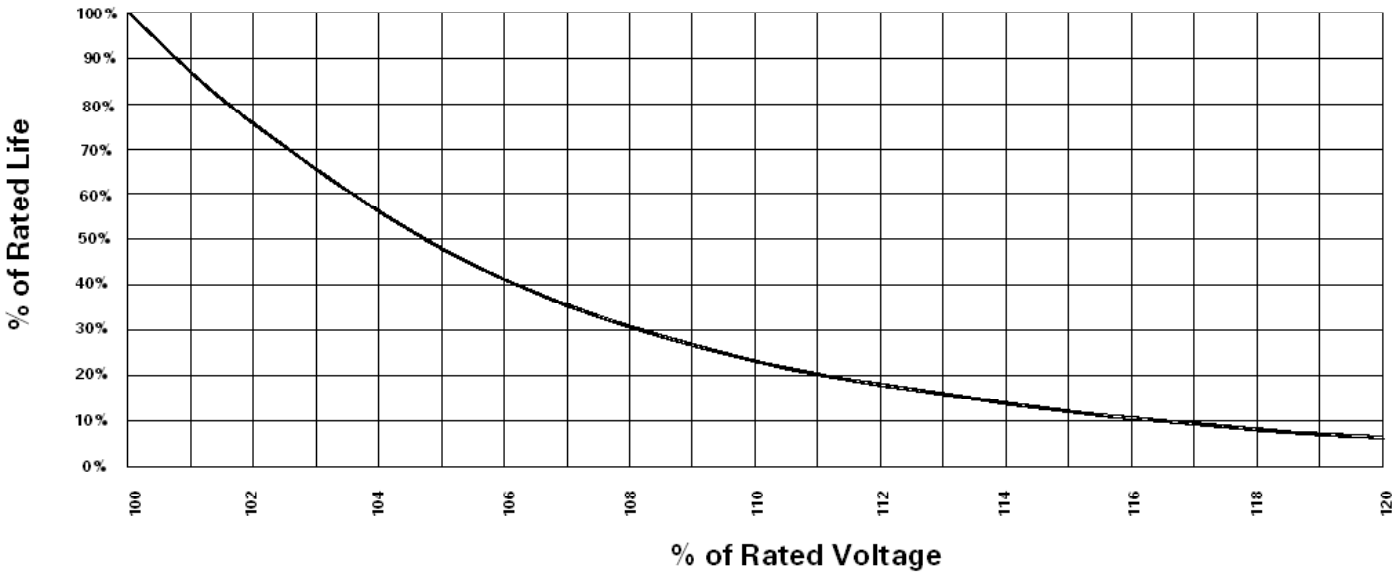


Chart G-2

The above charts are intended as general reference only. Any indication of extended life by reducing voltage or temperature is in no way a guarantee of extended product life.



Percent Capacitance Vs Temperature

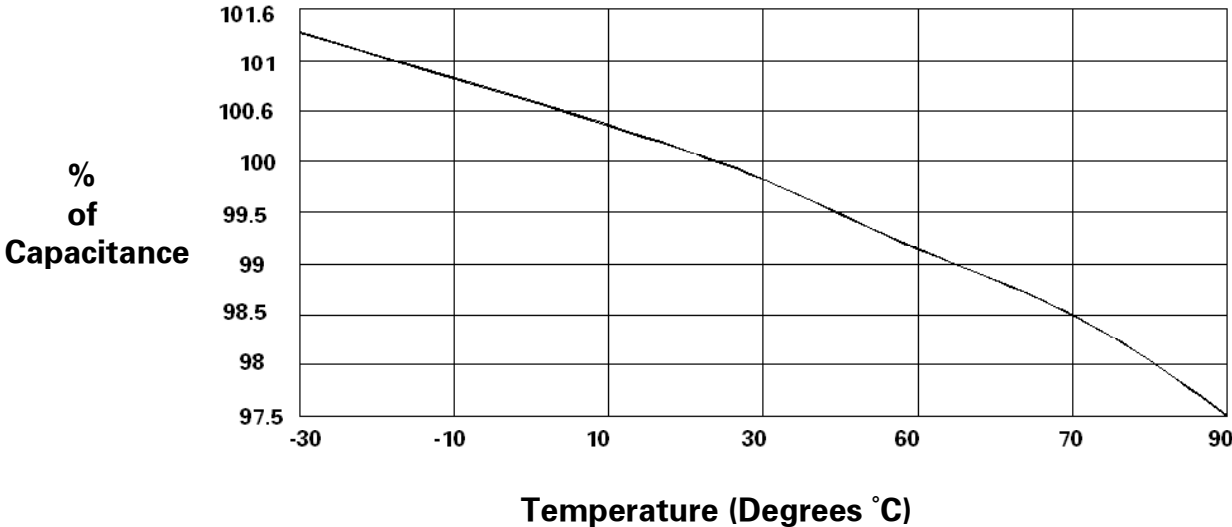


Chart E-3

