

# Type 125 $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ , 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 4m $\Omega$
- >90% capacitance at  $-40\text{ }^{\circ}\text{C}$
- Operates at  $+125\text{ }^{\circ}\text{C}$

### Specifications

<b>Operating Temperature:</b>	$-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
<b>Rated Voltage:</b>	5 to 40 Vdc
<b>Capacitance:</b>	2600 $\mu\text{F}$ to 190,000 $\mu\text{F}$
<b>Capacitance Tolerance:</b>	$-10$ +75%
<b>Leakage Current:</b>	$\leq 0.003\text{ CV } \mu\text{A}$ @ $+25\text{ }^{\circ}\text{C}$ ; $\leq 0.009\text{ CV}$ @ $+125\text{ }^{\circ}\text{C}$
<b>Cold Impedance:</b>	$-55\text{ }^{\circ}\text{C}$ Multiple of $+25\text{ }^{\circ}\text{C}$ $Z \leq 2$
<b>Ripple Current Multipliers:</b>	<b>Ambient Temperature</b>

<b>+45 <math>^{\circ}\text{C}</math></b>	<b>+55 <math>^{\circ}\text{C}</math></b>	<b>+65 <math>^{\circ}\text{C}</math></b>	<b>+75 <math>^{\circ}\text{C}</math></b>	<b>+85 <math>^{\circ}\text{C}</math></b>	<b>95 <math>^{\circ}\text{C}</math></b>	<b>105 <math>^{\circ}\text{C}</math></b>
1.80	1.63	1.45	1.25	1.00	0.87	0.71

#### Frequency

<b>50 Hz</b>	<b>60 Hz</b>	<b>120 Hz</b>	<b>360 Hz</b>	<b>1 kHz</b>	<b>5 kHz</b>	<b>10 kHz &amp; Up</b>
0.85	0.87	1.00	1.10	1.22	1.32	1.33



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

<b>EIA Ripple Life:</b>	5,000 h at full load @ $85\text{ }^{\circ}\text{C}$ per EIA IS-749 $\Delta$ Capacitance $\pm 20\%$ ESR 200% of limit DCL 100% of limit
<b>Life Test:</b>	5,000 h at $+125\text{ }^{\circ}\text{C}$ and rated voltage $\Delta$ Capacitance $\pm 20\%$ ESR 200% of limit DCL 100% of limit
<b>Shelf Life:</b>	500 h @ 105 VC, capacitance, ESR and DCL, initial requirements
<b>Vibration:</b>	10 to 55 Hz, 0.06" and 10 g max, 1.5 h each of 2 axis

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## Outline Drawing



## Terminal Dimensions

Terminal Style	Code	Post Diameter		H max		Thread	min Full Thread		Torque	
		in	mm	in	mm		in	mm	in·lb	N·m
Low Post	A	0.314	8.0	0.094	2.4	10-32	0.218	5.5	25	2.82
High Post	B	0.314	8.0	0.281	7.1	10-32	0.375	9.5	25	2.82

## Case Dimensions

### Uninsulated Case Dimensions

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

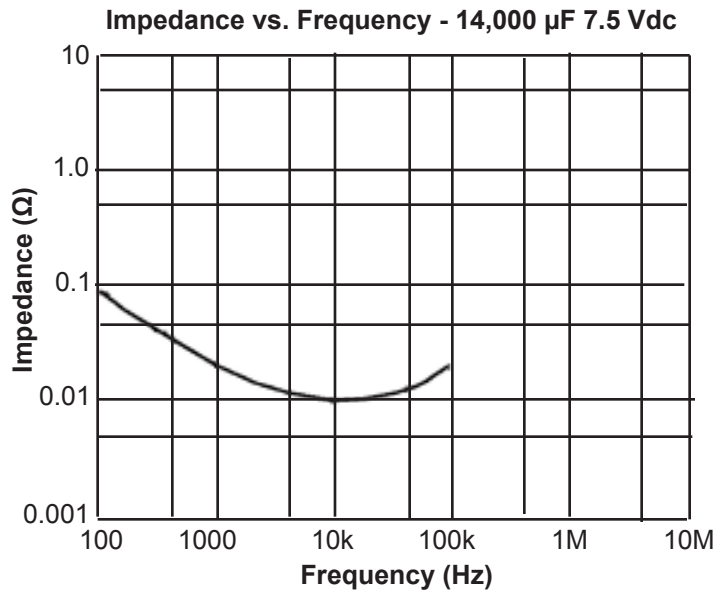
Case Code	Diam. (D)		Length (L)		Terminals (S)		Typical Weight	
	±.031	±.78	±.062	±1.57	±0.015	±.78		
	Inches	mm	Inches	mm	Inches	mm	oz	g
<b>AK</b>	1.375	34.93	1.625	41.28	0.5	12.7	1.9	54
<b>AA</b>	1.375	34.93	2.125	53.98	0.5	12.7	2.0	57
<b>AH</b>	1.375	34.93	2.625	66.68	0.5	12.7	2.7	77
<b>AB</b>	1.375	34.93	3.125	79.38	0.5	12.7	3.3	94
<b>AJ</b>	1.375	34.93	3.625	92.08	0.5	12.7	3.8	108
<b>AC</b>	1.375	34.93	4.125	104.78	0.5	12.7	4.4	125
<b>AD</b>	1.375	34.93	4.625	117.48	0.5	12.7	5.1	145
<b>AE</b>	1.375	34.93	5.125	130.18	0.5	12.7	5.7	193
<b>AF</b>	1.375	34.93	5.625	142.88	0.5	12.7	6.4	230

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## Part Numbering System

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

## Typical Performance Curves



## Type 125 Operating Life in Kilohours vs. Ripple Current



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

## Ratings

Cap $\mu\text{F}$	Catalog Part Number	ESR Max @ $+25\text{ }^{\circ}\text{C}$		Ripple Max @ $+85\text{ }^{\circ}\text{C}$		Nominal Size D x L (Inches)	Cap $\mu\text{F}$	Catalog Part Number	ESR Max @ $+25\text{ }^{\circ}\text{C}$		Ripple Max @ $+85\text{ }^{\circ}\text{C}$		Nominal Size D x L (Inches)
		120 Hz ( $\Omega$ )	20 kHz	120 Hz (Arms)	20 kHz				120 Hz ( $\Omega$ )	20 kHz	120 Hz (Arms)	20 kHz	
<b>5Vdc (8 Vdc Surge)</b>							<b>15Vdc (25 Vdc Surge)</b>						
25000	125253U005AK1B	0.028	0.022	10.3	15.5	1 3/8 x 1 5/8	47000	125473U015AC1B	0.008	0.005	25.1	31.0	1 3/8 x 4 1/8
49000	125493U005AA1B	0.017	0.013	17.2	21.0	1 3/8 x 2 1/8	55000	125553U015AD1B	0.007	0.005	26.5	32.3	1 3/8 x 4 5/8
65000	125653U005AH1B	0.012	0.010	21.0	25.4	1 3/8 x 2 5/8	62000	125623U015AE1B	0.006	0.005	27.8	33.6	1 3/8 x 5 1/8
89000	125893U005AB1B	0.010	0.008	24.0	28.5	1 3/8 x 3 1/8	70000	125703U015AF1B	0.006	0.004	28.1	33.4	1 3/8 x 5 5/8
110000	125114U005AJ1B	0.008	0.006	26.1	31.0	1 3/8 x 3 5/8	<b>20Vdc (25 Vdc Surge)</b>						
130000	125134U005AC1B	0.007	0.006	28.2	32.9	1 3/8 x 4 1/8	7000	125702U020AK1B	0.034	0.022	10.4	10.4	1 3/8 x 1 5/8
150000	125154U005AD1B	0.006	0.005	29.3	34.1	1 3/8 x 4 5/8	12000	125123U020AA1B	0.020	0.013	14.4	14.4	1 3/8 x 2 1/8
170000	125174U005AE1B	0.006	0.005	30.6	35.3	1 3/8 x 5 1/8	18000	125183U020AH1B	0.015	0.010	17.5	17.5	1 3/8 x 2 5/8
190000	125194U005AF1B	0.005	0.004	30.7	35.1	1 3/8 x 5 5/8	24000	125243U020AB1B	0.012	0.008	20.0	20.0	1 3/8 x 3 1/8
<b>6.3Vdc (10 Vdc Surge)</b>							29000	125293U020AJ1B	0.010	0.006	22.1	22.1	1 3/8 x 3 5/8
23000	125233U6R3AK1B	0.028	0.022	11.3	15.5	1 3/8 x 1 5/8	35000	125353U020AC1B	0.008	0.006	23.8	23.8	1 3/8 x 4 1/8
38000	125383U6R3AA1B	0.047	0.013	17.2	21.0	1 3/8 x 2 1/8	40000	125403U020AD1B	0.007	0.005	25.1	25.1	1 3/8 x 4 5/8
58000	125583U6R3AH1B	0.012	0.009	21.0	25.4	1 3/8 x 2 5/8	46000	125463U020AE1B	0.007	0.005	26.5	26.5	1 3/8 x 5 1/8
72000	125723U6R3AB1B	0.009	0.008	24.0	28.5	1 3/8 x 3 1/8	51000	125513U020AF1B	0.006	0.004	26.8	26.8	1 3/8 x 5 5/8
89000	125893U6R3AJ1B	0.008	0.006	26.1	31.0	1 3/8 x 3 5/8	<b>25Vdc (40 Vdc Surge)</b>						
110000	125114U6R3AC1B	0.007	0.006	28.2	32.9	1 3/8 x 4 1/8	5600	125562U025AK1B	0.035	0.022	10.3	14.2	1 3/8 x 1 5/8
120000	125124U6R3AD1B	0.006	0.005	29.6	34.0	1 3/8 x 4 5/8	9300	125932U025AA1B	0.021	0.013	14.5	19.2	1 3/8 x 2 1/8
140000	125144U6R3AE1B	0.006	0.005	30.6	35.3	1 3/8 x 5 1/8	14000	125143U025AH1B	0.015	0.010	17.2	23.3	1 3/8 x 2 5/8
160000	125164U6R3AF1B	0.005	0.004	30.7	35.1	1 3/8 x 5 5/8	18000	125183U025AB1B	0.012	0.008	19.7	26.4	1 3/8 x 3 1/8
<b>7.5Vdc (12 Vdc Surge)</b>							22000	125223U025AJ1B	0.010	0.006	21.7	28.8	1 3/8 x 3 5/8
20000	125203U7R5AK1B	0.029	0.022	11.8	15.5	1 3/8 x 1 5/8	26000	125263U025AC1B	0.009	0.006	23.5	30.7	1 3/8 x 4 1/8
33000	125333U7R5AA1B	0.017	0.013	16.8	20.9	1 3/8 x 2 1/8	30000	125303U025AD1B	0.008	0.005	24.8	32.0	1 3/8 x 4 5/8
48000	125483U7R5AH1B	0.013	0.010	20.4	25.2	1 3/8 x 2 5/8	34000	125343U025AE1B	0.007	0.005	26.1	33.3	1 3/8 x 5 1/8
63000	125633U7R5AB1B	0.010	0.008	23.4	28.5	1 3/8 x 3 1/8	39000	125393U025AF1B	0.006	0.004	26.4	33.1	1 3/8 x 5 5/8
78000	125783U7R5AJ1B	0.008	0.006	25.7	30.9	1 3/8 x 3 5/8	<b>30Vdc (50 Vdc Surge)</b>						
93000	125933U7R5AC1B	0.007	0.006	27.5	32.9	1 3/8 x 4 1/8	4000	125402U030AK1B	0.037	0.022	9.9	14.1	1 3/8 x 1 5/8
110000	125114U7R5AD1B	0.006	0.005	28.8	34.0	1 3/8 x 4 5/8	7300	125732U030AA1B	0.022	0.013	13.5	19	1 3/8 x 2 1/8
120000	125124U7R5AE1B	0.006	0.005	30.2	35.3	1 3/8 x 5 1/8	11000	125113U030AH1B	0.016	0.010	16.5	23.1	1 3/8 x 2 5/8
140000	125144U7R5AF1B	0.005	0.004	30.2	35.3	1 3/8 x 5 5/8	14000	125143U030AB1B	0.013	0.008	18.9	26.2	1 3/8 x 3 1/8
<b>12.5Vdc (20 Vdc Surge)</b>							17000	125173U030AJ1B	0.011	0.007	20.9	28.6	1 3/8 x 3 5/8
13000	125133U12R5AK1B	0.032	0.022	11.6	15.2	1 3/8 x 1 5/8	20000	125203U030AC1B	0.009	0.006	22.6	30.5	1 3/8 x 4 1/8
22000	125223U12R5AA1B	0.019	0.014	15.7	20.6	1 3/8 x 2 1/8	24000	125243U030AD1B	0.008	0.005	23.8	31.7	1 3/8 x 4 5/8
32000	125323U12R5AH1B	0.014	0.010	19.2	25.0	1 3/8 x 2 5/8	27000	125273U030AE1B	0.007	0.005	25.2	33	1 3/8 x 5 1/8
41000	125413U12R5AB1B	0.011	0.008	21.9	28.2	1 3/8 x 3 1/8	30000	125303U030AF1B	0.007	0.004	25.5	33	1 3/8 x 5 5/8
51000	125513U12R5AJ1B	0.009	0.007	24.1	30.6	1 3/8 x 3 5/8	<b>40Vdc (60 Vdc Surge)</b>						
61000	125613U12R5AC1B	0.008	0.006	25.9	32.4	1 3/8 x 4 1/8	2600	125262U040AK1B	0.040	0.022	9.4	14.0	1 3/8 x 1 5/8
71000	125713U12R5AD1B	0.007	0.005	27.2	33.7	1 3/8 x 4 5/8	4600	125462U040AA1B	0.024	0.014	12.8	18.9	1 3/8 x 2 1/8
81000	125813U12R5AE1B	0.006	0.005	28.5	35.0	1 3/8 x 5 1/8	6700	125672U040AH1B	0.017	0.010	15.8	22.8	1 3/8 x 2 5/8
90000	125903U12R5AF1B	0.006	0.004	28.8	34.7	1 3/8 x 5 5/8	8800	125882U040AB1B	0.014	0.008	18.0	25.9	1 3/8 x 3 1/8
<b>15Vdc (25 Vdc Surge)</b>							11000	125113U040AJ1B	0.011	0.007	20.0	28.3	1 3/8 x 3 5/8
10000	125103U015AK1B	0.031	0.021	11.1	14.4	1 3/8 x 1 5/8	13000	125133U040AC1B	0.010	0.006	21.7	30.2	1 3/8 x 4 1/8
17000	125173U015AA1B	0.019	0.013	15.2	19.5	1 3/8 x 2 1/8	15000	125153U040AD1B	0.009	0.005	22.8	31.4	1 3/8 x 4 5/8
24000	125243U015AH1B	0.013	0.01	18.6	23.7	1 3/8 x 2 5/8	17000	125173U040AE1B	0.008	0.005	24.3	32.7	1 3/8 x 5 1/8
32000	125323U015AB1B	0.011	0.008	21.2	26.8	1 3/8 x 3 1/8	19000	125193U040AF1B	0.007	0.004	24.5	32.7	1 3/8 x 5 5/8
40000	125403U015AJ1B	0.009	0.006	23.4	29.2	1 3/8 x 3 5/8							