



**GE Capacitors**

By REGAL-BELOIT

CPD 512

03 / 07



# Capacitors for AC and DC General Purpose Applications



# Capacitor Application Data Sheet

To ensure correct selection of a capacitor for your application, please provide the information indicated below. This sheet may be duplicated or additional copies may be obtained from RBC.

Of particular importance are the voltages and current waveforms complete with values of voltage and current over a complete cycle.

Send this data to your local RBC Sales Representative or directly to:

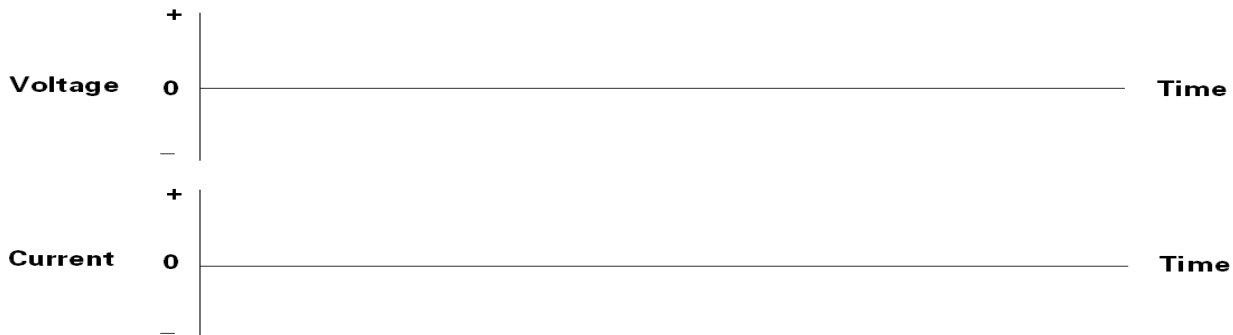
**GE Capacitors by Regal Beloit**  
**11970 PELLICANO DR., SUITE 300**  
**EL PASO ,TEXAS 79936**  
**USA**

**Fax: (915) 849-5799**

## PRIMARY INFORMATION ( Essential )

1. **Application:** \_\_\_\_\_
2. **Capacitance:** \_\_\_\_\_ **Tolerance:** \_\_\_\_\_
3. **Peak Voltage:** \_\_\_\_\_ **RMS Voltage:** \_\_\_\_\_
4. **Peak Current:** \_\_\_\_\_ **RMS Current:** \_\_\_\_\_
5. **Transient Voltage:** \_\_\_\_\_ **Duration:** \_\_\_\_\_ **Freq. of Occurrence:** \_\_\_\_\_
6. **Frequency or Repetition Rate (Hz):** \_\_\_\_\_ **Duty Cycle:** \_\_\_\_\_
7. **Ambient Temperature:** \_\_\_\_\_ **Max.:** \_\_\_\_\_ **Min.:** \_\_\_\_\_
8. **Capacitor Charge Time:** \_\_\_\_\_ **Discharge Time:** \_\_\_\_\_
9. **Required Operating Life (Hours):** \_\_\_\_\_

### 10. Waveforms:



## SECONDARY INFORMATION (Provide as Appropriate)

11. **Physical Size Limitations:** \_\_\_\_\_
12. **Mounting Requirements:** \_\_\_\_\_
13. **Applicable Specifications:** \_\_\_\_\_
14. **Type of Cooling Available:** \_\_\_\_\_
15. **Unusual Atmospheric Conditions:** \_\_\_\_\_
16. **Other Special Requirements:** \_\_\_\_\_
17. **Number of Samples Required:** \_\_\_\_\_
18. **Potential Usage:** \_\_\_\_\_



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## Descriptive Information

### RBC Capacitors for General Purpose Applications

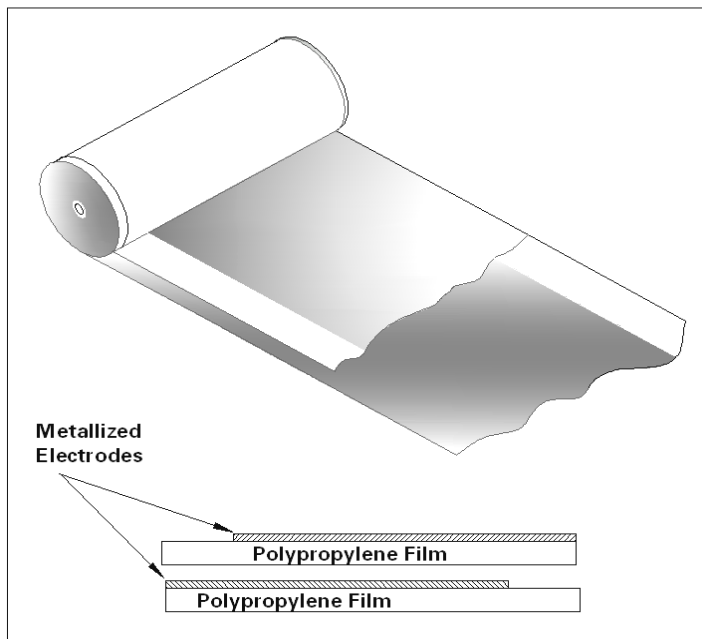
Metallized film capacitors are unsurpassed in terms of size, weight, performance, and reliability for ac applications. RBC - Capcom brings over 60 years of capacitor manufacturing experience to the product lines described in this publication. These capacitors represent the best in product design for long-term reliability and safe operation. RBC's materials, product, and process development work continue to provide capacitor users with outstanding total value.

The specific products in this bulletin are aimed at market/application segments for General Purpose, Power Supply and Electronic Power Conversion.

The Gem III General Purpose Capacitors are used for filtering on a wide variety of light industrial equipment. The conversion of electrical power in uninterruptible power supplies and drive control systems requires filter capacitors. An application note is included to help customers in the correct choice and use of these capacitors.

## Descriptive Information

### GEM III Construction

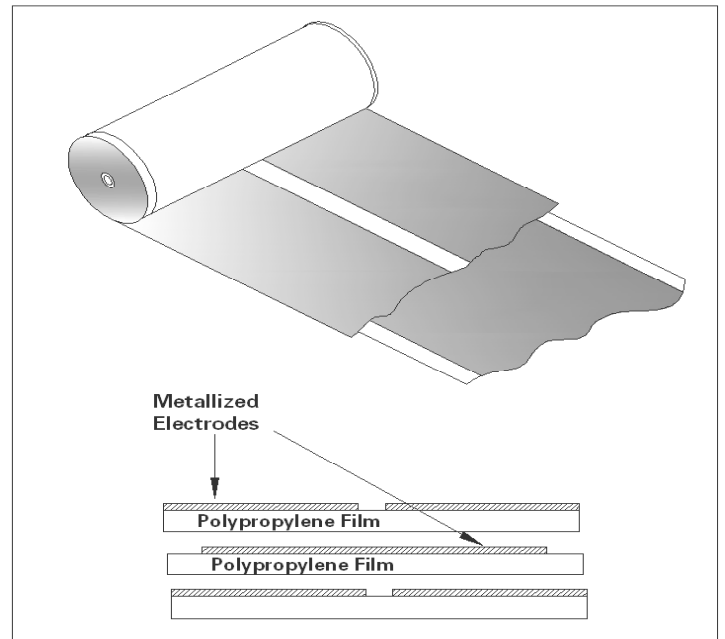


RBC 's Gem III capacitors are manufactured with high-grade metallized polypropylene film. This film is in the range of 6 to 10 microns thick, depending on the application voltage and conditions. The metallized electrode is several hundred angstroms thick.

The film is wound into capacitor rolls on high-speed, high-precision machines. The winding is extremely tight so that there is not enough space between the layers for corona (localized partial electrical discharges) to occur. The rolls are sprayed on both ends with metal to make connection to the extremely thin edges of the metallized electrodes.

The rolls are assembled in metal cases, RBC's proprietary Dielektrol VI liquid is introduced under vacuum, and the capacitors are sealed. They are then subjected to 100% electrical testing for capacitance, dissipation factor, and high potential electrical withstand, both terminal-to-terminal and terminal-to-case.

### GEM III Series Construction



RBC 's Gem III capacitors are manufactured with high-grade metallized polypropylene film. This film is in the range of 6 to 10 microns thick, depending on the application voltage and conditions. The metallized electrode is several hundred angstroms thick.

The film is wound into capacitor rolls on high-speed, high-precision machines. The winding is extremely tight so that there is not enough space between the layers for corona (localized partial electrical discharges) to occur. The rolls are sprayed on both ends with metal to make connection to the extremely thin edges of the metallized electrodes. This process is critical to the quality and performance of the capacitors.

The rolls are assembled in metal cases, RBC's proprietary Dielektrol VI liquid is introduced under vacuum, and the capacitors are sealed. They are then subjected to 100% electrical testing for capacitance, dissipation factor, and high potential electrical withstand, both terminal-to-terminal and terminal-to-case.

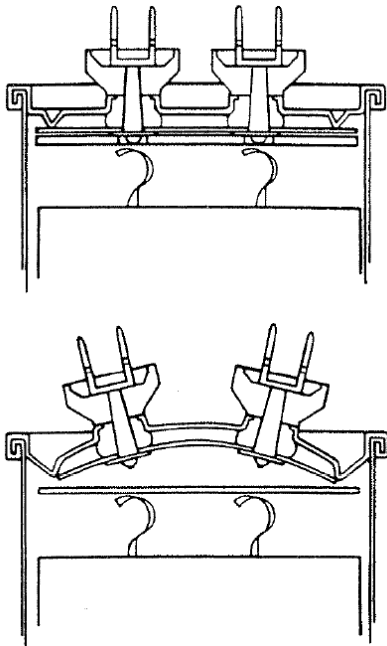
## Pressure Sensitive Interrupter

All the capacitors listed in this publication contain RBC's Pressure Sensitive Interrupter (PSI). This device, developed by RBC, is designed to sense the build-up of pressure within the capacitor if a fault occurs and to interrupt the internal electrical connections before the case can rupture.

The PSI carries U.L. \* recognition for applications where the specified fault currents are not exceeded. The fault current is the maximum current that is available from the circuit to flow through the capacitor if the capacitor were to become a short circuit with zero impedance. **It is the responsibility of the capacitor user to determine what the available fault current is for a particular application.**

In the Catalog Number listings a four character U.L. Code, Pxxx, is given. This number is part of the listing for RBC in U.L. File No. E7793. When applying to U.L. for approvals or recognition of equipment using these capacitors refer to the Pxxx number and not the Catalog Number of the capacitor in question.

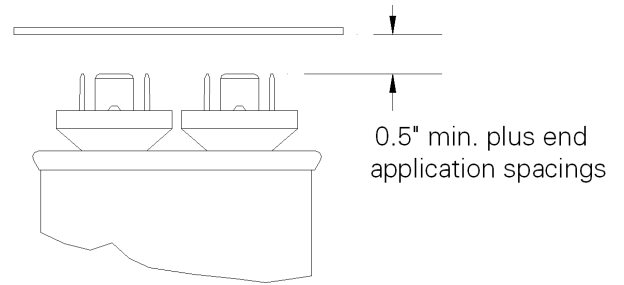
Proper operation of the PSI requires that the cover be able to expand without restriction. The following mounting considerations should be noted in mounting these capacitors.



\*Underwriter's Laboratories

## Vertical Clearance

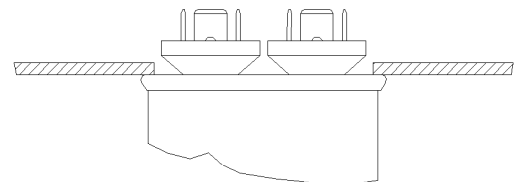
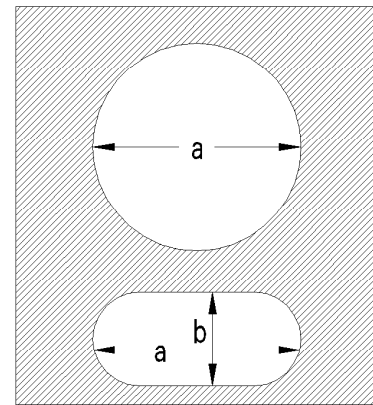
There must be sufficient clearance between the tops of the terminals (and/or the assembled wire connectors) and a plane perpendicular to the capacitor terminals. This clearance must be at least 0.5 inches plus the electrical spacing requirements of the end application.



## Cut-Out Clearance

In certain instances capacitors are mounted with the top of the capacitor case resting against the chassis and the terminals protruding through the chassis. Care must be taken to see that the cutout in the chassis is large enough. The following dimensions are recommended.

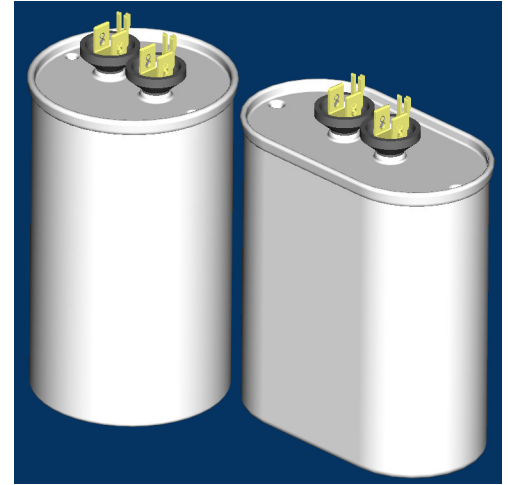
Case Style	a	b	Case Style	a
A	2.00	1.00	P	1.62
B	2.25	1.25	S	1.88
C	2.50	1.62	T	2.38
D	3.25	1.62		



# General Purpose AC Capacitors – Gem III

## 240 and 370 Volts AC

This series of Gem III is specifically designed for applications such as AC filters where harmonic frequencies greater than 60Hz are common. Application Data is provided starting on page 5 that gives the Equivalent Series Resistance (ESR) for these 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:

<b>Available Capacitance Range:</b>	2 to 120 $\mu$ F
<b>Capacitance Tolerance:</b>	$\pm$ 6%
<b>Capacitance Variation with Temperature:</b>	See chart E-3 on page 9.
<b>Rated Voltage:</b>	See Rating Tables. Rating is the 60Hz RMS voltage for a sinusoidal waveform. For other waveforms refer to the Application Note on page 6.
<b>Leakage Current:</b>	30 $\mu$ A maximum
<b>Frequency:</b>	50/60 Hz. For higher frequencies refer to the Application Note on page 7.
<b>Operating Temperature:</b>	-40 °C to +70 °C
<b>Storage Temperature:</b>	-40 °C to +90 °C
<b>Operating Life:</b>	60,000 hours with 94% survival
<b>Dissipation Factor:</b>	0.1% maximum
<b>Case Material/Finish:</b>	Unpainted Aluminum case, Ternplate steel cover.
<b>Terminations:</b>	0.250" x 0.031" quick connect blades.
<b>Dielectric Fluid:</b>	Dielektrol VI
<b>Internal Protection:</b>	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 <b>not</b> 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.

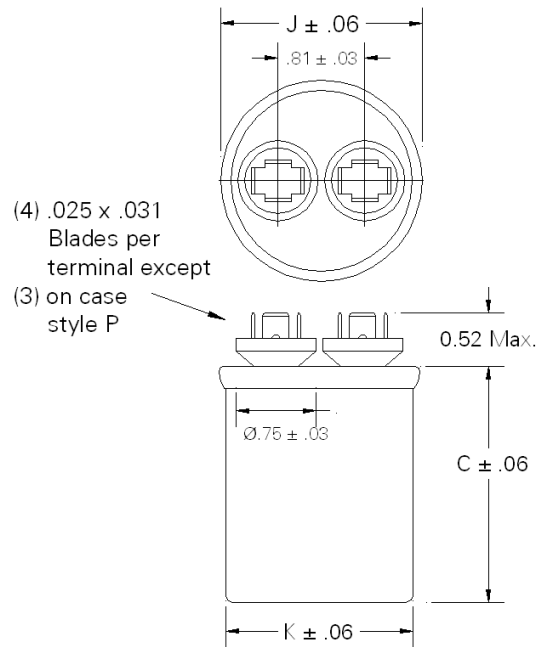
Case Style	RBC Code	Generic UL Code
A	P921	A10000AFC
P	P965	P10000AFC
S	P968	S10000AFC
T	P969	T10000AFC



## 240 and 370 Volts AC \*STANDARD RATINGS

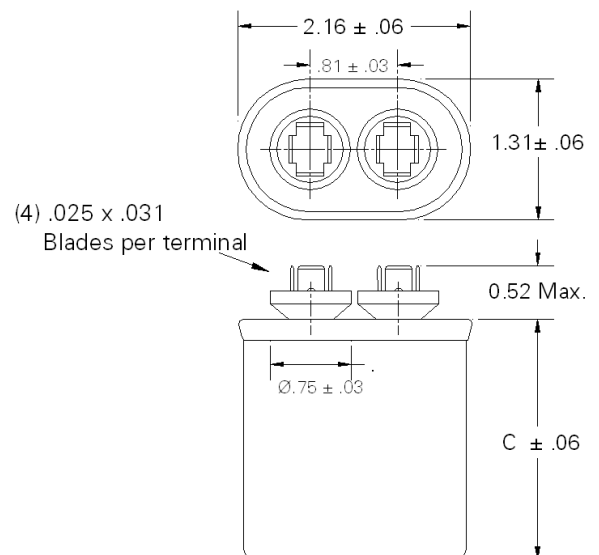
## Case Style P, S, and T

Capacitance (μF)	Catalog Number	Case Style	Height C (ins)	UL Code
<b>240 Volts A-C Nominal</b>				
15	97F8036	P	2.88	P965
25	97F8037	P	2.88	P965
30	97F8038	P	3.88	P965
35	97F8039	P	3.88	P965
40	97F8040	P	3.88	P965
45	97F8041	P	4.75	P965
50	97F8042	P	4.75	P965
55	97F8043	P	4.75	P965
60	97F8044	S	4.75	P968
65	97F8045	S	4.75	P968
70	97F8046	S	4.75	P968
75	97F8047	S	4.75	P968
80	97F8048	T	3.88	P969
85	97F8049	T	3.88	P969
90	97F8050	T	3.88	P969
95	97F8051	T	4.75	P969
100	97F8052	T	4.75	P969
120	97F8053	T	4.75	P969
<b>370 Volts A-C Nominal</b>				
3	97F8054	A	2.12	P921
4	97F8055	A	2.12	P921
5	97F8056	A	2.88	P921
6	97F8057	A	2.88	P921
7.5	97F8058	A	2.88	P921
10	97F8059	A	3.88	P921
12.5	97F8060	A	3.88	P921
15	97F8061	P	2.88	P965
17.5	97F8062	P	2.88	P965
20	97F8063	P	3.88	P965
25	97F8064	P	3.88	P965
30	97F8065	P	3.88	P965
35	97F8066	P	4.75	P965
40	97F8067	P	4.75	P965
45	97F8068	S	4.75	P968
50	97F8069	S	4.75	P968
55	97F8070	S	4.75	P968
60	97F8071	T	3.88	P969
65	97F8072	T	3.88	P969
70	97F8073	T	4.75	P969



Case Style	K	J
P	1.75	1.88
S	2.00	2.12
T	2.50	2.62

## Case Style A



\* 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).

## 97F8000 Series 240 and 370 Volts AC

The 97F8000 series of capacitors 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 8 )

(3) Running the capacitors at voltages above the nominal rated voltage will also result in significantly reduced life. (See chart G-2 on page 8 )

ESR Values for 97F8000 Series:  
Curve Numbers refer to Graphs on Page

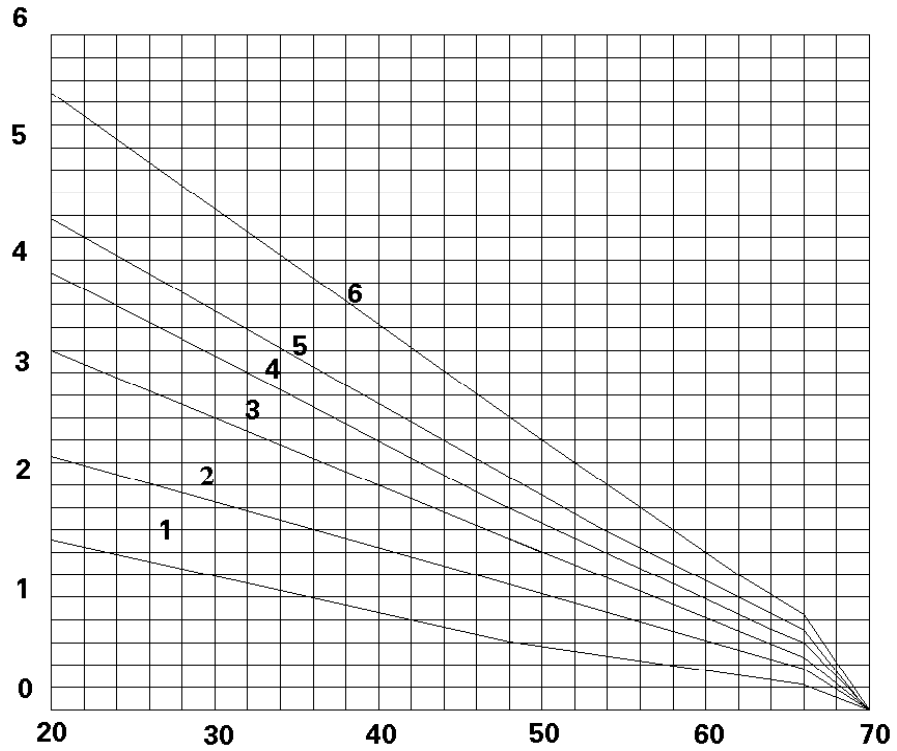
Catalog Number	µF	ESR ohms	Curve Number
<b>240 Volts AC Nominal</b>			
97F8036	15	0.0257	2
97F8037	25	0.0180	2
97F8038	30	0.0228	3
97F8039	35	0.0206	3
97F8040	40	0.0190	3
97F8041	45	0.0241	4
97F8042	50	0.0226	4
97F8043	55	0.0213	4
97F8044	60	0.0215	5
97F8045	65	0.0206	5
97F8046	70	0.0198	5
97F8047	75	0.0191	5
97F8048	80	0.0164	5
97F8049	85	0.0160	5
97F8050	90	0.0156	5
97F8051	95	0.0193	6
97F8052	100	0.0189	6
97F8053	120	0.0176	6
<b>370 Volts AC Nominal</b>			
97F8054	3	0.0700	1
97F8055	4	0.0539	1
97F8056	5	0.0586	2
97F8057	6	0.0499	2
97F8058	7.5	0.0411	2
97F8059	10	0.0471	3
97F8060	12.5	0.0392	3
97F8061	15	0.0244	2
97F8062	17.5	0.0218	2
97F8063	20	0.0281	3
97F8064	25	0.0240	3
97F8065	30	0.0213	3
97F8066	35	0.0262	4
97F8067	40	0.0240	4
97F8068	45	0.0235	5
97F8069	50	0.0222	5
97F8070	55	0.0210	5
97F8071	60	0.0175	5
97F8072	65	0.0169	5
97F8073	70	0.0207	6





## Natural Circulation

Maximum Allowable  
Watts Loss

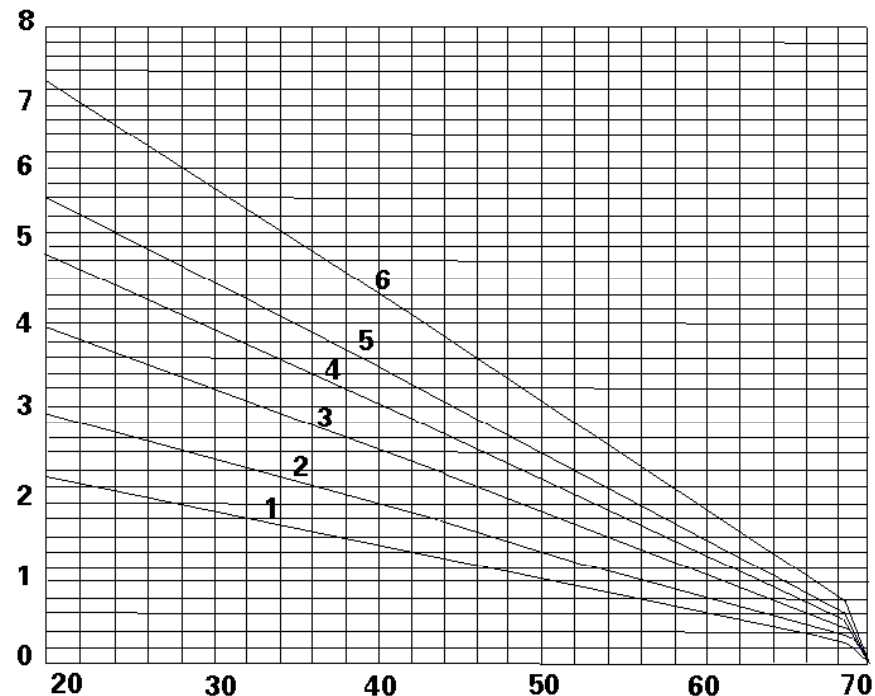


Ambient Temperature (°C) – Natural Circulation

# Allowable Watts Loss - 97F8000 ( 240 and 370 Volt ) Series

## Forced Circulation

Maximum Allowable  
Watts Loss



Ambient Temperature (°C) – Forced Circulation

Life  
Vs  
Temperature

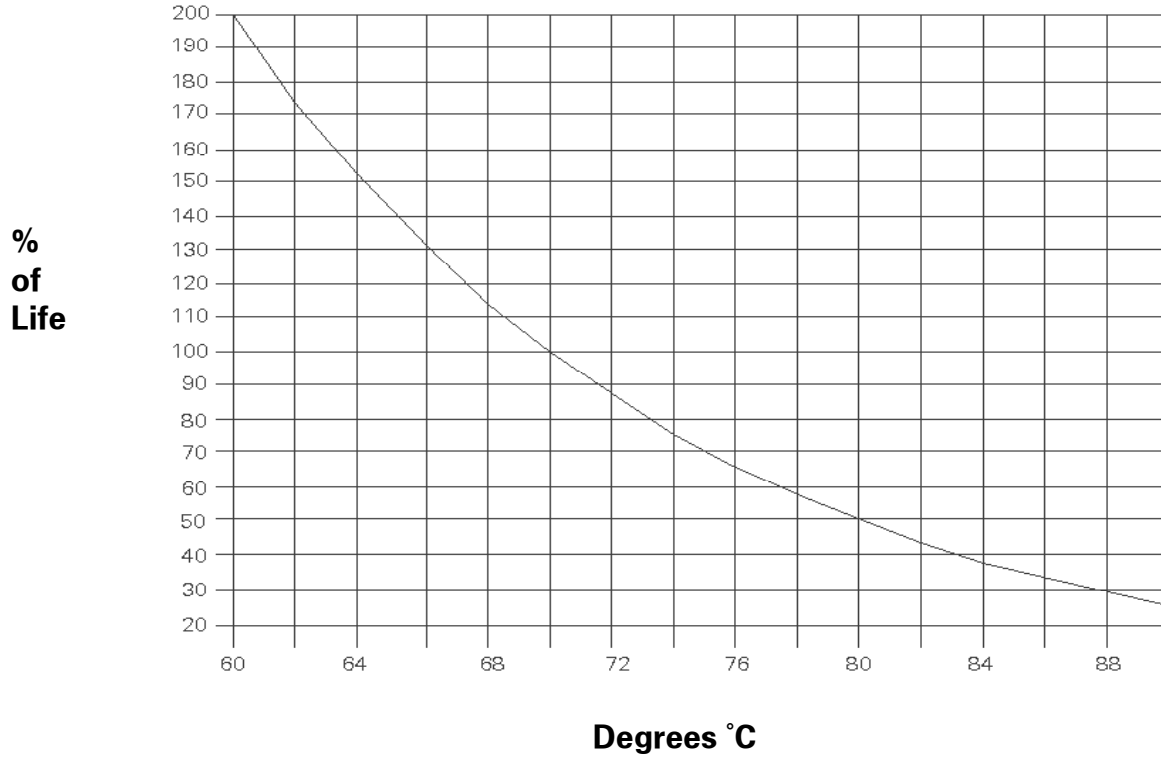


Chart G-1

Life  
Vs  
Voltage

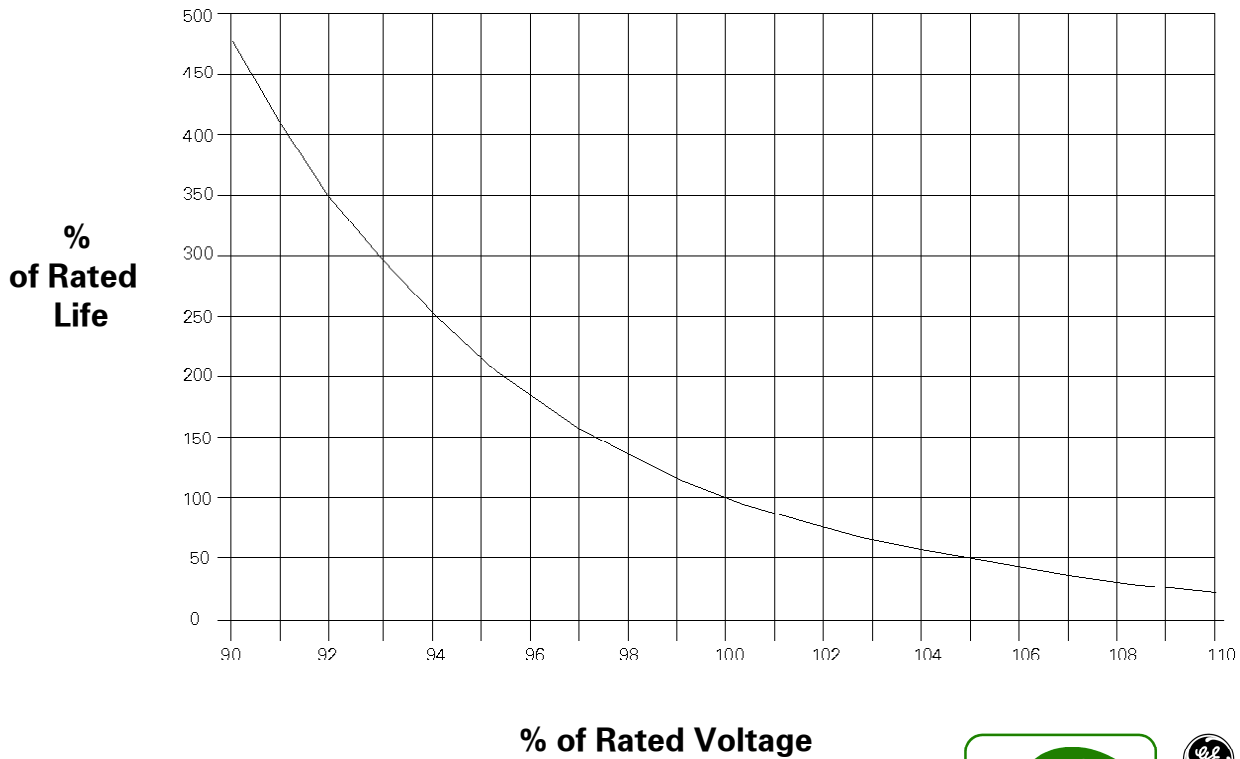


Chart G-2



### Percent Capacitance Vs Temperature

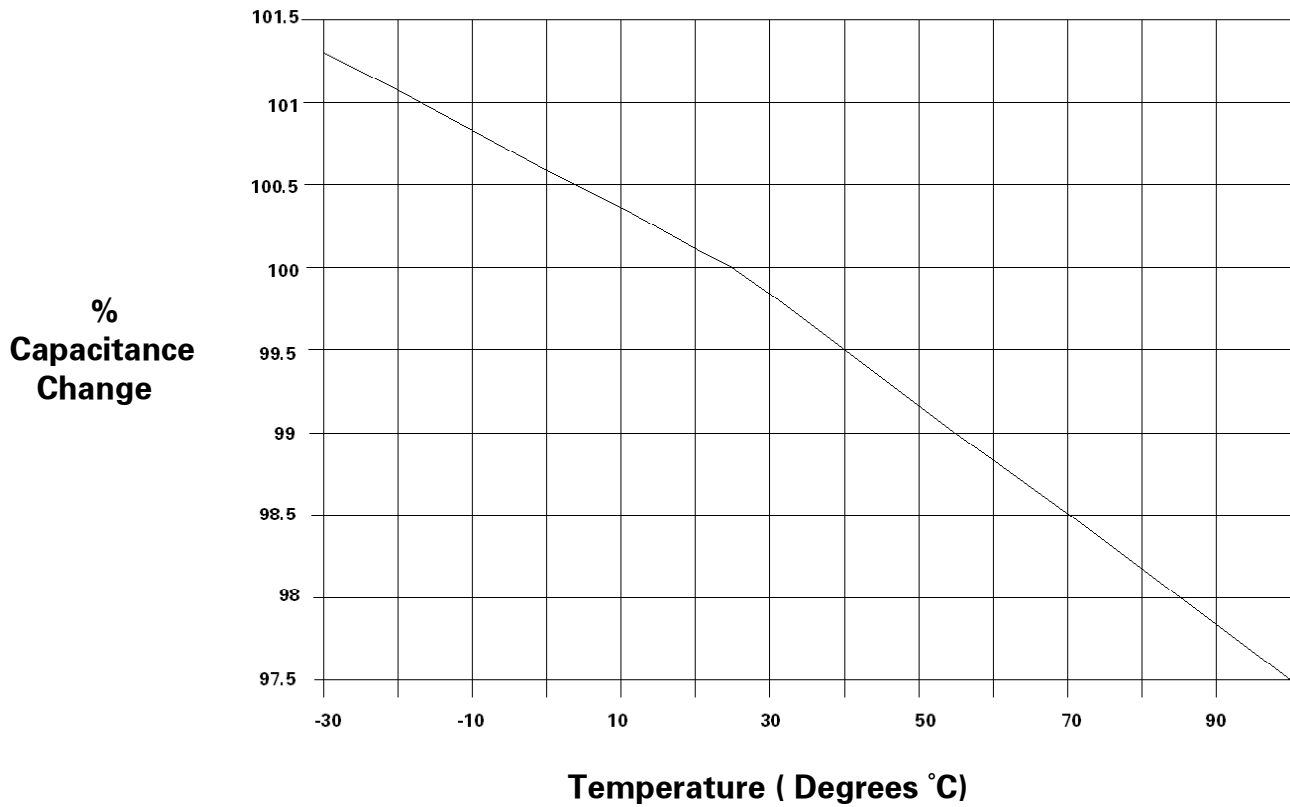
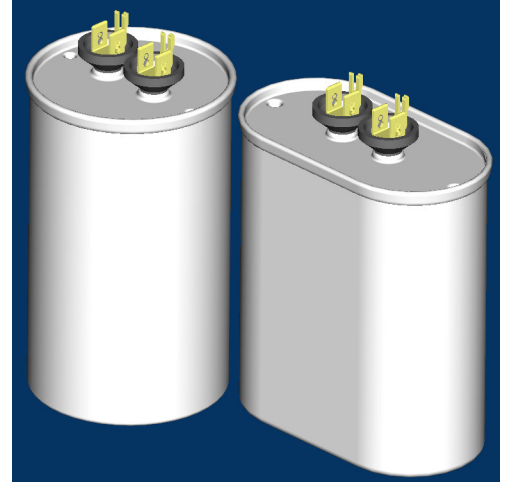


Chart E-3



## 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.

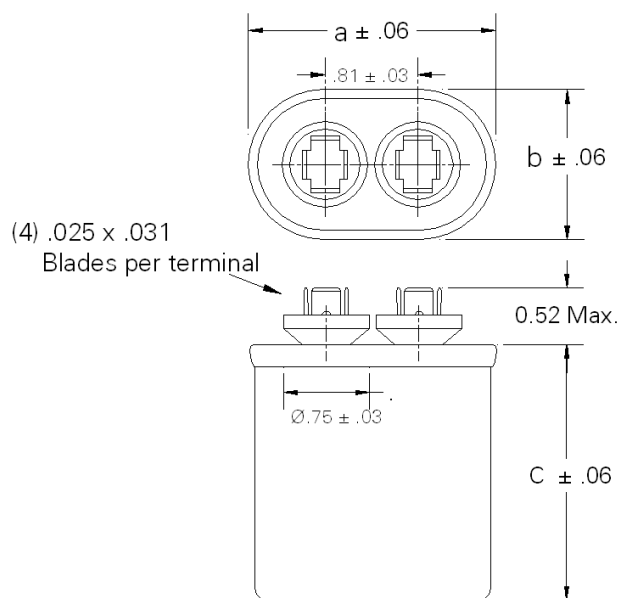
Case Style	RBC Code	Generic UL Code
A	P961	A10000AFC
B	P962	B10000AFC
C	P963	C10000AFC
D	P964	D10000AFC

## 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

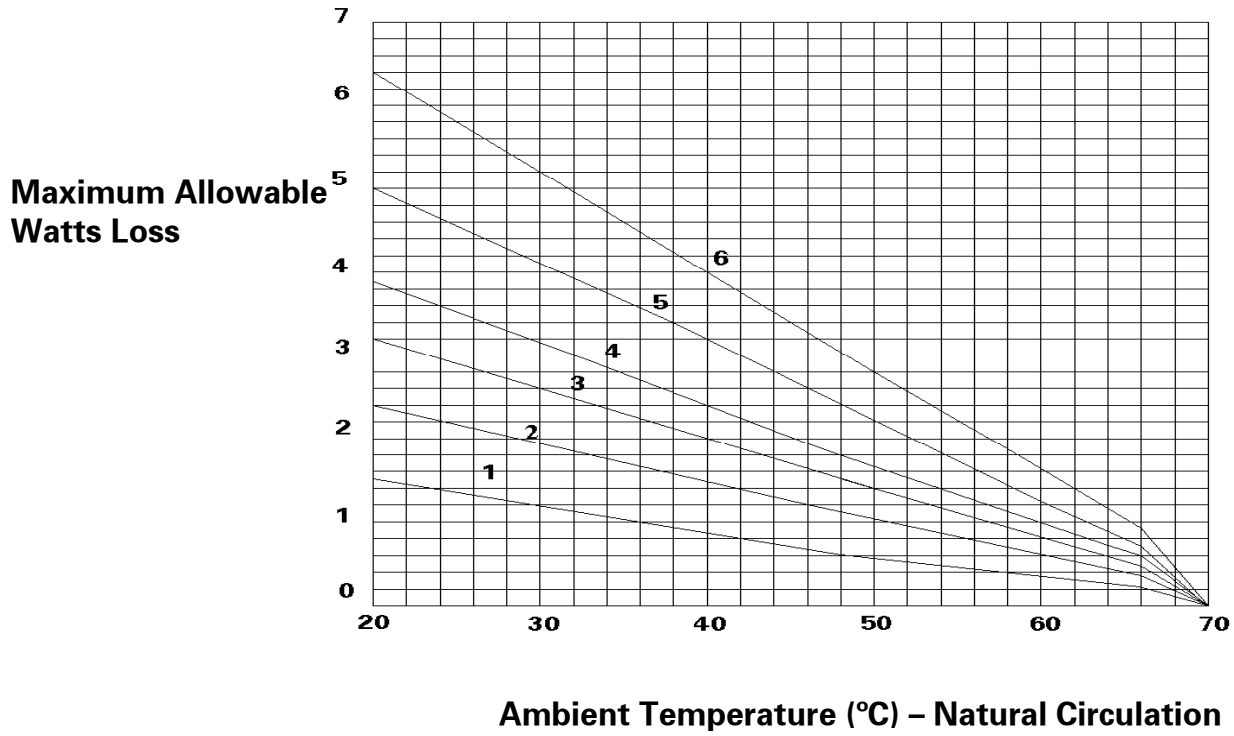
- (1) In no case should the **total RMS current** of **15 amperes** be exceeded for any of these capacitors.
- (2) Running the capacitors at case temperatures above 70 °C will have a significant effect on expected life. (See chart G-1 on page 14 )
- (3) Running the capacitors at voltages above the nominal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

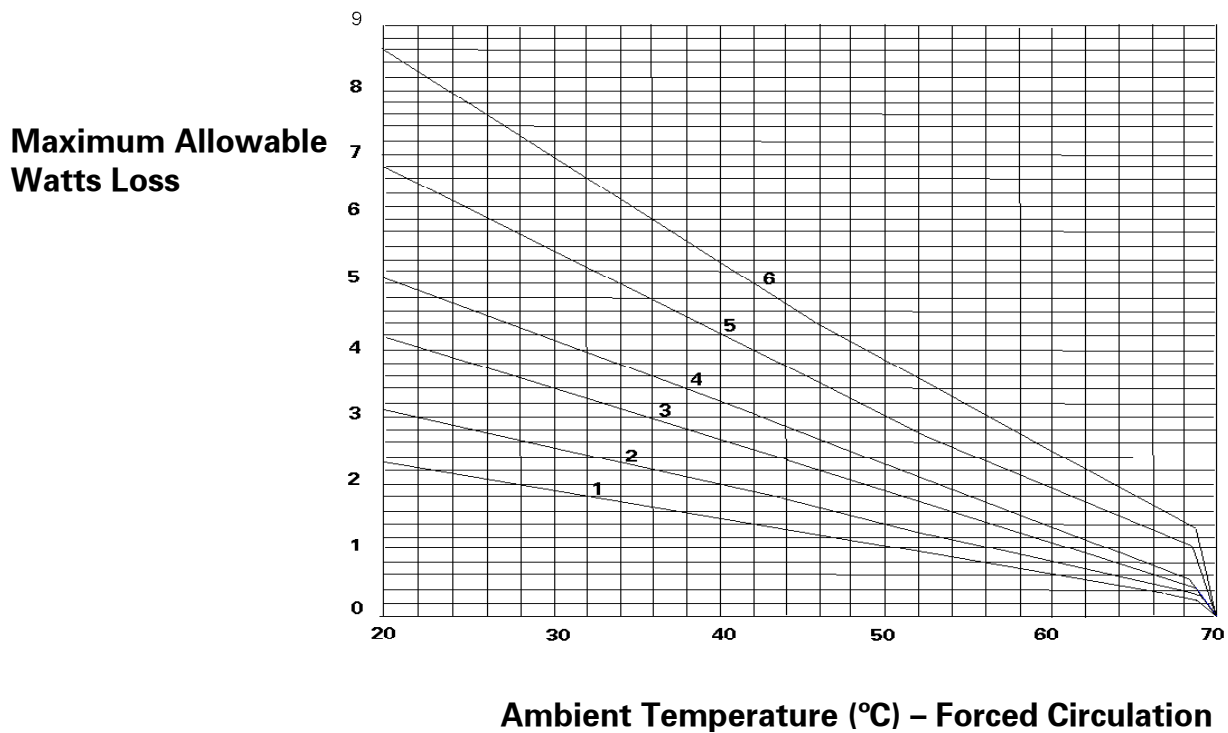


## Natural Circulation

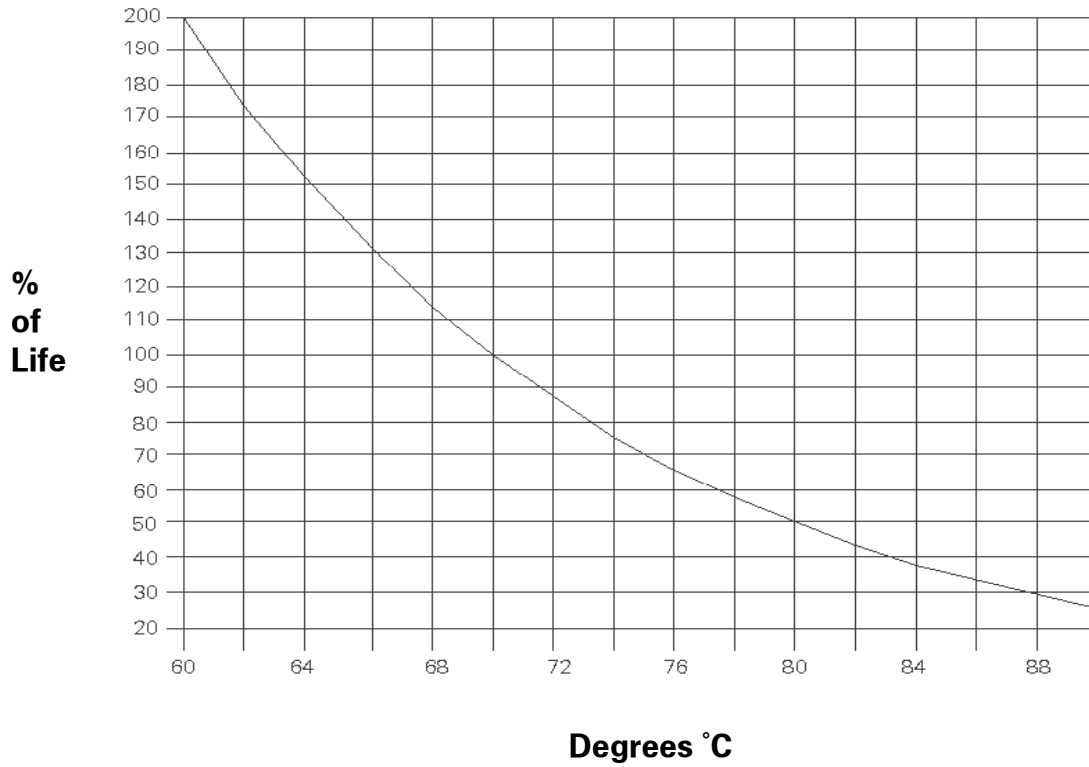


# Allowable Watts Loss - 97F8200 (600 Volt) Series

## Forced Circulation

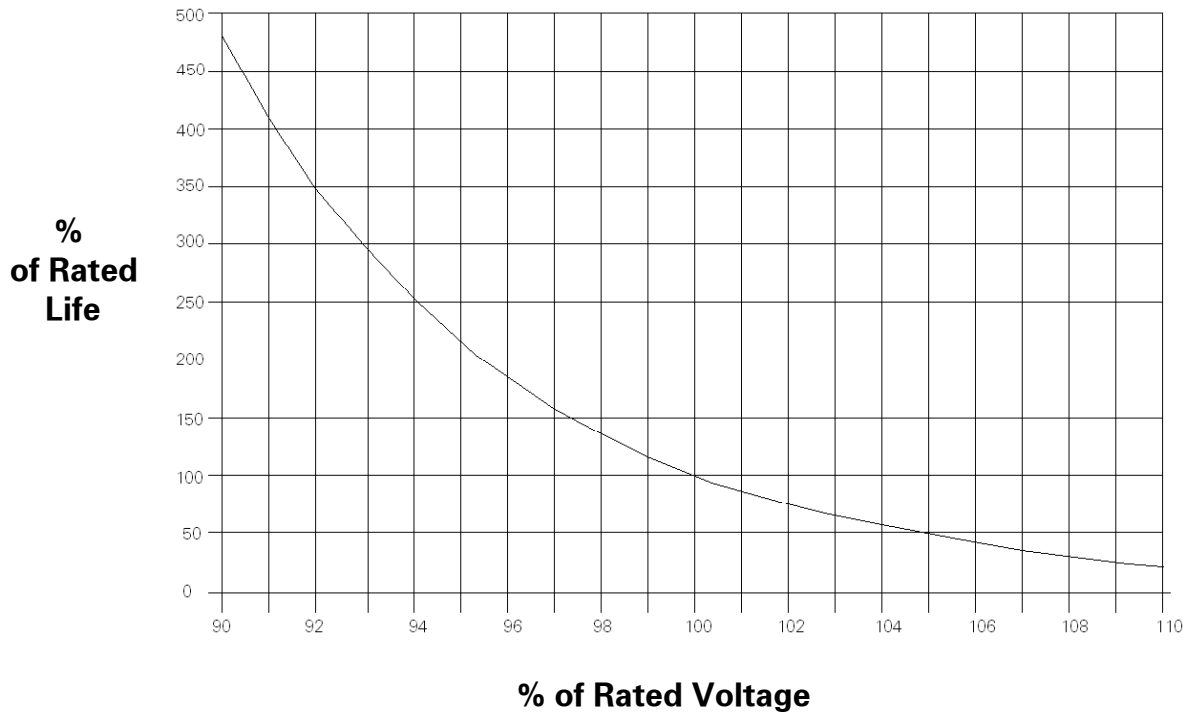


**Life  
Vs  
Temperature**



**Chart G-1**

**Life  
Vs  
Voltage**



**Chart G-2**





Percent Capacitance Vs Temperature

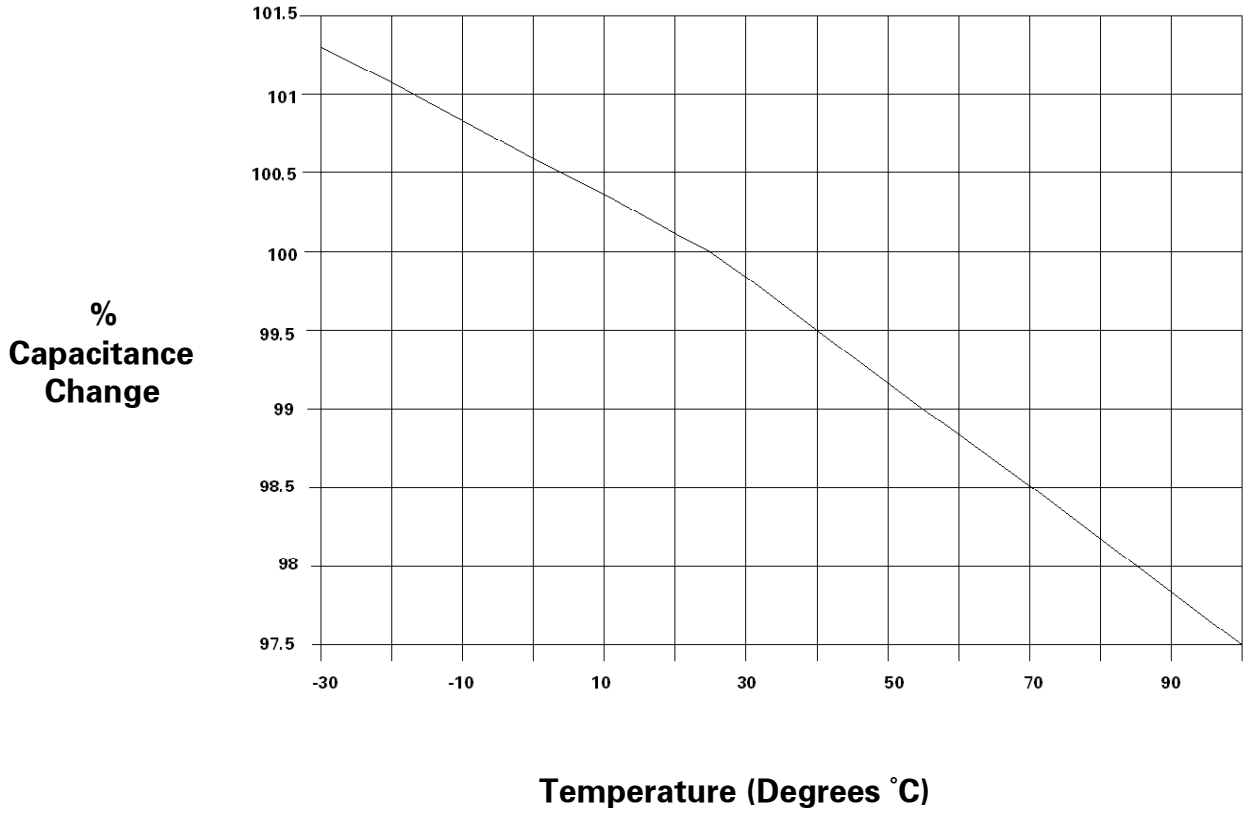


Chart E-3



## 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:

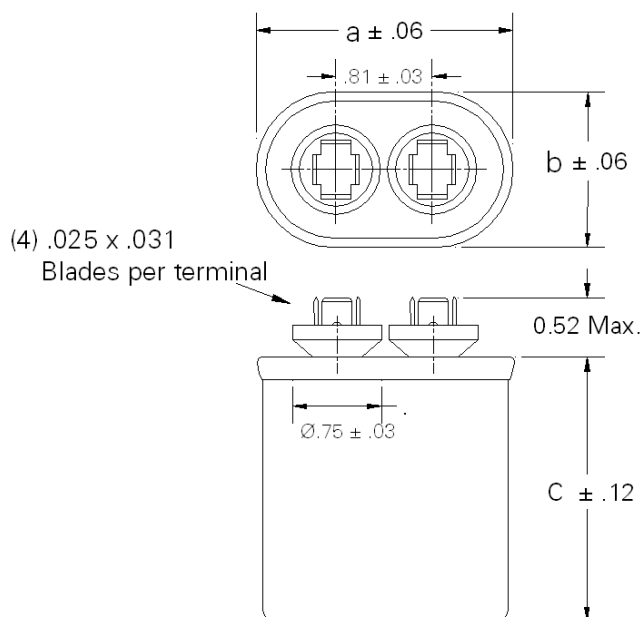
- Available Capacitance Range:** 2 to 45  $\mu$ F
- Capacitance Tolerance:**  $\pm$  6%
- Capacitance Variation with Temperature:** See chart E-3 on page 21.
- Rated Voltage:** See Rating Tables. Rating is the 60Hz RMS voltage for a sinusoidal waveform. For other waveforms refer to the Application Note on page 6.
- Leakage Current:** 30  $\mu$ 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

## 660 Volts AC

### 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 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

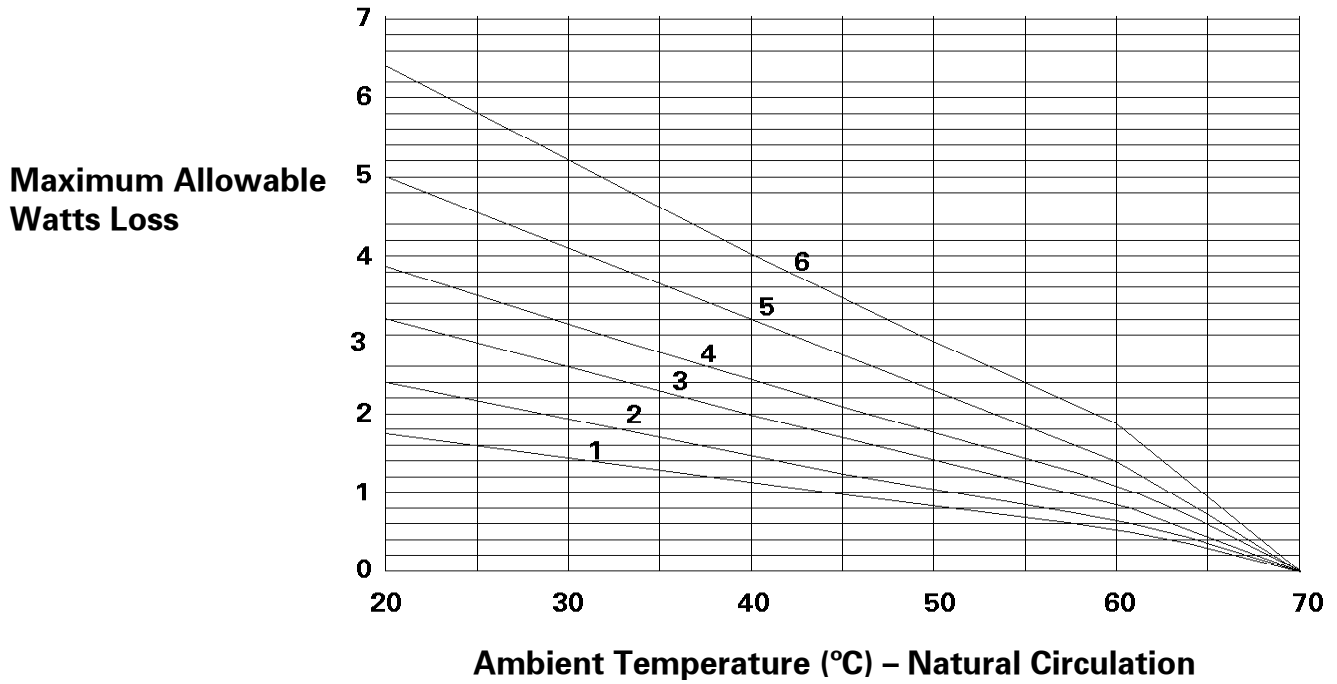
And **ESR** = Value from ESR tables.

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

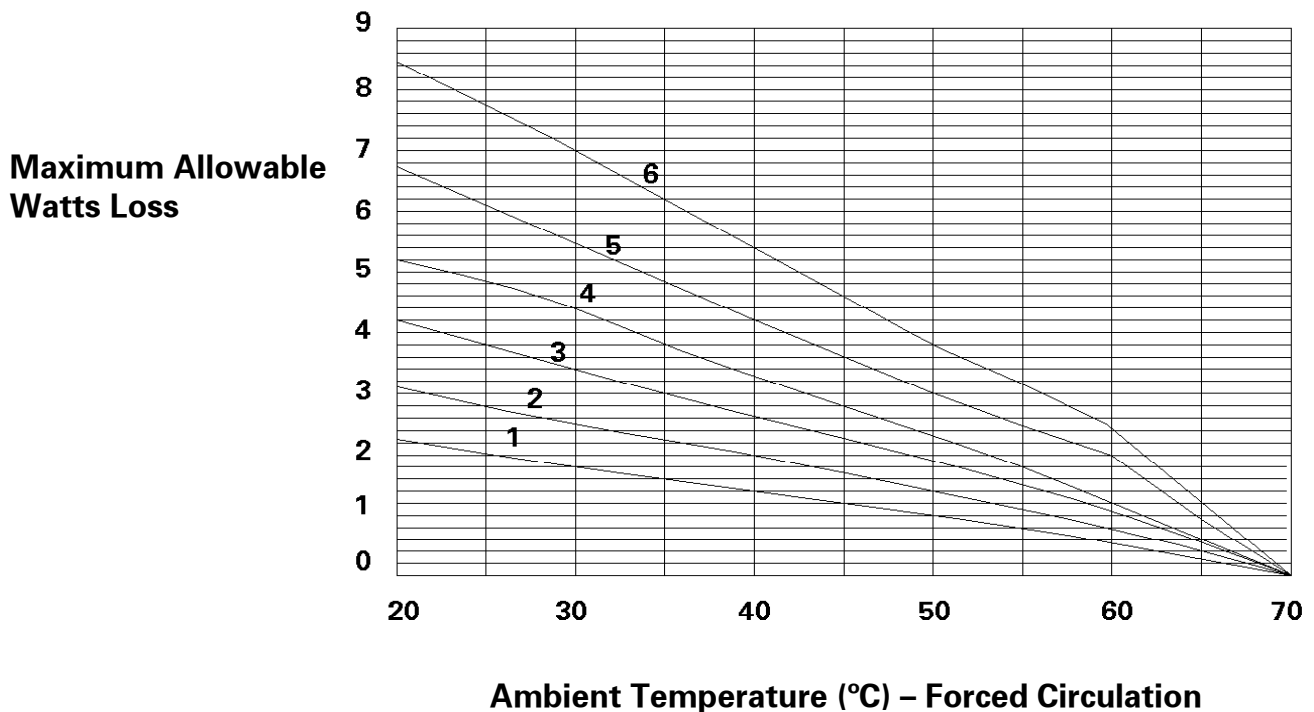
- (1) In no case should the **total RMS current** of **15 amperes** be exceeded for any of these capacitor
- (2) Running the capacitors at case temperatures above 70 °C will have a significant effect on expected life. (See chart G-1 on page 20)
- (3) Running the capacitors at voltages above the nominal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

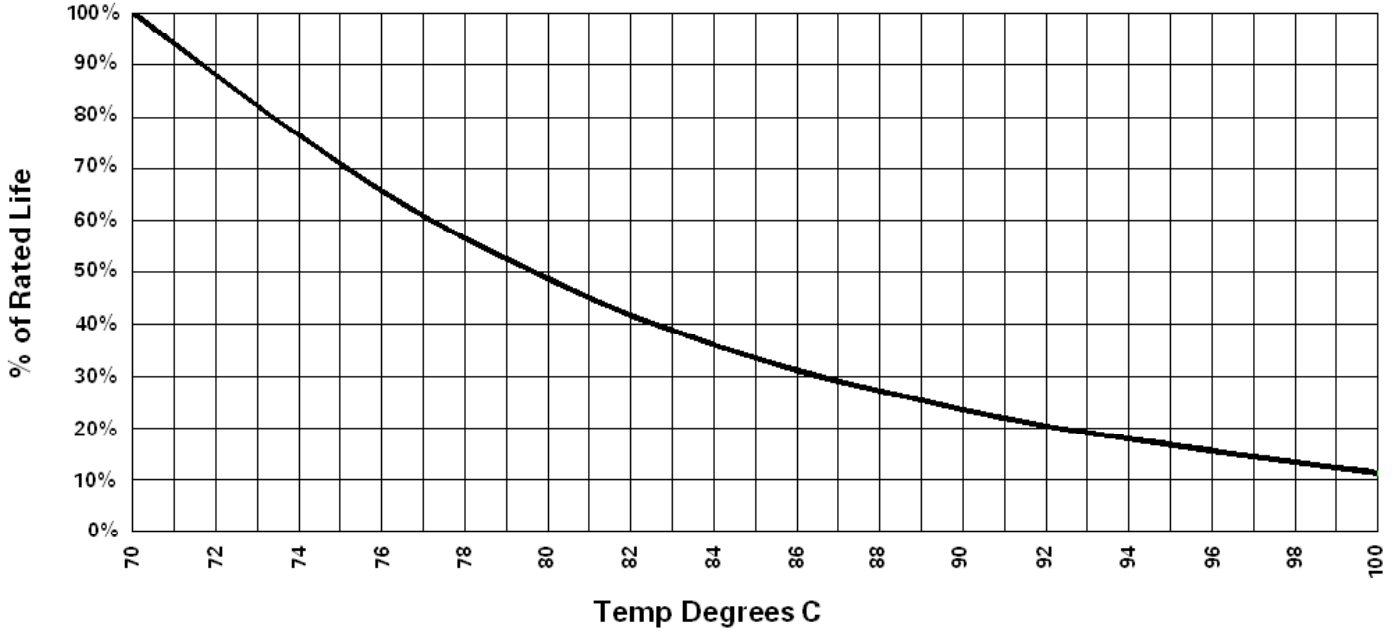


Chart G-1

Life vs Voltage

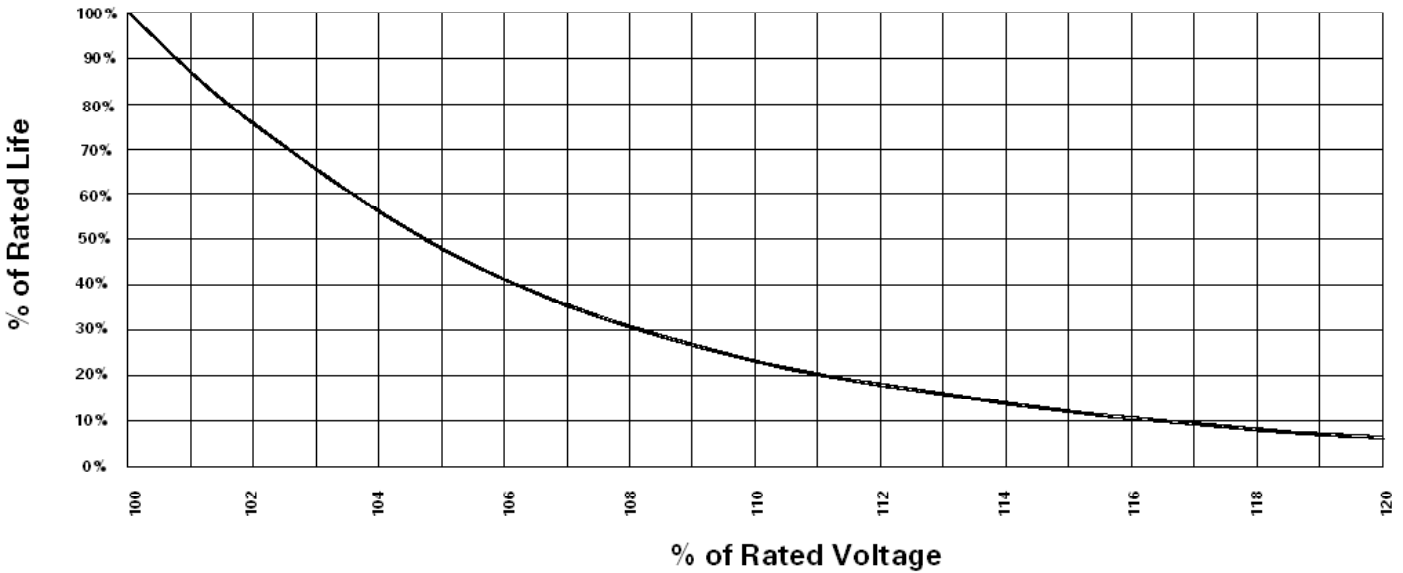


Chart G-2

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

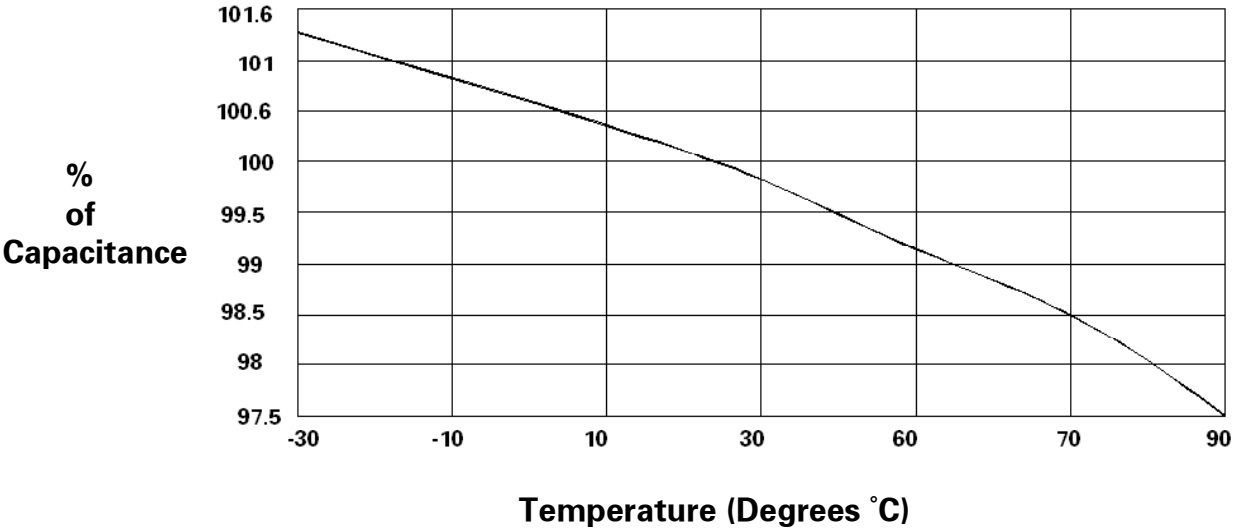


Chart E-3



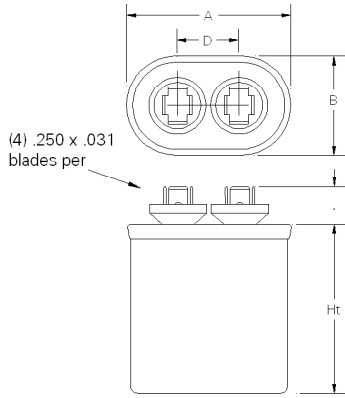
# CROSS REFERENCE

## 600 VOLTS AC

### 26F6600 SERIES & 61L SERIES

### to *NEW* 27L SERIES 660 VAC

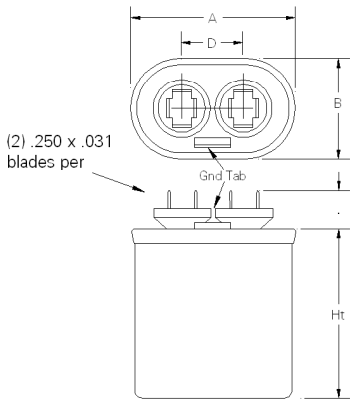
#### 27L SERIES OUTLINE



GEM II (61L)			
Capacitance $\mu\text{F}$	Catalog Number	BASE	HT
2.0	61L1271	A	2.12
2.5	61L1280	A	2.88
3.0	61L1272	A	2.88
4.0	61L313	A	2.88
5.0	61L1273	A	3.88
6.0	61L1274	A	3.88
7.0	61L316	A	3.88
8.0	61L1275	A	4.75
10.0	61L1286	B	3.88
12.0	61L1276	B	4.75
15.0	61L1289	B	5.75
18.0	61L1277	B	5.75
20.0	61L322	C	4.75
25.0	61L323	C	5.75
30.0	61L324	D	5.75

GEM III SERIES SECTION (27L)				
Capacitance $\mu\text{F}$	Catalog Number	BASE	HT	UL CODE
2.0	27L6095	A	3.88	P851
2.5	27L6093	A	3.88	P851
3.0	27L6094	A	3.88	P851
4.0	27L6012	A	3.88	P851
5.0	27L6013	A	3.88	P851
6.0	27L6014	A	4.75	P851
7.0	27L6015	A	4.75	P851
8.0	27L6016	A	4.75	P851
10.0	27L6017	B	3.88	P852
12.0	27L6018	B	4.75	P852
15.0	27L6073	C	4.75	P853
18.0	27L6089	D	3.88	P854
20.0	27L6082	D	4.75	P854
25.0	27L6022	D	4.75	P854
30.0	27L6023	D	4.75	P854

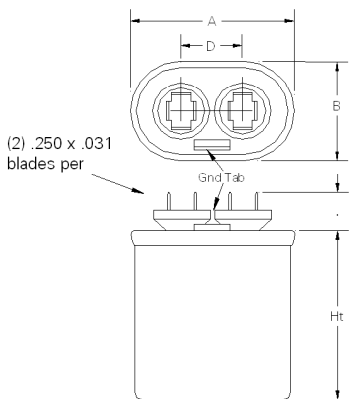
#### 61L SERIES OUTLINE



Film/Paper (26F)			
Capacitance $\mu\text{F}$	Catalog Number	BASE	HT
2.0	26F6618	A	2.12
2.5	26F6619	A	2.12
3.0	26F6620	A	2.38
4.0	26F6621	A	3.12
5.0	26F6622	A	3.50
6.0	26F6623	A	4.25
7.0	26F6624	A	4.50
8.0	26F6625	A	5.50
10.0	26F6626	C	3.88
12.0	26F6627	C	4.50
15.0	26F6628	C	5.50
18.0	26F6629	C	6.75
20.0	26F6634	D	6.25
25.0	26F6665	D	7.25
30.0	26F6636	D	8.00

GEM III SERIES SECTION (27L)				
Capacitance $\mu\text{F}$	Catalog Number	BASE	HT	UL CODE
2.0	27L6095	A	3.88	P851
2.5	27L6093	A	3.88	P851
3.0	27L6094	A	3.88	P851
4.0	27L6012	A	3.88	P851
5.0	27L6013	A	3.88	P851
6.0	27L6014	A	4.75	P851
7.0	27L6015	A	4.75	P851
8.0	27L6016	A	4.75	P851
10.0	27L6017	B	3.88	P852
12.0	27L6018	B	4.75	P852
15.0	27L6073	C	4.75	P853
18.0	27L6089	D	3.88	P854
20.0	27L6082	D	4.75	P854
25.0	27L6022	D	4.75	P854
30.0	27L6023	D	4.75	P854

#### 26F SERIES OUTLINE



Base size	Dimensions		
	A	B	D
A	2.16	1.31	0.81
B	2.69	1.56	0.81
C	2.91	1.91	0.81
D	3.66	1.97	0.81

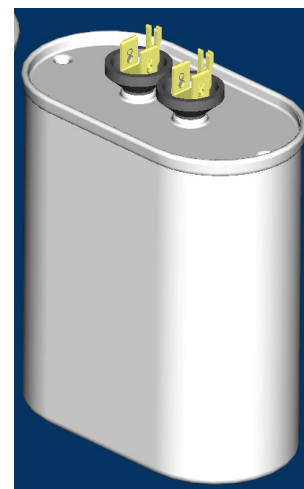




# Dual Rated Capacitors

## 1000 Volts Peak

This line of dual Rated AC/DC Capacitors is specifically designed for applications such as AC/DC filters where harmonic frequencies greater than 60 Hz are common. These capacitors are typically used in DC filters at voltages above those served by electrolytic type construction.



### SPECIFICATIONS

<b>Available Capacitance Range:</b>	3.0 to 50 $\mu$ F														
<b>Capacitance Tolerance:</b>	97F $\pm$ 6%														
<b>Capacitance Variation with Temperature:</b>	$\pm$ 5% from -40 °C to +70 °C														
<b>Rated Voltage:</b>	See Rating Tables. Rating is Maximum Peak DC Voltage.														
<b>Ripple Voltage</b>	The RMS ripple voltage should not exceed the following percentages of the rated voltage for these frequencies:														
	<table><thead><tr><th>Frequency</th><th>% of Rated Voltage</th></tr></thead><tbody><tr><td></td><td><u>97F</u></td></tr><tr><td>60 Hz</td><td>44</td></tr><tr><td>120 Hz</td><td>30</td></tr><tr><td>400 Hz</td><td>12</td></tr><tr><td>1,000 Hz</td><td>8</td></tr><tr><td>10,000 Hz</td><td>0.6</td></tr></tbody></table>	Frequency	% of Rated Voltage		<u>97F</u>	60 Hz	44	120 Hz	30	400 Hz	12	1,000 Hz	8	10,000 Hz	0.6
Frequency	% of Rated Voltage														
	<u>97F</u>														
60 Hz	44														
120 Hz	30														
400 Hz	12														
1,000 Hz	8														
10,000 Hz	0.6														
<b>Operating Temperature:</b>	-30 °C to +70 °C														
<b>Storage Temperature:</b>	-55 °C to +70 °C														
<b>Operating Life:</b>	60,000 hours with 90% survival with proper derating.														
<b>Dissipation Factor:</b>	0.3% maximum														
<b>Case Material/Finish:</b>	Aluminum Case (NO PAINT)														
<b>Terminations:</b>	97F (3) or (4) 0.250" x 0.031" inch quick connect blades per terminal (see outline drawing).														
<b>Dielectric Fluid:</b>	97 F: Dielektrol VI														
<b>Internal Protection:</b>	Pressure Sensitive Interrupter.														

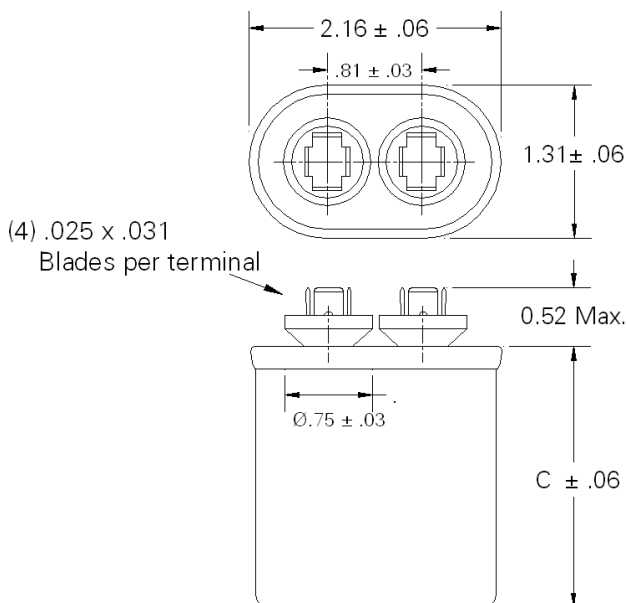
## \*STANDARD RATINGS

Capacitance (μF)	Catalog Number	Case Style	Height C (in.)
<b>1000 Volts Peak (440 Vac, Dual Rated)</b>			
3.0	97F5437	A	2.12
4.0	97F5337	A	2.88
5.0	97F5339	A	2.88
6.0	97F5436	A	2.88
7.5	97F9036	A	3.88
10.0	97F5300	A	3.88
12.5	97F5001	P	2.88
15.0	97F9037	P	2.88
17.5	97F9038	P	3.88
20.0	97F9039	P	3.88
25.0	97F9040	P	4.75
30.0	97F5023	P	4.75
35.0	97F9041	S	4.75
40.0	97F5116	S	4.75
45.0	97F5209	T	3.88
50.0	97F5211	T	3.88

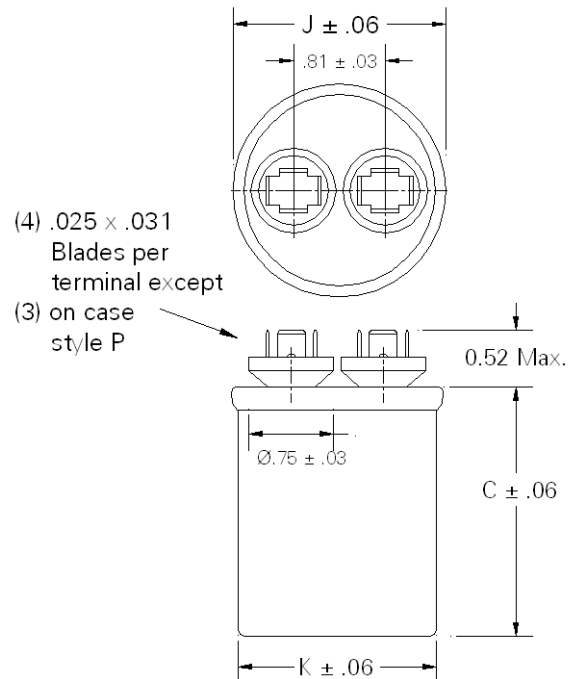
Case Style	a	b
A	2.16	1.31

Case Style	K	J
P	1.75	1.88
S	2.00	2.12
T	2.50	2.62

### Case Style A (97F Series)



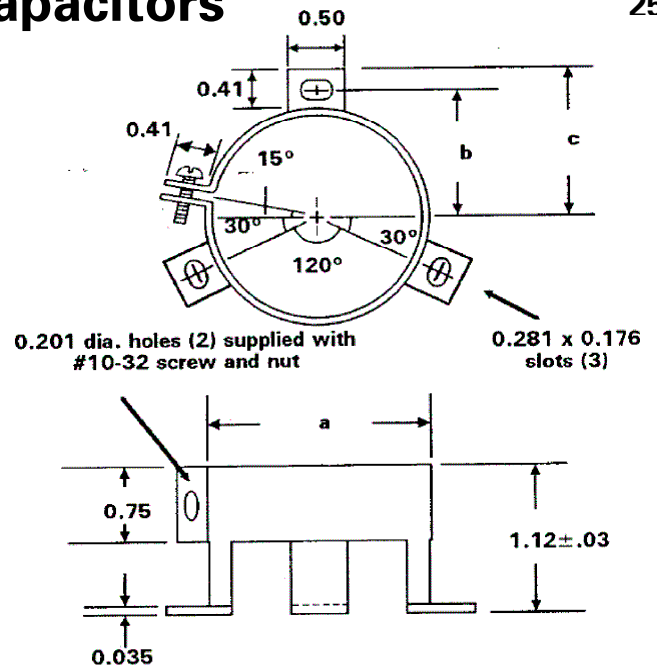
### Case Styles P, S and T



## UNIVERSAL WRAP AROUND BRACKETS

### ROUND CASE STYLES

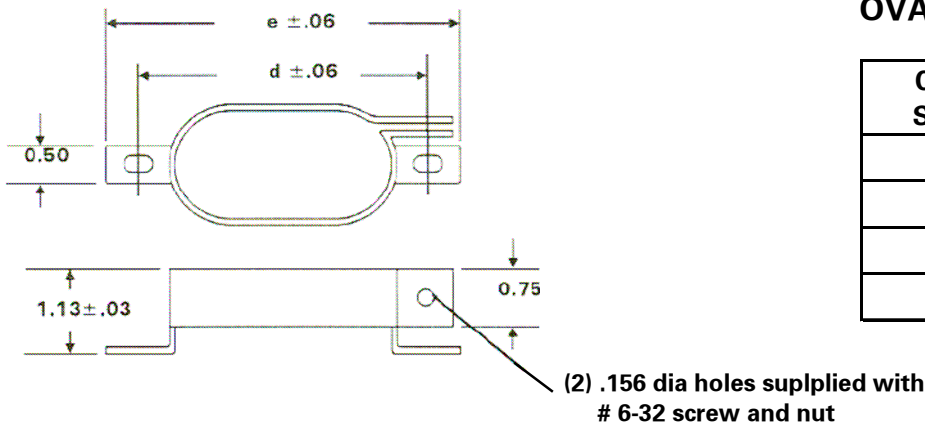
Case Style	Bracket Part Number	a	b	c
P	295A6016P31	1.75	1.12	1.31
S	295A6016P32	2.00	1.25	1.44
T	295A6016P33	2.50	1.50	1.69



## UNIVERSAL WRAP AROUND BRACKETS

### OVAL CASE STYLES

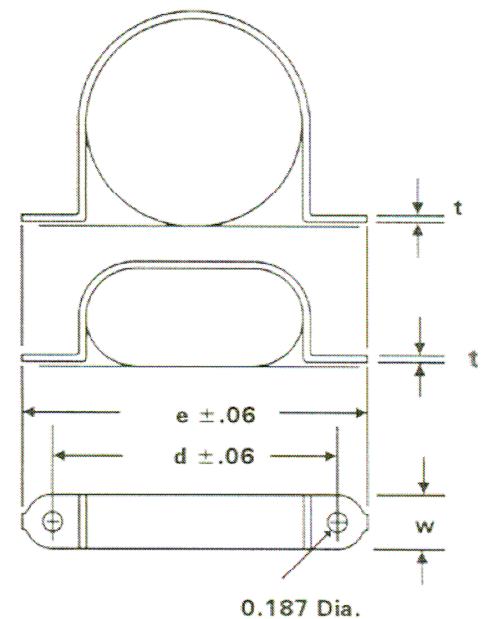
Case Style	Bracket Part Number	d	e
A	128A2244ACP21	2.69	3.13
B	128A2244ABP25	3.27	3.70
C	128A2244ABP22	3.44	3.88
D	128A2244ABP23	4.19	4.63



## WRAP AROUND BRACKETS

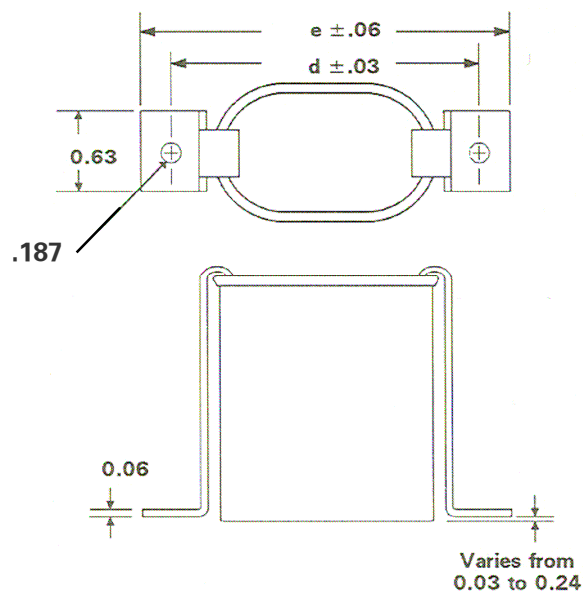
### ROUND AND OVAL CASE STYLES

Case Style	Bracket Part Number	d	e	w	t
A	K9827065P21	2.56	2.94	0.50	0.02
B	K9827065P31	3.06	3.50	0.63	0.02
C	614A301P61	3.31	3.81	0.75	0.03
D	614A301P51	4.06	4.56	0.75	0.03
P	279A7235P24	2.50	2.88	0.75	0.04
S	279A7235P22	2.75	3.12	0.75	0.04
T	279A7235P23	3.25	3.62	0.75	0.04



## FOOTED BRACKETS

Case Height	Bracket Part Number	Case Style	d	e
		A	2.56	3.00
2.12	302C920P210	B	3.13	3.56
2.88	302C920P113	C	3.38	3.81
3.88	302C920P115	D	4.13	4.56
4.75	302C920P116			
5.75	302C920P209	P	2.33	2.76
		S	2.57	3.00
		T	3.07	3.50

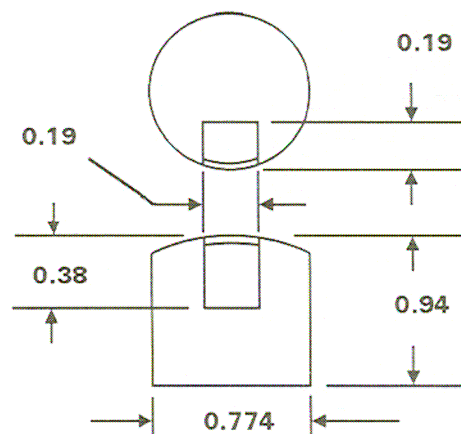
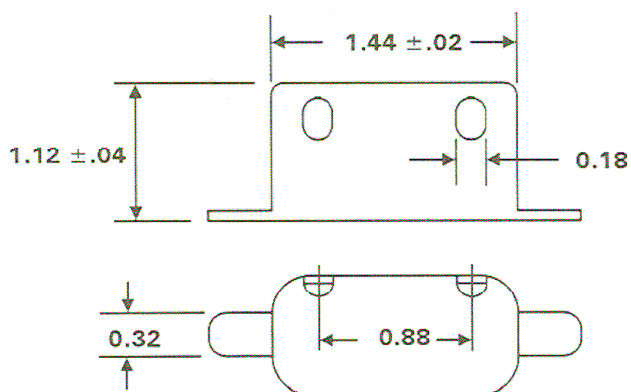


## PROTECTIVE BOOT

Boot Part Number	Temperature Rating
614A527P21	60 °C
178A3744P21	105 °C

## PROTECTIVE CAP

Cap Part Number:	115A1552P23
------------------	-------------



<b>AVAILABLE RBC COMPONENT CAPACITOR PUBLICATIONS</b>		
<b>Publication</b>	<b>Description</b>	<b>Replaces</b>
CPD-510	AC Motor Run Capacitors	CPD-501
CPD-511	AC HID Lighting Capacitors	CPD-501
CPD-512	General Purpose Capacitors	CPD-501
CPD-517	Power Electrolytic Capacitors (General)	New Pub.

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[71PW4390AA00J](#) [PA103L30](#) [82DC3100DQ50J](#) [82EC2150DQ50K](#) [WMF1D68](#)