



GE Capacitors

By REGAL-BELOIT

CPD 510

10 / 06



A-C Capacitors for Motor Run 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:

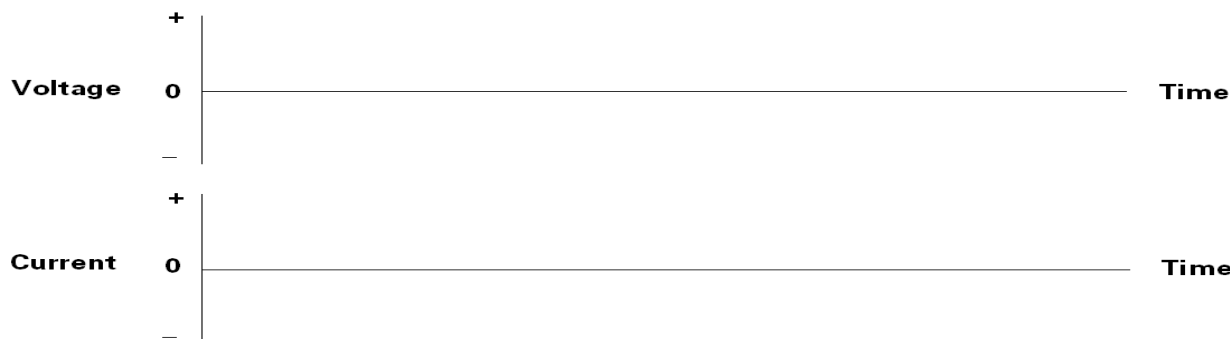
GE Capacitors by Regal Beloit
11970 PELLICANO DR., SUITE 300
EL PASO, TEXAS 79936
USA

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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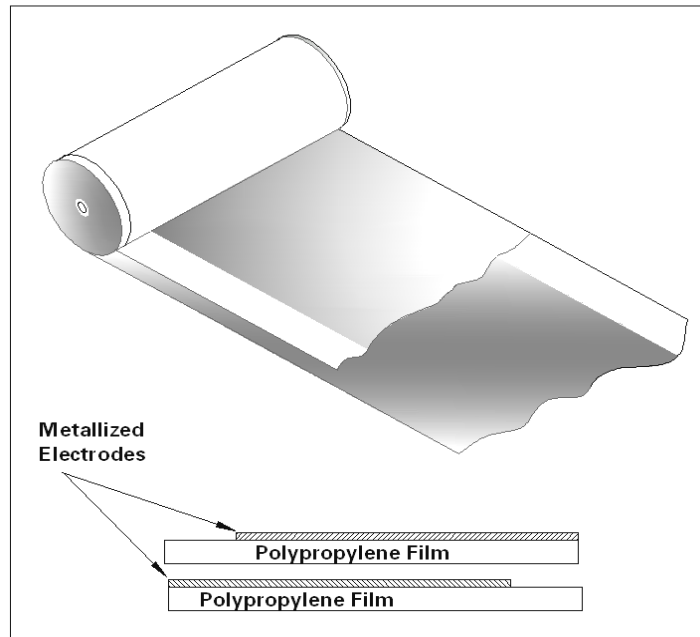
Descriptive Information

RBC Capacitors for Motor Run 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 Gem III Motor Run Capacitors are widely used with permanent split phase capacitor motors for the more efficient use of electricity. These motors are used in heating and cooling equipment, appliances, business machines, office equipment, and a wide variety of light industrial equipment.

GEM III Construction



RBC's Gem III capacitors are manufactured with high-grade metallized polypropylene film. This film is in the range of 5 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.

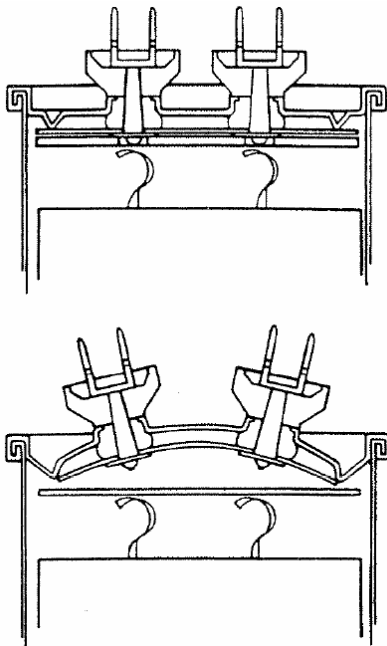
Pressure Sensitive Interrupter

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.**

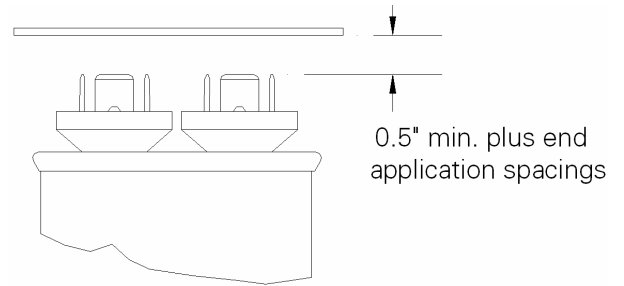
In the Catalog Number listings a four character U.L. Code, Pxxx, is given. This number is part of the listing for RBC in U.L. File No. E7793. When applying to U.L. for approvals or recognition of equipment using these capacitors refer to the Pxxx number and not the Catalog Number of the capacitor in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



Vertical Clearance

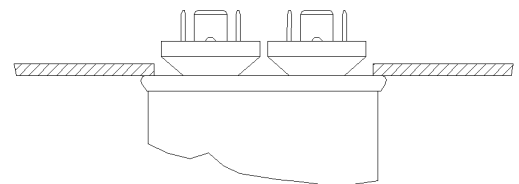
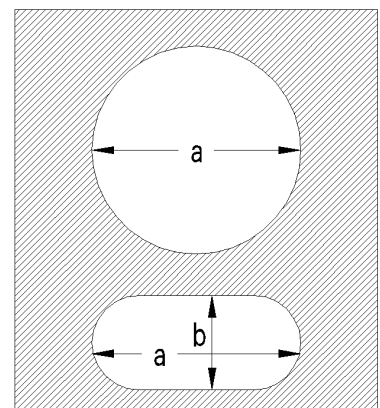
There must be sufficient clearance between the tops of the terminals (and/or the assembled wire connectors) and a plane perpendicular to the capacitor terminals. This clearance must be at least 0.5 inches plus the electrical spacing requirements of the end application.



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.

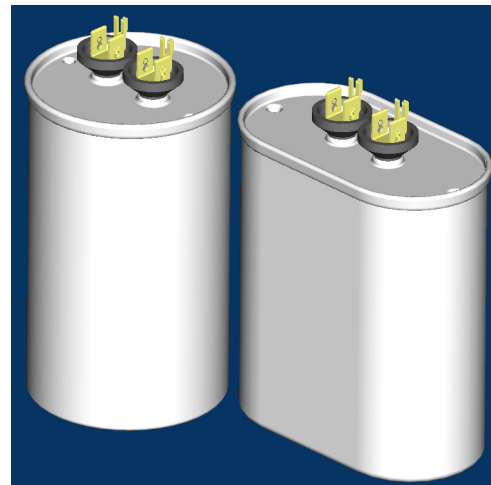
| Case Style | a | b | Case Style | a |
|------------|------|------|------------|------|
| A | 2.00 | 1.00 | P | 1.62 |
| B | 2.25 | 1.25 | S | 1.88 |
| C | 2.50 | 1.62 | T | 2.38 |
| D | 3.25 | 1.62 | | |



*Underwriter's Laboratories

370 and 440 Volts AC

This capacitor series is designed specifically for the motor run applications where the capacitors are used in conjunction with permanent split capacitor type motors. They may be used on either 50 or 60-Hertz systems but should not be used at higher frequencies or in applications where higher frequency harmonics are present. For those types of applications the General Purpose AC Capacitors shown on the following pages should be used. If there is any question regarding the correct application of these products, please contact your RBC sales representative.



SPECIFICATIONS:

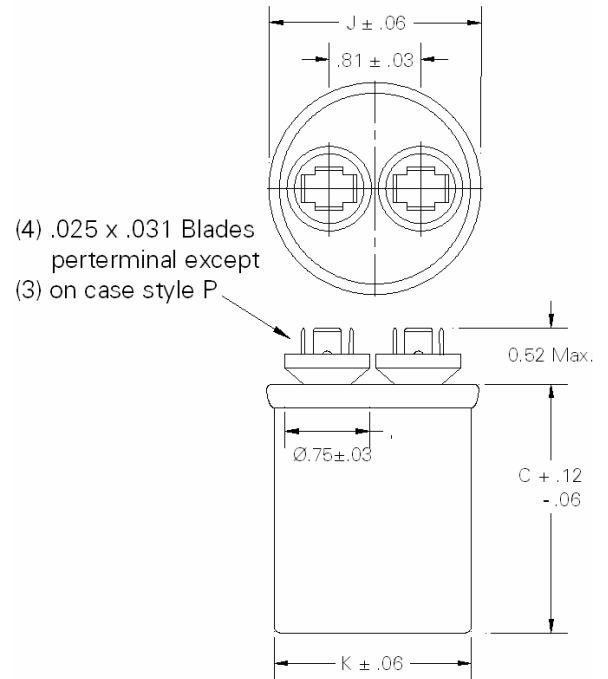
- Available Capacitance Range:** 2 to 120 μ F
- Capacitance Tolerance:** \pm 6%
- Capacitance Variation with Temperature:** See chart M-3 on page 9.
- Rated Voltage:** See Rating Tables. Rating is the 50/60 Hz RMS voltage for a sinusoidal waveform.
- Leakage Current:** 30 μ A maximum
- Frequency:** 50/60 Hz For higher frequencies use the General Purpose AC Capacitor Series.
- 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 case, tern plate steel cover. Contact RBC if material/finish to meet UL outdoor standards is required.
- Terminations:** 'Combo' terminal: 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 UL 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 Faults 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 |

*STANDARD RATINGS

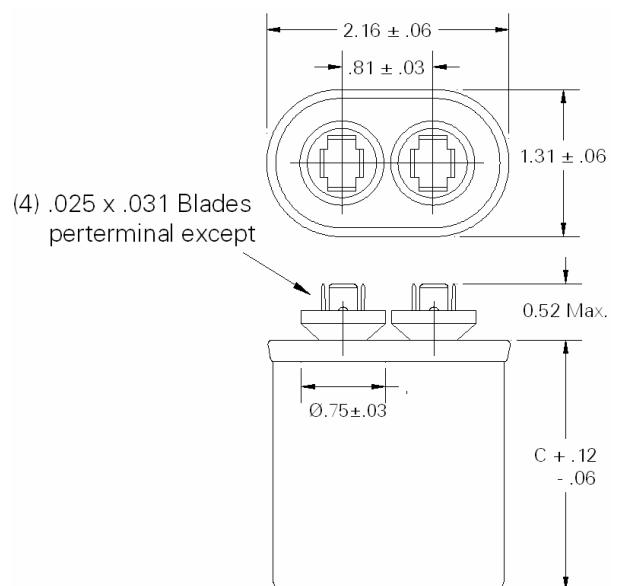
| Capacitance (μF) | Catalog Number | Case Style | Height C (in.) | UL Code |
|-----------------------------|----------------|------------|----------------|---------|
| 370 Volts AC Nominal | | | | |
| 3 | 27L595 | A | 1.56 | P921 |
| 4 | 27L571 | A | 1.56 | P921 |
| 5 | 27L570 | A | 1.56 | P921 |
| 6 | 97F5706 | A | 2.12 | P921 |
| 7.5 | 27L566 | A | 2.12 | P921 |
| 10 | 97F9002 | A | 2.88 | P921 |
| 12.5 | 27L572 | A | 2.88 | P921 |
| 15 | 27L567 | A | 2.88 | P921 |
| 20 | 97F9602 | P | 2.88 | P965 |
| 25 | 97F9606 | P | 2.88 | P965 |
| 30 | 97F9608 | P | 3.88 | P965 |
| 35 | 97F9611 | P | 3.88 | P965 |
| 40 | 97F9614 | P | 3.88 | P965 |
| 45 | 97F9884 | P | 4.75 | P965 |
| 50 | 97F9802 | P | 4.75 | P965 |
| 55 | 97F9010 | S | 4.75 | P968 |
| 60 | 97F5276 | T | 3.88 | P969 |
| 65 | 97F9011 | T | 3.88 | P969 |
| 70 | 97F9012 | T | 4.75 | P969 |
| 440 Volts AC Nominal | | | | |
| 3 | 97F5437 | A | 2.12 | P921 |
| 4 | 97F5337 | A | 2.88 | P921 |
| 5 | 97F5339 | A | 2.88 | P921 |
| 6 | 97F5436 | A | 2.88 | P921 |
| 7.5 | 97F9036 | A | 3.88 | P921 |
| 10 | 97F5300 | A | 3.88 | P921 |
| 12.5 | 97F9080 | A | 4.75 | P921 |
| 15 | 97F9625 | A | 4.75 | P921 |
| 20 | 97F9630 | P | 3.88 | P965 |
| 25 | 97F9632 | P | 3.88 | P965 |
| 30 | 97F9635 | P | 3.88 | P965 |
| 35 | 97F9639 | S | 3.88 | P968 |
| 40 | 97F9642 | S | 3.88 | P968 |
| 45 | 97F9645 | S | 4.75 | P968 |
| 50 | 97F5211 | T | 3.88 | P969 |
| 55 | 97F9042 | T | 4.75 | P969 |
| 60 | 97F9043 | T | 4.75 | P969 |
| 65 | 97F5241 | T | 4.75 | P969 |
| 70 | 97F5251 | T | 4.75 | P969 |

Case Style P, S, and T



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

Case Style A



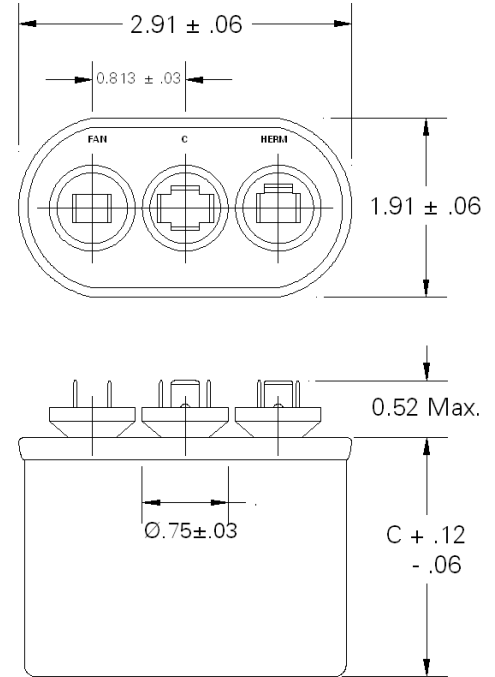
* It is RBC's goal to serve you with the most cost effective and the highest quality capacitor designs. Standardization to the catalog type shown is a major program at RBC. However, RBC remains sensitive to your needs and requirements, and will continue to offer the above ratings (and more) in case configurations to meet your application (s).

DUAL SECTION

*STANDARD RATINGS

| Capacitance | | Catalog Number | Case Style | Height C(in.) | UL Code |
|-----------------------------|---------------------|----------------|------------|---------------|---------|
| (μ F) (Herm) | (μ F) (Fan) | | | | |
| 370 Volts AC Nominal | | | | | |
| 10 | 10 | 27L956 | C | 2.12 | P923 |
| 15 | 5 | 97F9437 | C | 2.88 | P923 |
| 15 | 7.5 | 97F9526 | C | 2.88 | P923 |
| 20 | 5 | 97F9673 | C | 2.88 | P923 |
| 20 | 7.5 | 97F9991 | C | 2.88 | P923 |
| 25 | 5 | 97F9675 | C | 2.88 | P923 |
| 25 | 7.5 | 97F9677 | C | 2.88 | P923 |
| 30 | 5 | 97F9681 | C | 3.88 | P923 |
| 30 | 7.5 | 97F9683 | C | 3.88 | P923 |
| 35 | 5 | 97F9796 | C | 3.88 | P923 |
| 35 | 7.5 | 97F9864 | C | 3.88 | P923 |
| 40 | 5 | 97F9840 | C | 3.88 | P923 |
| 40 | 7.5 | 97F9845 | C | 3.88 | P923 |
| 45 | 5 | 97F9859 | C | 3.88 | P923 |
| 45 | 7.5 | 97F9841 | C | 3.88 | P923 |
| 50 | 5 | 97F9885 | C | 4.75 | P923 |
| 50 | 7.5 | 97F9858 | C | 4.75 | P923 |
| 440 Volts AC Nominal | | | | | |
| 15 | 5 | 97F9694 | C | 2.88 | P923 |
| 15 | 7.5 | 97F9992 | C | 2.88 | P923 |
| 20 | 5 | 97F9695 | C | 2.88 | P923 |
| 20 | 7.5 | 97F9696 | C | 3.88 | P923 |
| 25 | 5 | 97F9730 | C | 3.88 | P923 |
| 25 | 7.5 | 97F9993 | C | 3.88 | P923 |
| 30 | 5 | 97F9994 | C | 3.88 | P923 |
| 30 | 7.5 | 97F9995 | C | 3.88 | P923 |
| 35 | 5 | 97F9842 | C | 4.75 | P923 |
| 35 | 7.5 | 97F9892 | C | 4.75 | P923 |
| 40 | 5 | 97F9843 | C | 4.75 | P923 |
| 40 | 7.5 | 97F9996 | C | 4.75 | P923 |

Case Style C



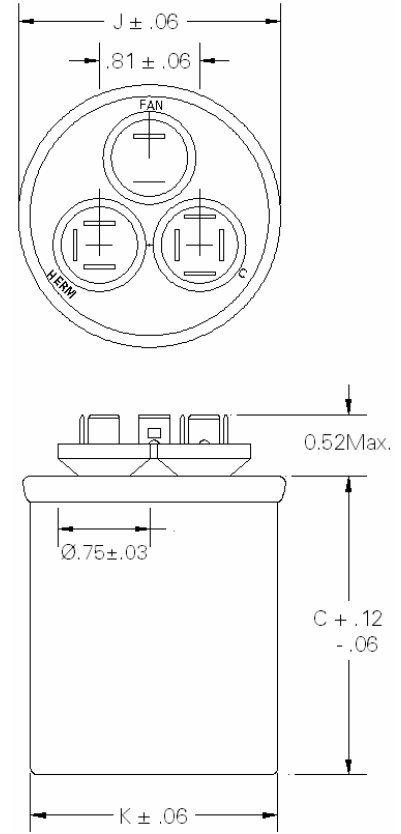
| Case Style | RBC Code | Generic UL Code |
|------------|----------|-----------------|
| C | P923 | C10000AFC |
| D | P924 | D10000AFC |

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CONCENTRIC ROUND *STANDARD RATINGS

Case Style S,T

| Capacitance | | Catalog Number | Case Style | Height C(in.) | UL Code |
|-----------------------------|---------------------|----------------|------------|---------------|---------|
| (μ F) (Herm) | (μ F) (Fan) | | | | |
| 370 Volts AC Nominal | | | | | |
| 15 | 5 | 97F9810 | S | 2.88 | P968 |
| 15 | 7.5 | 97F9811 | S | 2.88 | P968 |
| 20 | 5 | 97F9814 | S | 2.88 | P968 |
| 20 | 7.5 | 97F9966 | S | 2.88 | P968 |
| 20 | 10 | 97F9967 | S | 2.88 | P968 |
| 25 | 5 | 97F9803 | S | 2.88 | P968 |
| 25 | 7.5 | 97F9826 | S | 2.88 | P968 |
| 25 | 10 | 97F9827 | S | 3.88 | P968 |
| 30 | 3 | 27L955 | S | 2.88 | P968 |
| 30 | 5 | 27L877 | S | 2.88 | P968 |
| 30 | 7.5 | 97F9868 | S | 3.88 | P968 |
| 30 | 10 | 97F9828 | S | 3.88 | P968 |
| 35 | 5 | 97F9834 | S | 3.88 | P968 |
| 35 | 7.5 | 97F9829 | S | 3.88 | P968 |
| 40 | 5 | 97F9849 | S | 3.88 | P968 |
| 40 | 7.5 | 97F9855 | S | 3.88 | P968 |
| 40 | 10 | 97F9831 | S | 3.88 | P968 |
| 45 | 5 | 27L880 | S | 3.88 | P968 |
| 45 | 7.5 | 27L947 | S | 3.88 | P968 |
| 45 | 10 | 97F9832 | S | 4.75 | P968 |
| 50 | 5 | 97F9970 | S | 4.75 | P968 |
| 50 | 7.5 | 97F9971 | S | 4.75 | P968 |
| 50 | 10 | 97F9972 | S | 4.75 | P968 |
| 55 | 5 | 97F9815 | T | 3.88 | P969 |
| 55 | 7.5 | 97F9973 | T | 3.88 | P969 |
| 55 | 10 | 97F9974 | T | 3.88 | P969 |
| 60 | 5 | 27L954 | T | 3.88 | P969 |
| 60 | 7.5 | 97F9817 | T | 4.75 | P969 |
| 80 | 5 | 27L651 | T | 4.75 | P969 |



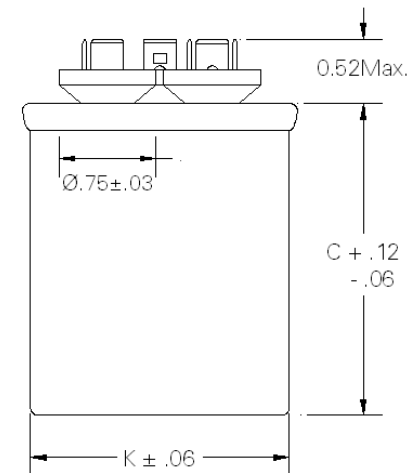
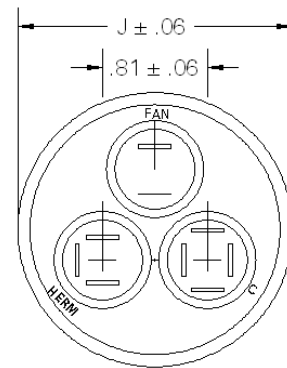
| Case Style | K | J |
|------------|------|------|
| S | 2.00 | 2.12 |
| T | 2.50 | 2.62 |

* 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).

CONCENTRIC ROUND *STANDARD RATINGS

Case Style S,T

| Capacitance | | Catalog Number | Case Style | Height C (in.) | UL Code |
|-----------------------------|------------------|----------------|------------|----------------|---------|
| (μ F) (Herm) | (μ F) (Fan) | | | | |
| 440 Volts AC Nominal | | | | | |
| 15 | 5 | 97F9997 | S | 2.88 | P968 |
| 15 | 7.5 | 97F9998 | S | 3.88 | P968 |
| 20 | 5 | 97F9975 | S | 2.88 | P968 |
| 20 | 7.5 | 97F9976 | S | 3.88 | P968 |
| 25 | 5 | 97F9978 | S | 3.88 | P968 |
| 25 | 7.5 | 97F9979 | S | 3.88 | P968 |
| 30 | 5 | 97F9981 | S | 3.88 | P968 |
| 30 | 7.5 | 97F9982 | S | 3.88 | P968 |
| 30 | 10 | 97F9983 | S | 3.88 | P968 |
| 35 | 5 | 97F9848 | S | 4.75 | P968 |
| 35 | 7.5 | 97F9881 | S | 4.75 | P968 |
| 40 | 5 | 97F9838 | S | 4.75 | P968 |
| 40 | 7.5 | 97F9882 | S | 4.75 | P968 |
| 40 | 5 | 27L946 | T | 2.88 | P969 |
| 45 | 5 | 97F9851 | T | 3.88 | P969 |
| 45 | 7.5 | 97F9883 | T | 3.88 | P969 |
| 50 | 5 | 27L569 | T | 4.25 | P969 |
| 50 | 7.5 | 97F9987 | T | 4.75 | P969 |
| 55 | 5 | 97F9839 | T | 4.75 | P969 |
| 55 | 7.5 | 97F9874 | T | 4.75 | P969 |
| 60 | 5 | 97F9897 | T | 4.75 | P969 |



| Case Style | K | J |
|------------|------|------|
| S | 2.00 | 2.12 |
| T | 2.50 | 2.62 |

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Life
Vs
Temperature

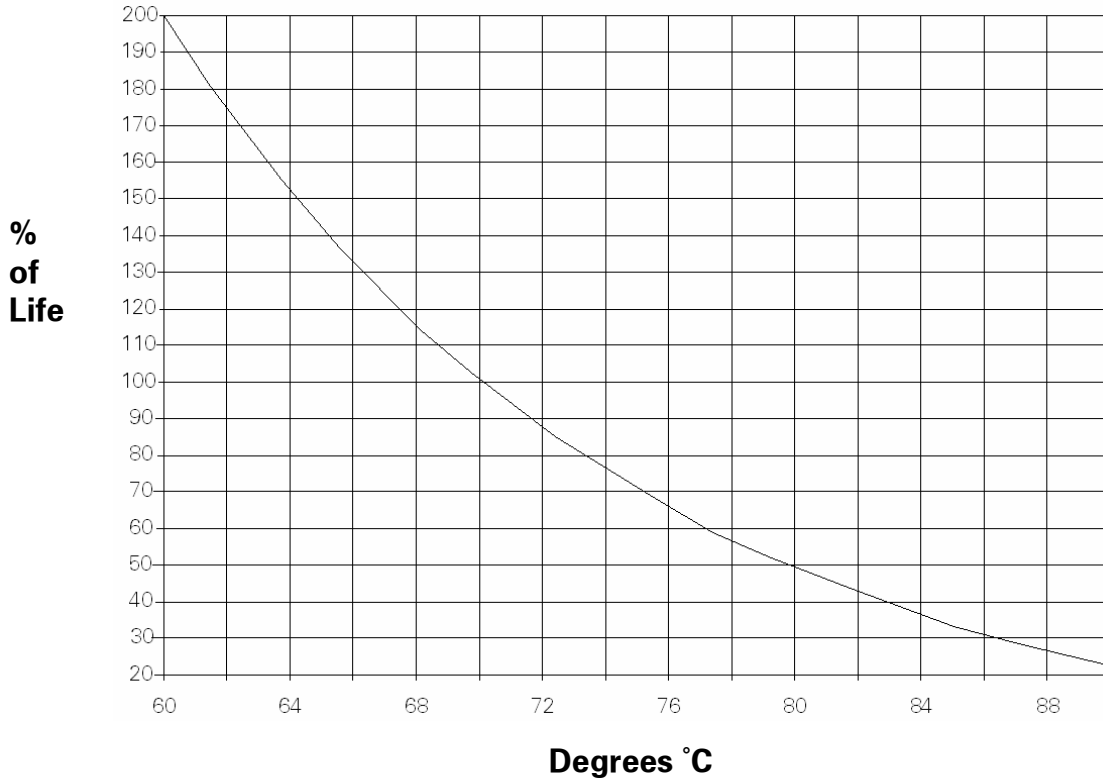


Chart M-1

Life
Vs
Voltage

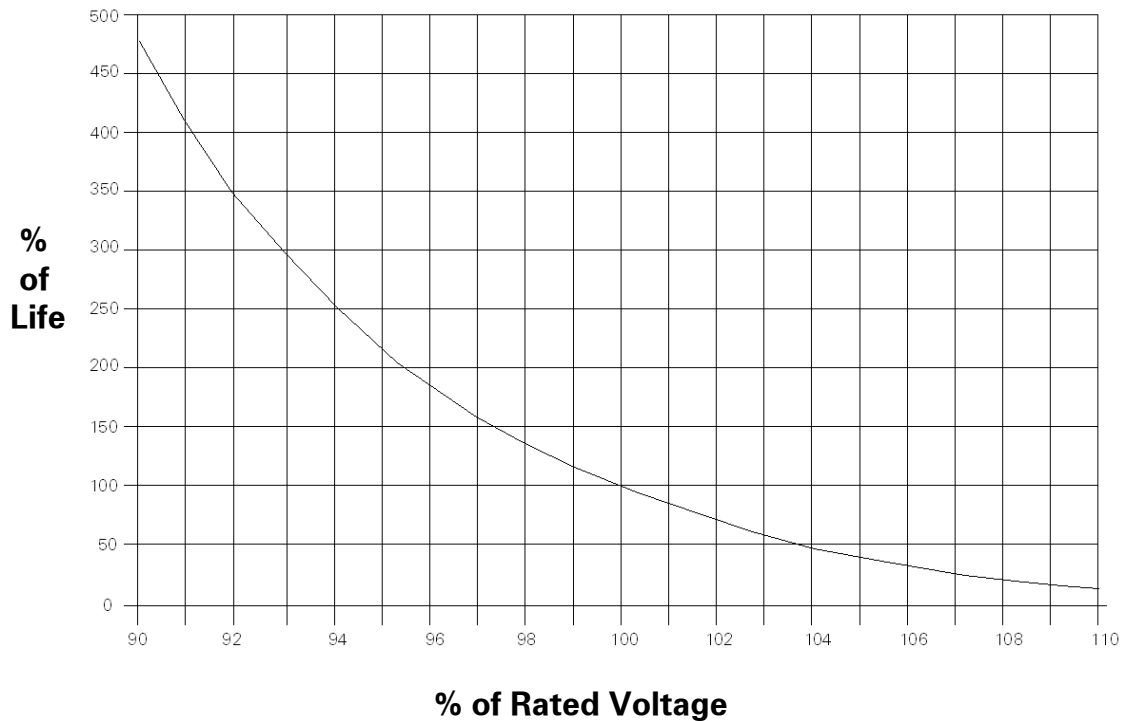
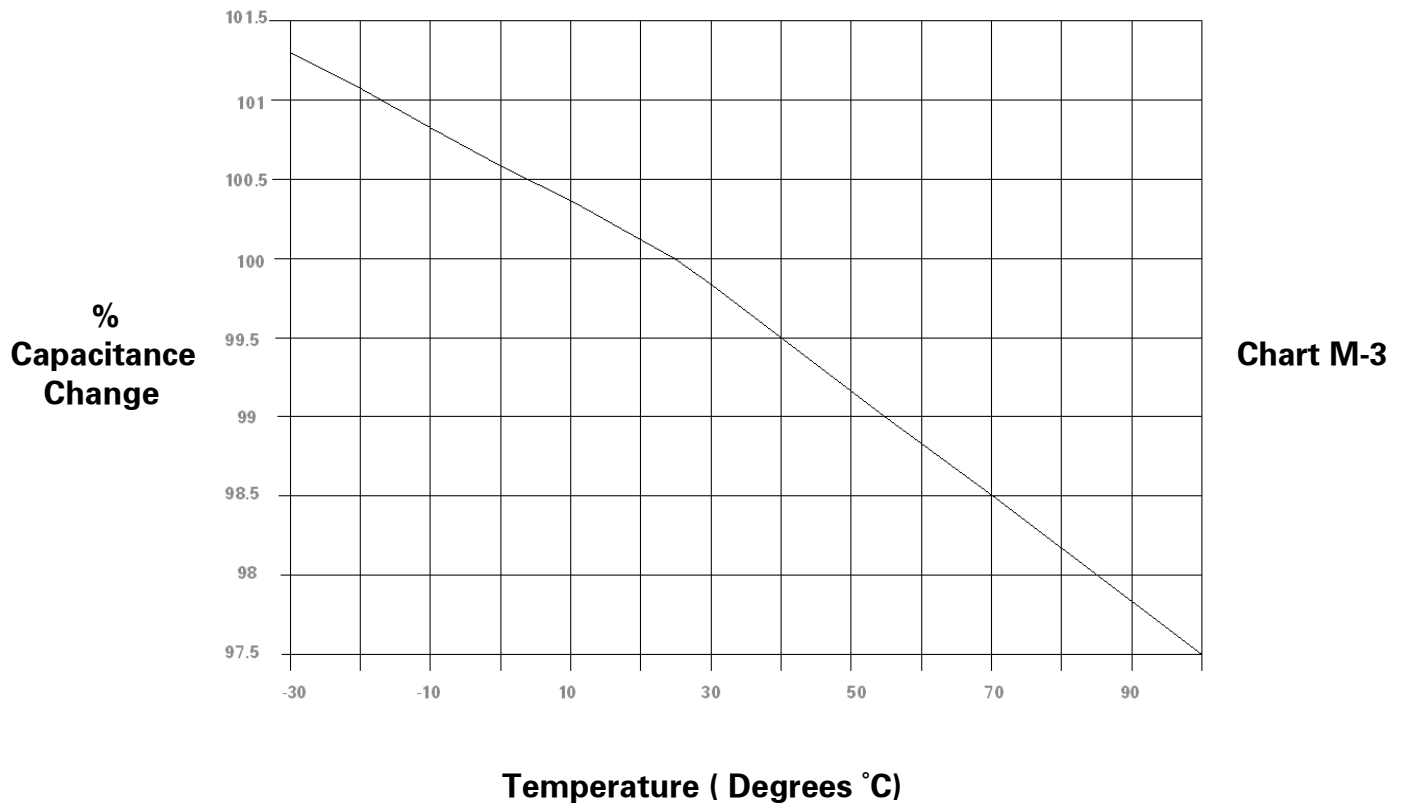


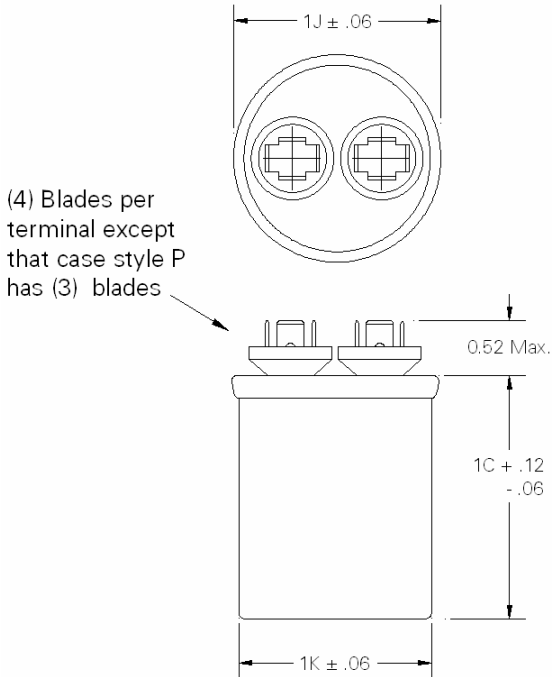
Chart M-2



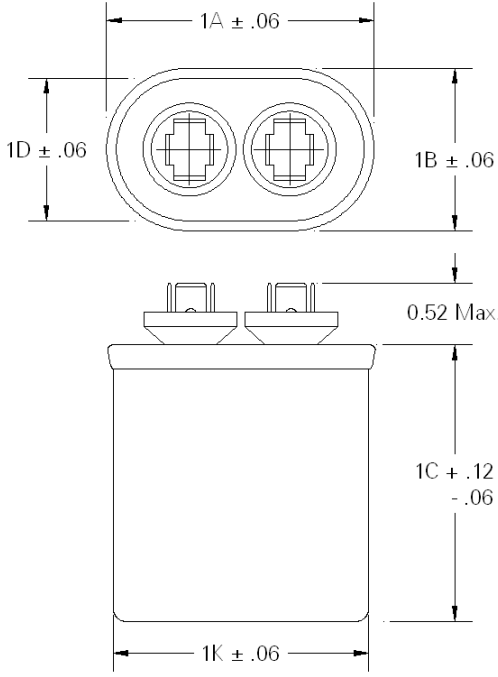
Percent Capacitance Vs Temperature



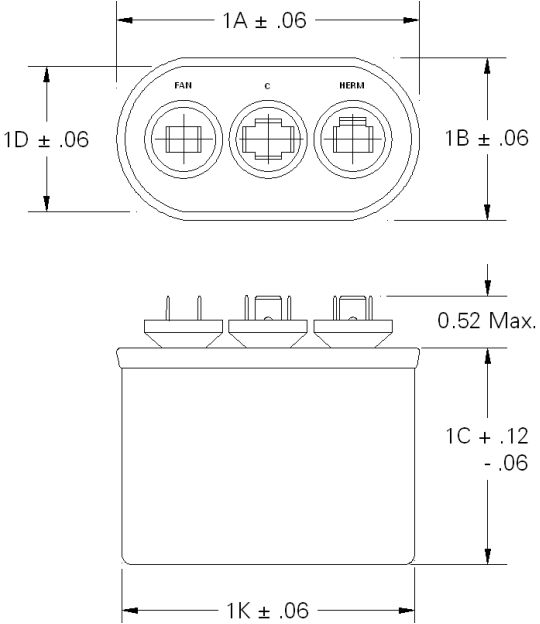
Round Case Style (P,S,T)



Oval Case Style (A,B,C,D)



Dual Oval Case Style (C)



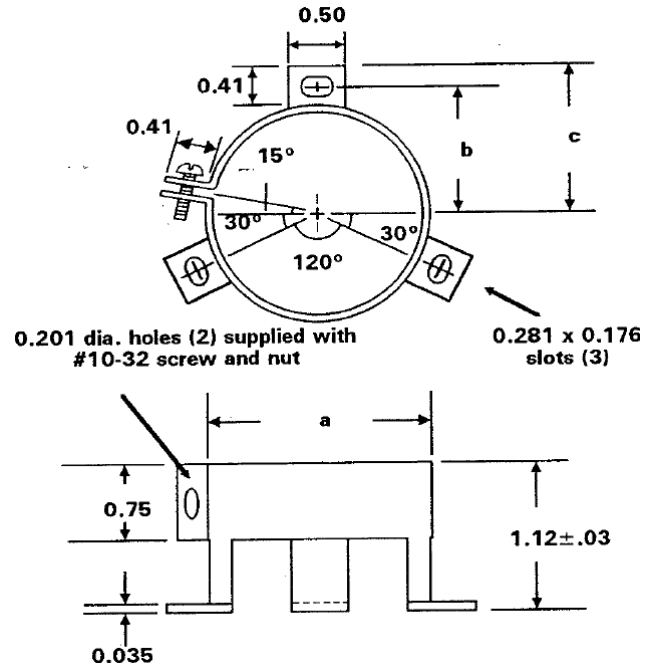
| Oval Case Style | | Dimensions | | | |
|------------------|-----------|------------|------|------|------|
| | | 1A | 1B | 1D | 1K |
| A | Oval | 2.16 | 1.31 | 1.21 | 2.06 |
| B | Oval | 2.69 | 1.56 | 1.47 | 2.58 |
| C | Oval | 2.91 | 1.91 | 1.81 | 2.81 |
| D | Oval | 3.66 | 1.97 | 1.88 | 3.56 |
| C | Dual Oval | 2.91 | 1.91 | 1.81 | 2.81 |
| Round Case Style | | Dimensions | | | |
| | | 1K | | | 1J |
| P | Round | 1.75 | — | — | 1.88 |
| S | Round | 2.00 | — | — | 2.12 |
| T | Round | 2.50 | — | — | 2.62 |



UNIVERSAL WRAP AROUND BRACKETS

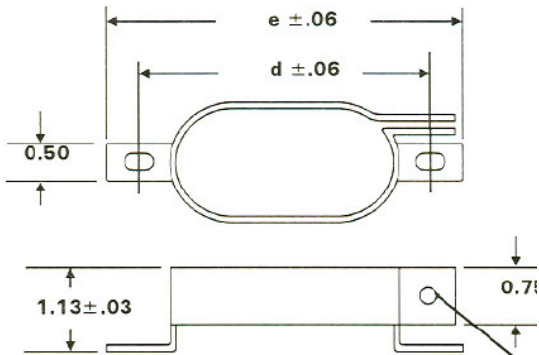
ROUND CASE STYLES

| 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



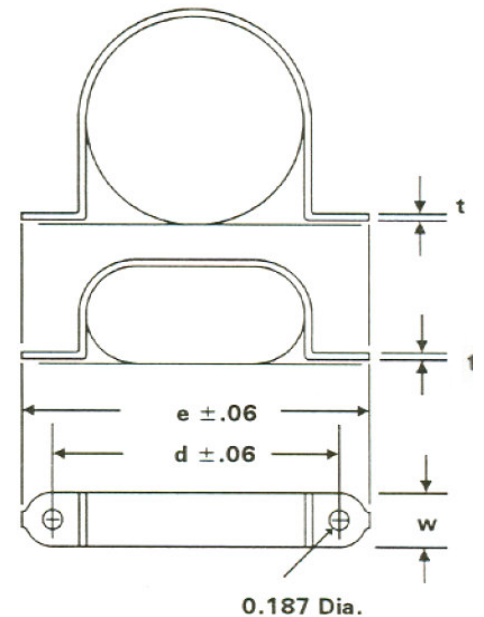
| Case Style | Bracket Part Number | d | e |
|------------|---------------------|------|------|
| A | 128A2244ACP21 | 2.69 | 3.13 |
| B | 128A2244ABP25 | 3.27 | 3.70 |
| C | 128A2244ABP22 | 3.44 | 3.88 |
| D | 128A2244ABP23 | 4.19 | 4.63 |

(2) .156 dia holes supplied with # 6-32 screw and nut

WRAP AROUND BRACKETS

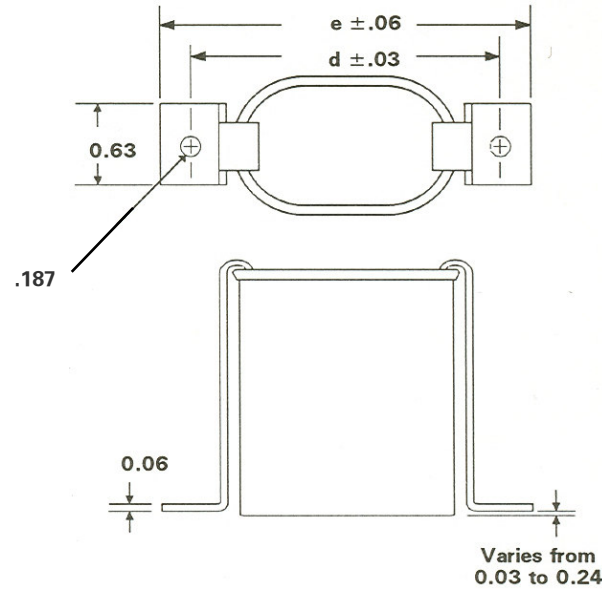
ROUND AND OVAL CASE STYLES

| 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 |

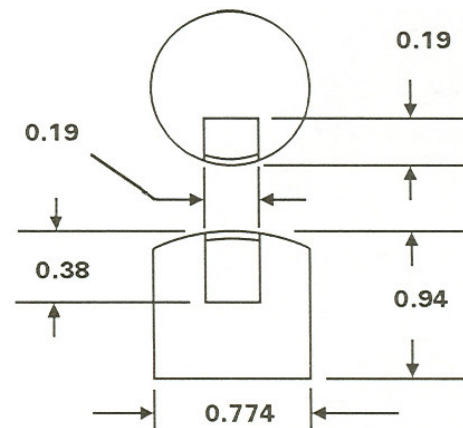
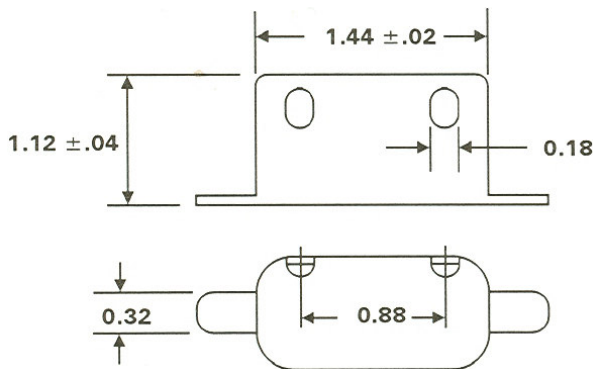


PROTECTIVE BOOT

PROTECTIVE CAP

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

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



| AVAILABLE RBC COMPONENT CAPACITOR PUBLICATIONS | | |
|---|---|----------|
| Publication | Description | Replaces |
| 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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