

# Type 125 **-55 °C to 125 °C, Ultra-High Temperature, Military Grade**

## The Pace-Setter for Long Life and High Temperature



Exceeding the requirements of military aluminum electrolytic large can capacitors, the Type 125 performs in the most demanding filter applications delivering the longest life and the lowest leakage in low-voltage, aluminum-electrolytic capacitors. It's the choice for output capacitors in high temperature and military power supplies.

### Highlights

- Now 5000 hour load life
- Ripple Current to 50 amps
- ESRs to 4mΩ
- >90% capacitance at -40 °C
- Operates at 125 °C

### Specifications

**Operating Temperature:**

-55 °C to 125 °C

**Rated Voltage:**

5 to 40 Vdc

**Capacitance:**

2600 µF to 190,000 µF

**Capacitance Tolerance:**

-10 +75%

**Leakage Current:**

≤0.003 CV µA @ 25 °C, ≤0.009 CV @ 125 °C

**Cold Impedance:**

-55 °C Multiple of 25 °C Z ≤2

**Ripple Current Multipliers:**

**Ambient Temperature**

| 45 °C | 55 °C | 65 °C | 75 °C | 85 °C | 95 °C | 105 °C |
|-------|-------|-------|-------|-------|-------|--------|
| 1.80  | 1.63  | 1.45  | 1.25  | 1.00  | 0.87  | 0.71   |

### Frequency

| 50 Hz | 60Hz | 120 Hz | 360 Hz | 1 kHz | 5 kHz | 10 kHz & up |
|-------|------|--------|--------|-------|-------|-------------|
| 0.85  | 0.87 | 1.00   | 1.10   | 1.22  | 1.32  | 1.33        |

**EIA Ripple Life:**

5,000 h at full load @ 85 °C per EIA IS-749

ΔCapacitance ±20%

ESR 200% of limit

DCL 100% of limit

**Life Test:**

5,000 h at 125 °C and rated voltage.

Δ Capacitance ±20%

ESR 200% of limit

DCL 100% of limit

**Shelf Life:**

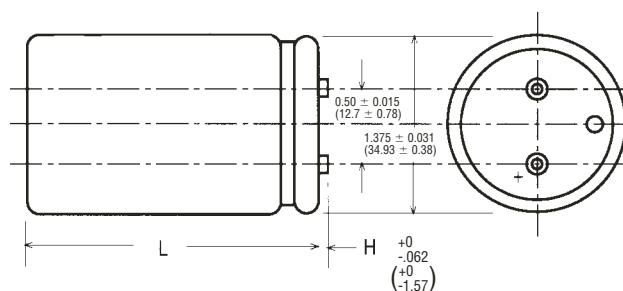
500 h @ 105 °C, capacitance, ESR and DCL, initial requirements

**Vibration:**

10 to 55 Hz, 0.06" and 10 g max, 1.5 h ea. of 2 axis

# Type 125 $-55^{\circ}\text{C}$ to $125^{\circ}\text{C}$ , Ultra-High Temperature, Military Grade

## Outline Drawing



## Terminal Dimensions

| Terminal Style | Code | Post Diameter |        | H max  |        | Thread |
|----------------|------|---------------|--------|--------|--------|--------|
|                |      | inches        | (mm)   | inches | (mm)   |        |
| Low Post       | A    | 0.313"        | (8.00) | 0.094" | (2.39) | 10-32  |
| High Post      | B    | 0.313"        | (8.00) | 0.281" | (7.14) | 10-32  |

## Case Dimensions

### Uninsulated Case Dimensions

For insulated case, add 0.024" (0.610 mm) to "D" and 0.030" (0.762 mm) to height.

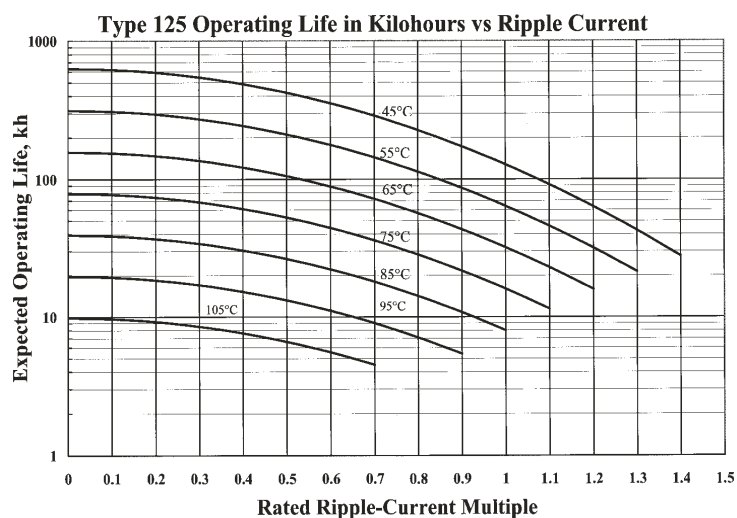
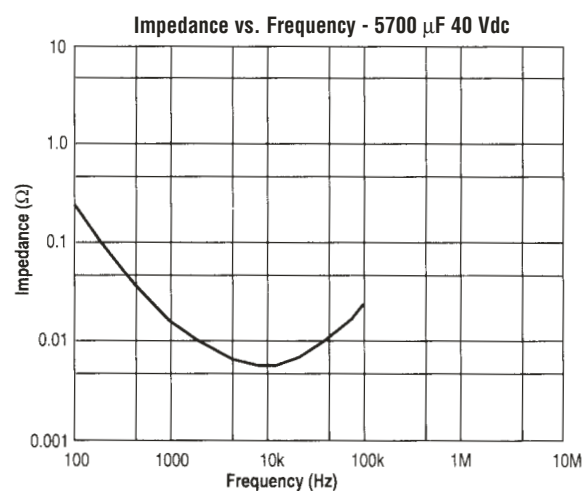
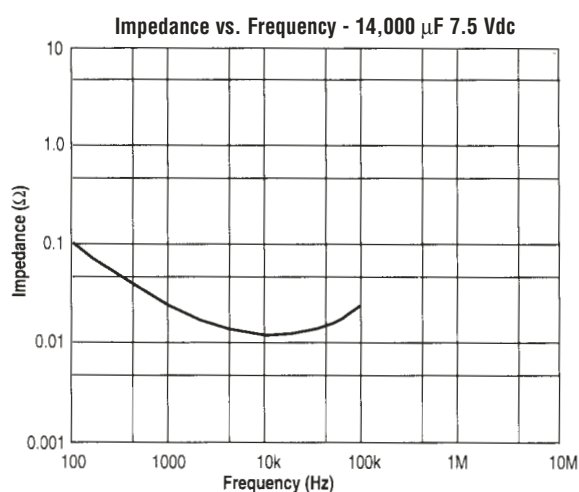
| Case Code | Diam. (D)   |            | Length (L)  |            | Terminals (S) |            | Typical Weight |     |
|-----------|-------------|------------|-------------|------------|---------------|------------|----------------|-----|
|           | $\pm 0.031$ | $\pm 0.78$ | $\pm 0.062$ | $\pm 1.57$ | $\pm 0.015$   | $\pm 0.78$ |                |     |
|           | Inches      | mm         | Inches      | mm         | Inches        | mm         | oz             | g   |
| AK        | 1.375       | 34.93      | 1.625       | 41.28      | 0.5           | 12.7       | 1.9            | 54  |
| AA        | 1.375       | 34.93      | 2.125       | 53.98      | 0.5           | 12.7       | 2.0            | 57  |
| AH        | 1.375       | 34.93      | 2.625       | 66.68      | 0.5           | 12.7       | 2.7            | 77  |
| AB        | 1.375       | 34.93      | 3.125       | 79.38      | 0.5           | 12.7       | 3.3            | 94  |
| AJ        | 1.375       | 34.93      | 3.625       | 92.08      | 0.5           | 12.7       | 3.8            | 108 |
| AC        | 1.375       | 34.93      | 4.125       | 104.78     | 0.5           | 12.7       | 4.4            | 125 |
| AD        | 1.375       | 34.93      | 4.625       | 117.48     | 0.5           | 12.7       | 5.1            | 145 |
| AE        | 1.375       | 34.93      | 5.125       | 130.18     | 0.5           | 12.7       | 5.7            | 193 |
| AF        | 1.375       | 34.93      | 5.625       | 142.88     | 0.5           | 12.7       | 6.4            | 230 |

# Type 125 $-55^{\circ}\text{C}$ to $125^{\circ}\text{C}$ , Ultra-High Temperature, Military Grade

## Part Numbering System

|      |                                                   |                  |                                               |           |                           |                               |
|------|---------------------------------------------------|------------------|-----------------------------------------------|-----------|---------------------------|-------------------------------|
| 125  | 333                                               | U                | 7R5                                           | AA        | 1                         | B                             |
| Type | Capacitance                                       | Tolerance        | Voltage                                       | Case Code | Insulation                | Terminal                      |
|      | 100 = 10 $\mu\text{F}$<br>101 = 100 $\mu\text{F}$ | U = $-10\%+75\%$ | 6R3 = 6.3Vdc<br>063 = 63 Vdc<br>100 = 100 Vdc |           | 0 = None<br>1 = Polyester | A = Low Post<br>B = High Post |

## Typical Performance Curves



# Type 125 **-55 °C to 125 °C, Ultra-High Temperature, Military Grade**

## Ratings

| Cap.<br>(µF)            | Catalog Part Number | ESR Max.<br>@ 25 °C<br>120 Hz 20 kHz<br>(Ω) |       | Ripple Max<br>@ 85 °C<br>120 Hz 20 kHz<br>(Arms) |      | Nominal<br>Size D x L<br>(inches) |
|-------------------------|---------------------|---------------------------------------------|-------|--------------------------------------------------|------|-----------------------------------|
| 5 Vdc (8 Vdc Surge)     |                     |                                             |       |                                                  |      |                                   |
| 25000                   | 125253U005AK1B      | 0.028                                       | 0.022 | 10.3                                             | 15.5 | 1 3/8 x 1 5/8                     |
| 49000                   | 125493U005AA1B      | 0.017                                       | 0.013 | 17.2                                             | 21.0 | 1 3/8 x 2 1/8                     |
| 65000                   | 125653U005AH1B      | 0.012                                       | 0.010 | 21.0                                             | 25.4 | 1 3/8 x 2 5/8                     |
| 89000                   | 125893U005AB1B      | 0.010                                       | 0.008 | 24.0                                             | 28.5 | 1 3/8 x 3 1/8                     |
| 110000                  | 125114U005AJ1B      | 0.008                                       | 0.006 | 26.1                                             | 31.0 | 1 3/8 x 3 5/8                     |
| 130000                  | 125134U005AC1B      | 0.007                                       | 0.006 | 28.2                                             | 32.9 | 1 3/8 x 4 1/8                     |
| 150000                  | 125154U005AD1B      | 0.006                                       | 0.005 | 29.3                                             | 34.1 | 1 3/8 x 4 5/8                     |
| 170000                  | 125174U005AE1B      | 0.006                                       | 0.005 | 30.6                                             | 35.3 | 1 3/8 x 5 1/8                     |
| 190000                  | 125194U005AF1B      | 0.005                                       | 0.004 | 30.7                                             | 35.1 | 1 3/8 x 5 5/8                     |
| 6.3 Vdc (10 Vdc Surge)  |                     |                                             |       |                                                  |      |                                   |
| 23000                   | 125233U6R3AK1B      | 0.028                                       | 0.022 | 11.3                                             | 15.5 | 1 3/8 x 1 5/8                     |
| 38000                   | 125383U6R3AA1B      | 0.047                                       | 0.013 | 17.2                                             | 21.0 | 1 3/8 x 2 1/8                     |
| 58000                   | 125583U6R3AH1B      | 0.012                                       | 0.009 | 21.0                                             | 25.4 | 1 3/8 x 2 5/8                     |
| 72000                   | 125723U6R3AB1B      | 0.009                                       | 0.008 | 24.0                                             | 28.5 | 1 3/8 x 3 1/8                     |
| 89000                   | 125893U6R3AJ1B      | 0.008                                       | 0.006 | 26.1                                             | 31.0 | 1 3/8 x 3 5/8                     |
| 110000                  | 125114U6R3AC1B      | 0.007                                       | 0.006 | 28.2                                             | 32.9 | 1 3/8 x 4 1/8                     |
| 120000                  | 125124U6R3AD1B      | 0.006                                       | 0.005 | 29.6                                             | 34.0 | 1 3/8 x 4 5/8                     |
| 140000                  | 125144U6R3AE1B      | 0.006                                       | 0.005 | 30.6                                             | 35.3 | 1 3/8 x 5 1/8                     |
| 160000                  | 125164U6R3AF1B      | 0.005                                       | 0.004 | 30.7                                             | 35.1 | 1 3/8 x 5 5/8                     |
| 7.5 Vdc (12 Vdc Surge)  |                     |                                             |       |                                                  |      |                                   |
| 20000                   | 125203U7R5AK1B      | 0.029                                       | 0.022 | 11.8                                             | 15.5 | 1 3/8 x1 5/8                      |
| 33000                   | 125333U7R5AA1B      | 0.017                                       | 0.013 | 16.8                                             | 20.9 | 1 3/8 x 2 1/8                     |
| 48000                   | 125483U7R5AH1B      | 0.013                                       | 0.010 | 20.4                                             | 25.2 | 1 3/8 x 2 5/8                     |
| 63000                   | 125633U7R5AB1B      | 0.010                                       | 0.008 | 23.4                                             | 28.5 | 1 3/8 x 3 1/8                     |
| 78000                   | 125783U7R5AJ1B      | 0.008                                       | 0.006 | 25.7                                             | 30.9 | 1 3/8 x 3 5/8                     |
| 93000                   | 125933U7R5AC1B      | 0.007                                       | 0.006 | 27.5                                             | 32.9 | 1 3/8 x 4 1/8                     |
| 110000                  | 125114U7R5AD1B      | 0.006                                       | 0.005 | 28.8                                             | 34.0 | 1 3/8 x 4 5/8                     |
| 120000                  | 125124U7R5AE1B      | 0.006                                       | 0.005 | 30.2                                             | 35.3 | 1 3/8 x 5 1/8                     |
| 140000                  | 125144U7R5AF1B      | 0.005                                       | 0.004 | 30.2                                             | 35.3 | 1 3/8 x 5 5/8                     |
| 12.5 Vdc (20 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 13000                   | 125133U12R5AK1B     | 0.032                                       | 0.022 | 11.6                                             | 15.2 | 1 3/8 x 1 5/8                     |
| 22000                   | 125223U12R5AA1B     | 0.019                                       | 0.014 | 15.7                                             | 20.6 | 1 3/8 x 2 1/8                     |
| 32000                   | 125323U12R5AH1B     | 0.014                                       | 0.010 | 19.2                                             | 25.0 | 1 3/8 x 2 5/8                     |
| 41000                   | 125413U12R5AB1B     | 0.011                                       | 0.008 | 21.9                                             | 28.2 | 1 3/8 x 3 1/8                     |
| 51000                   | 125513U12R5AJ1B     | 0.009                                       | 0.007 | 24.1                                             | 30.6 | 1 3/8 x 3 5/8                     |
| 61000                   | 125613U12R5AC1B     | 0.008                                       | 0.006 | 25.9                                             | 32.4 | 1 3/8 x 4 1/8                     |
| 71000                   | 125713U12R5AD1B     | 0.007                                       | 0.005 | 27.2                                             | 33.7 | 1 3/8 x 4 5/8                     |
| 81000                   | 125813U12R5AE1B     | 0.006                                       | 0.005 | 28.5                                             | 35.0 | 1 3/8 x 5 1/8                     |
| 90000                   | 125903U12R5AF1B     | 0.006                                       | 0.004 | 28.8                                             | 34.7 | 1 3/8 x 5 5/8                     |
| 15 Vdc (25 Vdc Surge)   |                     |                                             |       |                                                  |      |                                   |
| 10000                   | 125103U015AK1B      | 0.031                                       | 0.021 | 11.1                                             | 14.4 | 1 3/8 x 1 5/8                     |
| 17000                   | 125173U015AA1B      | 0.019                                       | 0.013 | 15.2                                             | 19.5 | 1 3/8 x 2 1/8                     |
| 24000                   | 125243U015AH1B      | 0.013                                       | 0.010 | 18.6                                             | 23.7 | 1 3/8 x 2 5/8                     |
| 32000                   | 125323U015AB1B      | 0.011                                       | 0.008 | 21.2                                             | 26.8 | 1 3/8 x 3 1/8                     |
| 40000                   | 125403U015AJ1B      | 0.009                                       | 0.006 | 23.4                                             | 29.2 | 1 3/8 x 3 5/8                     |

| Cap.<br>( µF)         | Catalog Part Number | ESR Max.<br>@ 25 °C<br>120 Hz 20 kHz<br>(Ω) |       | Ripple Max<br>@ 85 °C<br>120 Hz 20 kHz<br>(Arms) |      | Nominal<br>Size D x L<br>(inches) |
|-----------------------|---------------------|---------------------------------------------|-------|--------------------------------------------------|------|-----------------------------------|
| 15 Vdc (25 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 47000                 | 125473U015AC1B      | 0.008                                       | 0.005 | 25.1                                             | 31.0 | 1 3/8 x 4 1/8                     |
| 55000                 | 125553U015AD1B      | 0.007                                       | 0.005 | 26.5                                             | 32.3 | 1 3/8 x 4 5/8                     |
| 62000                 | 125623U015AE1B      | 0.006                                       | 0.005 | 27.8                                             | 33.6 | 1 3/8 x 5 1/8                     |
| 70000                 | 125703U015AF1B      | 0.006                                       | 0.004 | 28.1                                             | 33.4 | 1 3/8 x 5 5/8                     |
| 20 Vdc (25 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 7000                  | 125702U020AK1B      | 0.034                                       | 0.022 | 10.4                                             | 14.2 | 1 3/8 x 1 5/8                     |
| 12000                 | 125123U020AA1B      | 0.020                                       | 0.013 | 14.4                                             | 19.3 | 1 3/8 x 2 1/8                     |
| 18000                 | 125183U020AH1B      | 0.015                                       | 0.010 | 17.5                                             | 23.4 | 1 3/8 x 2 5/8                     |
| 24000                 | 125243U020AB1B      | 0.012                                       | 0.008 | 20.0                                             | 26.5 | 1 3/8 x 3 1/8                     |
| 29000                 | 125293U020AJ1B      | 0.010                                       | 0.006 | 22.1                                             | 28.9 | 1 3/8 x 3 5/8                     |
| 35000                 | 125353U020AC1B      | 0.008                                       | 0.006 | 23.8                                             | 30.9 | 1 3/8 x 4 1/8                     |
| 40000                 | 125403U020AD1B      | 0.007                                       | 0.005 | 25.1                                             | 32.0 | 1 3/8 x 4 5/8                     |
| 46000                 | 125463U020AE1B      | 0.007                                       | 0.005 | 26.5                                             | 33.4 | 1 3/8 x 5 1/8                     |
| 51000                 | 125513U020AF1B      | 0.006                                       | 0.004 | 26.8                                             | 33.3 | 1 3/8 x 5 5/8                     |
| 25 Vdc (40 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 5600                  | 125562U025AK1B      | 0.035                                       | 0.022 | 10.3                                             | 14.2 | 1 3/8 x 1 5/8                     |
| 9300                  | 125932U025AA1B      | 0.021                                       | 0.013 | 14.5                                             | 19.2 | 1 3/8 x 2 1/8                     |
| 14000                 | 125143U025AH1B      | 0.015                                       | 0.010 | 17.2                                             | 23.3 | 1 3/8 x 2 5/8                     |
| 18000                 | 125183U025AB1B      | 0.012                                       | 0.008 | 19.7                                             | 26.4 | 1 3/8 x 3 1/8                     |
| 22000                 | 125223U025AJ1B      | 0.010                                       | 0.006 | 21.7                                             | 28.8 | 1 3/8 x 3 5/8                     |
| 26000                 | 125263U025AC1B      | 0.009                                       | 0.006 | 23.5                                             | 30.7 | 1 3/8 x 4 1/8                     |
| 30000                 | 125303U025AD1B      | 0.008                                       | 0.005 | 24.8                                             | 32.0 | 1 3/8 x 4 5/8                     |
| 34000                 | 125343U025AE1B      | 0.007                                       | 0.005 | 26.1                                             | 33.3 | 1 3/8 x 5 1/8                     |
| 39000                 | 125393U025AF1B      | 0.006                                       | 0.004 | 26.4                                             | 33.1 | 1 3/8 x 5 5/8                     |
| 30 Vdc (50 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 4000                  | 125402U030AK1B      | 0.037                                       | 0.022 | 9.9                                              | 14.1 | 1 3/8 x 1 5/8                     |
| 7300                  | 125732U030AA1B      | 0.022                                       | 0.013 | 13.5                                             | 19.0 | 1 3/8 x 2 1/8                     |
| 11000                 | 125113U030AH1B      | 0.016                                       | 0.010 | 16.5                                             | 23.1 | 1 3/8 x 2 5/8                     |
| 14000                 | 125143U030AB1B      | 0.013                                       | 0.008 | 18.9                                             | 26.2 | 1 3/8 x 3 1/8                     |
| 17000                 | 125173U030AJ1B      | 0.011                                       | 0.007 | 20.9                                             | 28.6 | 1 3/8 x 3 5/8                     |
| 20000                 | 125203U030AC1B      | 0.009                                       | 0.006 | 22.6                                             | 30.5 | 1 3/8 x 4 1/8                     |
| 24000                 | 125243U030AD1B      | 0.008                                       | 0.005 | 23.8                                             | 31.7 | 1 3/8 x 4 5/8                     |
| 27000                 | 125273U030AE1B      | 0.007                                       | 0.005 | 25.2                                             | 33.0 | 1 3/8 x 5 1/8                     |
| 30000                 | 125303U030AF1B      | 0.007                                       | 0.004 | 25.5                                             | 33.0 | 1 3/8 x 5 5/8                     |
| 40 Vdc (60 Vdc Surge) |                     |                                             |       |                                                  |      |                                   |
| 2600                  | 125262U040AK1B      | 0.040                                       | 0.022 | 9.4                                              | 14.0 | 1 3/8 x 1 5/8                     |
| 4600                  | 125462U040AA1B      | 0.024                                       | 0.014 | 12.8                                             | 18.9 | 1 3/8 x 2 1/8                     |
| 6700                  | 125672U040AH1B      | 0.017                                       | 0.010 | 15.8                                             | 22.8 | 1 3/8 x 2 5/8                     |
| 8800                  | 125882U040AB1B      | 0.014                                       | 0.008 | 18.0                                             | 25.9 | 1 3/8 x 3 1/8                     |
| 11000                 | 125113U040AJ1B      | 0.011                                       | 0.007 | 20.0                                             | 28.3 | 1 3/8 x 3 5/8                     |
| 13000                 | 125133U040AC1B      | 0.010                                       | 0.006 | 21.7                                             | 30.2 | 1 3/8 x 4 1/8                     |
| 15000                 | 125153U040AD1B      | 0.009                                       | 0.005 | 22.8                                             | 31.4 | 1 3/8 x 4 5/8                     |
| 17000                 | 125173U040AE1B      | 0.008                                       | 0.005 | 24.3                                             | 32.7 | 1 3/8 x 5 1/8                     |
| 19000                 | 125193U040AF1B      | 0.007                                       | 0.004 | 24.5                                             | 32.7 | 1 3/8 x 5 5/8                     |