Type 401C –55 °C to 105 °C Low-ESR, Wide Temperature Grade

The Ultimate in Cold Performance and ESR

The Type 401C is the wide-temperature, low-voltage version of the Type 450C. It is ideal for high-ripple current military and industrial applications that need full performance at cold temperatures. It also excels as a power-supply output capacitor because of its exceptionally low ESR. The extended cathode foil of the 401C assures cool operation and heat flow from the capacitor element to the can in all mounting orientations.

Highlights

- Better value than large snap-in capacitors
- Ripple Currents to >50 amps at 55 °C
- ESRs to 3.5 mΩ
- > 90% capacitance at –40 °C
- Thermal-Pak™ extended cathode construction

Specifications

Operating Temperature: –55 °C to 105 °C
Rated Voltage: 6.3 to 250 Vdc
Capacitance: 380 µF to 570,000 µF ± 20%
DC Leakage Current: ≤ 1.5 $\sqrt{CV}$ µA, 4 mA max, 5 minutes
Cold Impedance: –55 °C multiple of 25 °C Z ≤ 3

Ripple Current Multipliers:

Ambient Temperature

45 °C	55 °C	65 °C	75 °C	85 °C
1.73	1.58	1.41	1.22	1.00

Frequency

	50 Hz	60 Hz	120 Hz	360 Hz	1 kHz	5 kHz	10 kHz & up
6.3 to 50 V	0.85	0.90	1.00	1.05	1.10	1.10	1.10
63 to 250 V	0.50	0.53	1.00	1.15	1.15	1.20	1.20

EIA Ripple Life: 2,000 h at 85 °C per EIA IS-749 with 85 ºC ripple current
Δ Capacitance ±10%
ESR 200% of limit
DCL 100% of limit

Life Test: 4,000 h at 105ºC with rated voltage
Δ Capacitance ±10%
ESR 200% of limit
DCL 100% of limit

Shelf Life Test: 500 h at +105 °C, capacitance, ESR and DCL, will meet initial requirements

Vibration: 10 to 55 Hz, 0.06” and 10 g max, 2 h each plane

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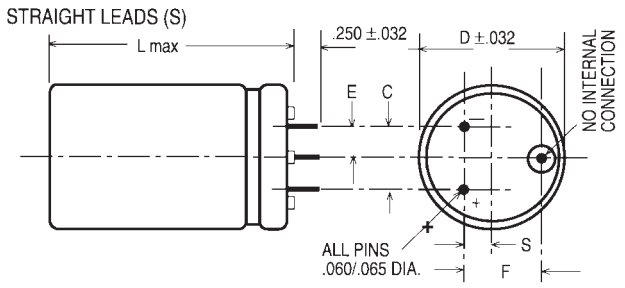
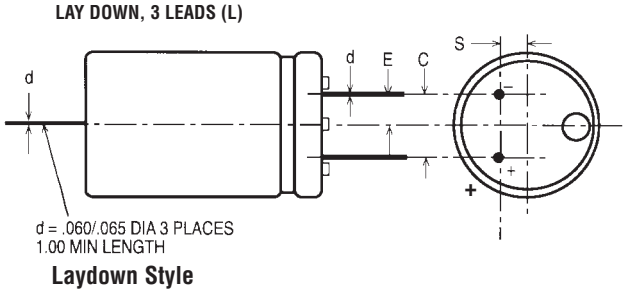
Outline Drawings





Laydown Style

Case Dimensions

Case	Inches						Millimeters					
Code	D ± .031	L MAX	C ± .015	S ± .031	E ± .031	F ± .015	D ± .78	L MAX	C ± .78	S ± .78	E ± .78	F ± .38
AK	1.375	1.75	0.50	0.175	0.25	0.55	34.93	44.45	12.70	4.45	6.35	13.97
AA	1.375	2.25	0.50	0.175	0.25	0.55	34.93	57.15	12.70	4.45	6.35	13.97
AH	1.375	2.75	0.50	0.175	0.25	0.55	34.98	69.85	12.70	4.45	6.35	13.97
AB	1.375	3.25	0.50	0.175	0.25	0.55	34.93	82.55	12.70	4.45	6.35	13.97
AJ	1.375	3.75	0.50	0.175	0.25	0.55	34.93	95.25	12.70	4.45	6.35	13.97
AC	1.375	4.25	0.50	0.175	0.25	0.55	34.93	107.95	12.70	4.45	6.35	13.97
AD	1.375	4.75	0.50	0.175	0.25	0.55	34.93	120.65	12.70	4.45	6.35	13.97
AE	1.375	5.25	0.50	0.175	0.25	0.55	34.93	133.35	12.70	4.45	6.35	13.97
AF	1.375	5.75	0.50	0.175	0.25	0.55	34.93	146.05	12.70	4.45	6.35	13.97
EA	1.75	2.25	0.70	0.375	0.35	0.90	44.45	57.15	17.78	9.53	8.89	22.86
EH	1.75	2.75	0.70	0.375	0.35	0.90	44.45	69.85	17.78	9.53	8.89	22.86
EB	1.75	3.25	0.70	0.375	0.35	0.90	44.45	82.55	17.78	9.53	8.89	22.86
EJ	1.75	3.75	0.70	0.375	0.35	0.90	44.45	95.25	17.78	9.53	8.89	22.86
EC	1.75	4.25	0.70	0.375	0.35	0.90	44.45	107.95	17.78	9.53	8.89	22.86
ED	1.75	4.75	0.70	0.375	0.35	0.90	44.45	120.65	17.78	9.53	8.89	22.86
EE	1.75	5.25	0.70	0.375	0.35	0.90	44.45	133.35	17.78	9.53	8.89	22.86
EF	1.75	5.75	0.70	0.375	0.35	0.90	44.45	146.05	17.78	9.53	8.89	22.86
BA	2.00	2.25	0.80	0.425	0.40	1.00	50.80	57.15	20.32	10.80	10.16	25.40
BH	2.00	2.75	0.80	0.425	0.40	1.00	50.80	69.85	20.32	10.80	10.16	25.40
BB	2.00	3.25	0.80	0.425	0.40	1.00	50.80	82.55	20.32	10.80	10.16	25.40
BJ	2.00	3.75	0.80	0.425	0.40	1.00	50.80	95.25	20.32	10.80	10.16	25.40
BC	2.00	4.25	0.80	0.425	0.40	1.00	50.80	107.95	20.32	10.80	10.16	25.40
BD	2.00	4.75	0.80	0.425	0.40	1.00	50.80	120.65	20.32	10.80	10.16	25.40
BE	2.00	5.25	0.80	0.425	0.40	1.00	50.80	133.25	20.32	10.80	10.16	25.40
BF	2.00	5.75	0.80	0.425	0.40	1.00	50.80	146.05	20.32	10.80	10.16	25.40

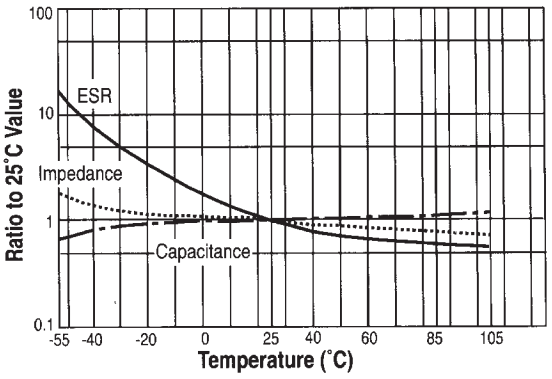
Part Numbering System

401C	393	M	100	AK	8
Type	**Capacitance**	**Tolerance**	**Voltage**	**Case Code**	**Insulation**
	242 = 2400 µF **221** = 220 µF	**M** = ±20% **T** = –10% +50% **U** = –10% +75%	**100** = 100 V **450** = 100 V		**0** = Bare can **8** = PVC and Standoffs **9** = Polyester and Standoffs

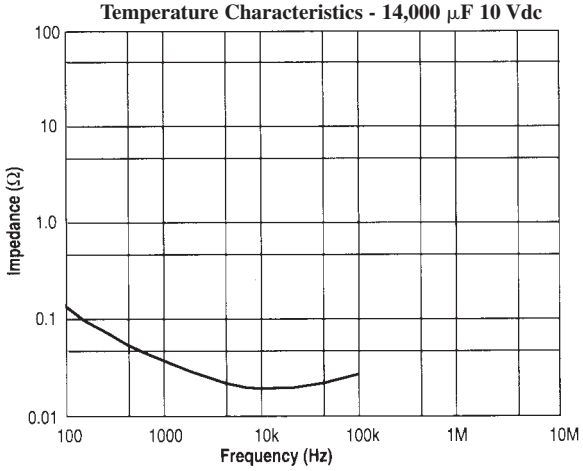
Terminal
(blank) = Straight Leads
L = Lay Down (3 Leads)

Typical Performance Curves

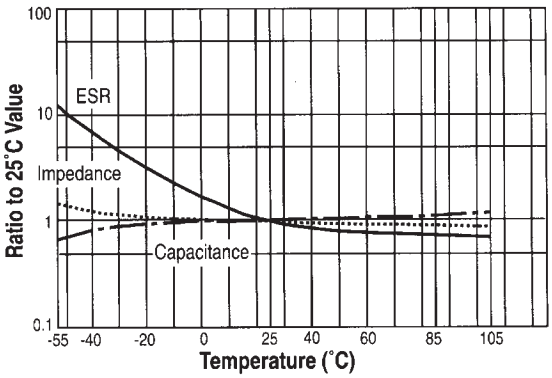
Temperature Characteristics - 14,000 µF 10 Vdc



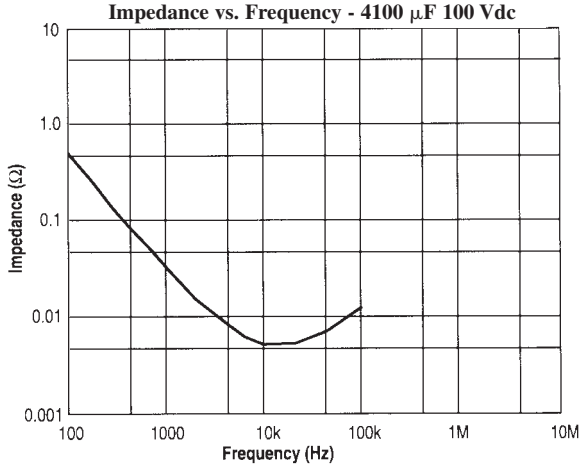
Temperature Characteristics - 14,000 µF 10 Vdc



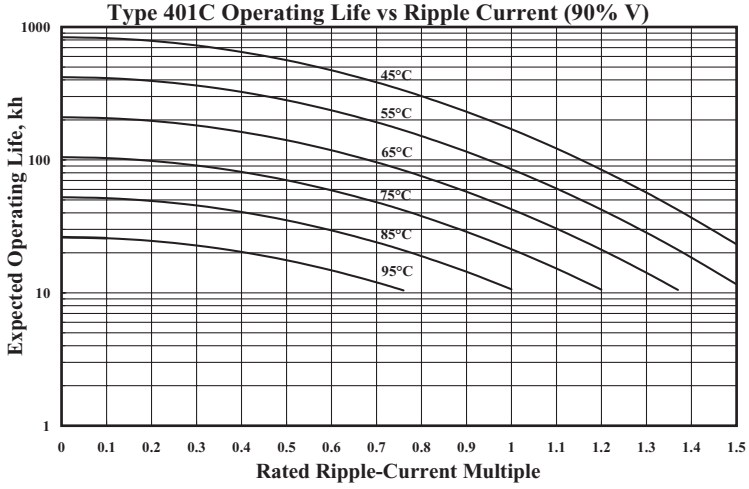
Temperature Characteristics - 4100 µF 100 Vdc



Impedance vs. Frequency - 4100 µF 100 Vdc



Type 401C Operating Life vs Ripple Current (90% V)



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Ratings

Cap. (µF)	Catalog Part Number	ESR Max. 25 ºC 120 Hz (mΩ)	ESR Max. 25 ºC 20 kHz (mΩ)	Ripple Amps, 85 ºC 120 Hz (A)	Ripple Amps, 85 ºC 20 kHz (A)	Nominal Size D X L (in)
6.3 Vdc (9 Vdc Surge)						
42000	401C423M6R3AK8	33.40	22.70	8.40	9.20	1 3/8 X 1 5/8
66000	401C663M6R3AA8	23.00	16.10	10.80	11.80	1 3/8 X 2 1/8
92000	401C923M6R3AH8	16.80	12.00	13.00	14.20	1 3/8 X 2 5/8
100000	401C104M6R3EA8	21.20	15.00	11.90	13.40	1 3/4 X 2 1/8
120000	401C124M6R3AB8	14.60	8.50	15.40	17.00	1 3/8 X 3 1/8
140000	401C144M6R3AJ8	12.30	7.30	17.70	19.20	1 3/8 X 3 5/8
150000	401C154M6R3BA8	12.70	10.30	16.40	17.20	2 X 2 1/8
150000	401C154M6R3EH8	15.10	10.70	15.10	16.90	1 3/4 X 2 5/8
170000	401C174M6R3AC8	10.80	6.40	19.70	21.30	1 3/8 X 4 1/8
200000	401C204M6R3AD8	9.70	5.80	21.50	23.10	1 3/8 X 4 5/8
200000	401C204M6R3BH8	9.30	7.30	20.50	22.10	2 X 2 5/8
200000	401C204M6R3EB8	11.90	8.40	18.20	20.40	1 3/4 X 3 1/8
230000	401C234M6R3AE8	9.00	5.40	23.30	24.90	1 3/8 X 5 1/8
250000	401C254M6R3BB8	7.40	5.80	24.20	26.00	2 X 3 1/8
250000	401C254M6R3EJ8	10.00	7.10	20.50	22.80	1 3/4 X 3 5/8
260000	401C264M6R3AF8	8.40	5.10	25.10	26.70	1 3/8 X 5 5/8
290000	401C294M6R3EC8	8.70	6.20	22.60	25.20	1 3/4 X 4 1/8
310000	401C314M6R3BJ8	6.50	4.90	26.60	28.80	2 X 3 5/8
350000	401C354M6R3ED8	7.80	5.60	25.00	27.80	1 3/4 X 4 5/8
370000	401C374M6R3BC8	5.70	4.30	29.00	30.80	2 X 4 1/8
390000	401C394M6R3EE8	7.20	5.10	27.50	30.50	1 3/4 X 5 1/8
420000	401C424M6R3BD8	5.20	3.90	30.90	33.40	2 X 4 5/8
440000	401C444M6R3EF8	6.70	4.80	30.30	33.40	1 3/4 X 5 5/8
510000	401C514M6R3BE8	4.80	3.60	32.60	35.80	2 X 5 1/8
570000	401C574M6R3BF8	4.50	3.50	34.00	37.90	2 X 5 5/8
7.5 Vdc (10 Vdc Surge)						
41000	401C413M7R5AK8	33.40	22.70	8.40	9.20	1 3/8 X 1 5/8
62000	401C623M7R5AA8	23.00	16.10	10.80	11.80	1 3/8 X 2 1/8
90000	401C903M7R5AH8	16.80	12.00	13.00	14.20	1 3/8 X 2 5/8
100000	401C104M7R5EA8	21.20	15.00	11.90	13.40	1 3/4 X 2 1/8
120000	401C124M7R5AB8	14.60	9.50	15.40	17.00	1 3/8 X 3 1/8
140000	401C144M7R5AJ8	12.30	8.00	17.70	19.20	1 3/8 X 3 5/8
140000	401C144M7R5BA8	12.70	10.30	16.40	17.20	2 X 2 1/8
150000	401C154M7R5EH8	15.10	10.70	15.10	16.90	1 3/4 X 2 5/8
170000	401C174M7R5AC8	10.80	7.10	19.70	21.30	1 3/8 X 4 1/8
190000	401C194M7R5AD8	9.70	6.40	21.50	23.10	1 3/8 X 4 5/8
190000	401C194M7R5BH8	9.30	7.30	20.50	22.10	2 X 2 5/8
190000	401C194M7R5EB8	11.90	8.40	18.20	20.40	1 3/4 X 3 1/8
230000	401C234M7R5AE8	9.00	5.90	23.30	24.90	1 3/8 X 5 1/8
240000	401C244M7R5EJ8	10.00	7.10	20.50	22.80	1 3/4 X 3 5/8
250000	401C254M7R5AF8	8.40	5.60	25.10	26.70	1 3/8 X 5 5/8
250000	401C254M7R5BB8	7.40	5.80	24.20	26.00	2 X 3 1/8
290000	401C294M7R5EC8	8.70	6.20	22.60	25.20	1 3/4 X 4 1/8
300000	401C304M7R5BJ8	6.50	4.90	26.60	28.80	2 X 3 5/8
340000	401C344M7R5ED8	7.80	5.60	25.00	27.80	1 3/4 X 4 5/8
370000	401C374M7R5BC8	5.70	4.30	29.00	30.80	2 X 4 1/8
380000	401C384M7R5EE8	7.20	5.10	27.50	30.50	1 3/4 X 5 1/8
420000	401C424M7R5BD8	5.20	3.90	30.90	33.40	2 X 4 5/8
440000	401C444M7R5EF8	6.70	4.80	30.30	33.40	1 3/4 X 5 5/8
500000	401C504M7R5BE8	4.80	3.60	32.60	35.80	2 X 5 1/8
560000	401C564M7R5BF8	4.50	3.50	34.00	37.90	2 X 5 5/8
10 Vdc (15 Vdc Surge)						
31000	401C313M010AK8	33.40	22.70	8.40	9.20	1 3/8 X 1 5/8
50000	401C503M010AA8	23.00	16.10	10.80	11.80	1 3/8 X 2 1/8
69000	401C693M010AH8	16.80	12.00	13.00	14.20	1 3/8 X 2 5/8
81000	401C813M010EA8	21.20	13.30	11.90	13.40	1 3/4 X 2 1/8
91000	401C913M010AB8	14.60	9.50	15.40	17.00	1 3/8 X 3 1/8
110000	401C114M010AJ8	12.30	8.00	17.70	19.20	1 3/8 X 3 5/8
110000	401C114M010BA8	12.70	10.30	16.40	17.20	2 X 2 1/8
120000	401C124M010EH8	15.10	9.50	15.10	16.90	1 3/4 X 2 5/8
130000	401C134M010AC8	10.80	7.10	19.70	21.30	1 3/8 X 4 1/8
150000	401C154M010AD8	9.70	6.40	21.50	23.10	1 3/8 X 4 5/8
150000	401C154M010BH8	9.30	7.30	20.50	22.10	2 X 2 5/8
150000	401C154M010EB8	11.90	7.50	18.20	20.40	1 3/4 X 3 1/8
170000	401C174M010AE8	9.00	5.90	23.30	24.90	1 3/8 X 5 1/8
180000	401C184M010EJ8	10.00	6.30	20.50	22.80	1 3/4 X 3 5/8
190000	401C194M010AF8	8.40	5.60	25.10	26.70	1 3/8 X 5 5/8
190000	401C194M010BB8	7.40	5.80	24.20	26.00	2 X 3 1/8
230000	401C234M010EC8	8.70	5.50	22.60	25.20	1 3/4 X 4 1/8
240000	401C244M010BJ8	6.50	4.90	26.60	28.80	2 X 3 5/8
260000	401C264M010ED8	7.80	5.00	25.00	27.80	1 3/4 X 4 5/8
280000	401C284M010BC8	5.70	4.30	29.00	30.80	2 X 4 1/8
290000	401C294M010EE8	7.20	4.60	27.50	30.50	1 3/4 X 5 1/8
330000	401C334M010BD8	5.20	3.90	30.90	33.40	2 X 4 5/8
340000	401C344M010EF8	6.70	4.30	30.30	33.40	1 3/4 X 5 5/8
390000	401C394M010BE8	4.80	3.60	32.60	35.80	2 X 5 1/8
440000	401C444M010BF8	4.50	3.50	34.00	37.90	2 X 5 5/8
16 Vdc (24 Vdc Surge)						
20000	401C203M016AK8	34.70	23.00	8.30	9.10	1 3/8 X 1 5/8
33000	401C333M016AA8	23.90	16.30	10.60	11.70	1 3/8 X 2 1/8
46000	401C463M016AH8	17.40	11.20	12.80	14.20	1 3/8 X 2 5/8
53000	401C533M016EA8	21.50	15.90	11.80	13.30	1 3/4 X 2 1/8
60000	401C603M016AB8	14.90	8.90	15.20	16.90	1 3/8 X 3 1/8
74000	401C743M016AJ8	12.50	7.50	17.50	19.10	1 3/8 X 3 5/8
75000	401C753M016BA8	12.70	10.20	16.40	17.40	2 X 2 1/8
78000	401C783M016EH8	15.30	11.30	14.90	16.80	1 3/4 X 2 5/8
89000	401C893M016AC8	11.00	6.60	19.50	21.20	1 3/8 X 4 1/8
100000	401C104M016AD8	9.40	7.30	20.40	22.10	2 X 2 5/8
100000	401C104M016BH8	12.00	8.90	18.10	20.30	1 3/4 X 3 1/8
100000	401C104M016EB8	9.90	6.00	21.30	23.00	1 3/8 X 4 5/8
120000	401C124M016AE8	9.10	5.50	23.10	24.80	1 3/8 X 5 1/8
130000	401C134M016AF8	8.60	5.20	24.90	26.60	1 3/8 X 5 5/8
130000	401C134M016BB8	7.50	5.80	24.00	26.00	2 X 3 1/8

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Cap. (µF)	Catalog Part Number	ESR Max. 25 °C 120 Hz (mΩ)	ESR Max. 25 °C 20 kHz (mΩ)	Ripple Amps, 85 °C 120 Hz (A)	Ripple Amps, 85 °C 20 kHz (A)	Nominal Size D X L (in)
130000	401C134M016EJ8	10.10	7.50	20.30	22.80	1 3/4 X 3 5/8
150000	401C154M016EC8	8.80	6.60	22.50	25.10	1 3/4 X 4 1/8
160000	401C164M016BJ8	6.60	5.00	26.40	28.80	2 X 3 5/8
170000	401C174M016ED8	7.90	6.00	24.90	27.70	1 3/4 X 4 5/8
180000	401C184M016BC8	5.80	4.40	28.80	30.70	2 X 4 1/8
190000	401C194M016EE8	7.30	5.50	27.40	30.40	1 3/4 X 5 1/8
220000	401C224M016BD8	5.20	4.00	30.70	33.30	2 X 4 5/8
220000	401C224M016EF8	6.80	5.20	30.10	33.40	1 3/4 X 5 5/8
260000	401C264M016BE8	4.80	3.70	32.40	35.70	2 X 5 1/8
280000	401C284M016BF8	4.60	3.50	33.80	37.90	2 X 5 5/8
20 Vdc (30 Vdc Surge)						
17000	401C173M020AK8	37.90	23.70	8.40	9.10	1 3/8 X 1 5/8
26000	401C263M020AA8	26.00	16.80	10.90	11.70	1 3/8 X 2 1/8
33000	401C333M020AH8	18.90	12.40	13.20	14.10	1 3/8 X 2 5/8
45000	401C453M020EA8	22.30	15.50	11.60	13.30	1 3/4 X 2 1/8
50000	401C503M020AB8	15.60	9.90	15.10	16.80	1 3/8 X 3 1/8
58000	401C583M020BA8	13.20	10.40	16.10	17.30	2 X 2 1/8
61000	401C613M020AJ8	13.10	8.30	17.10	19.00	1 3/8 X 3 5/8
64000	401C643M020EH8	15.80	11.00	14.70	16.80	1 3/4 X 2 5/8
73000	401C733M020AC8	11.50	7.30	19.10	21.10	1 3/8 X 4 1/8
82000	401C823M020BH8	9.80	7.50	20.10	22.00	2 X 2 5/8
84000	401C843M020EB8	12.40	8.70	17.80	20.30	1 3/4 X 3 1/8
85000	401C853M020AD8	10.30	6.60	20.90	22.90	1 3/8 X 4 5/8
96000	401C963M020AE8	9.50	6.10	22.60	24.70	1 3/8 X 5 1/8
100000	401C104M020AF8	10.40	7.30	20.00	22.70	1 3/4 X 3 5/8
100000	401C104M020BB8	7.70	5.90	23.70	25.90	2 X 3 1/8
100000	401C104M020EJ8	8.90	5.80	24.40	26.50	1 3/8 X 5 5/8
120000	401C124M020EC8	9.10	6.40	22.10	25.00	1 3/4 X 4 1/8
130000	401C134M020BJ8	6.80	5.00	26.00	28.70	2 X 3 5/8
140000	401C144M020ED8	8.10	5.70	24.50	27.60	1 3/4 X 4 5/8
150000	401C154M020BC8	6.00	4.50	28.50	30.70	2 X 4 1/8
160000	401C164M020EE8	7.50	5.30	27.00	30.30	1 3/4 X 5 1/8
170000	401C174M020BD8	5.40	4.00	30.30	33.20	2 X 4 5/8
180000	401C184M020EF8	7.00	4.90	29.70	33.30	1 3/4 X 5 5/8
220000	401C224M020BE8	4.90	3.70	32.10	35.70	2 X 5 1/8
240000	401C244M020BF8	4.70	3.50	33.50	37.80	2 X 5 5/8
25 Vdc (35 Vdc Surge)						
13000	401C133M025AK8	41.00	24.40	8.10	9.00	1 3/8 X 1 5/8
20000	401C203M025AA8	28.10	17.20	10.50	11.60	1 3/8 X 2 1/8
33000	401C333M025AH8	20.30	12.80	12.80	14.00	1 3/8 X 2 5/8
35000	401C353M025EA8	23.00	15.80	11.40	13.20	1 3/4 X 2 1/8
38000	401C383M025AB8	16.30	10.10	14.60	16.70	1 3/8 X 3 1/8
45000	401C453M025BA8	13.60	10.60	15.90	17.30	2 X 2 1/8
48000	401C483M025AJ8	13.60	8.50	16.70	18.90	1 3/8 X 3 5/8
50000	401C503M025EH8	16.30	11.20	14.40	16.70	1 3/4 X 2 5/8
57000	401C573M025AC8	11.90	7.50	18.70	21.00	1 3/8 X 4 1/8
63000	401C633M025BH8	10.10	7.60	19.80	21.90	2 X 2 5/8
66000	401C663M025AD8	10.70	6.80	20.40	22.80	1 3/8 X 4 5/8
66000	401C663M025EB8	12.80	8.80	17.50	20.20	1 3/4 X 3 1/8
75000	401C753M025AE8	9.90	6.30	22.20	24.60	1 3/8 X 5 1/8
81000	401C813M025EJ8	10.70	7.40	19.70	22.60	1 3/4 X 3 5/8
83000	401C833M025BB8	8.00	6.10	23.40	25.80	2 X 3 1/8
84000	401C843M025AF8	9.20	5.90	23.90	26.40	1 3/8 X 5 5/8
96000	401C963M025EC8	9.30	6.50	21.80	25.00	1 3/4 X 4 1/8
100000	401C104M025BJ8	7.00	5.10	25.70	28.60	2 X 3 5/8
110000	401C114M025ED8	8.40	5.80	24.20	27.50	1 3/4 X 4 5/8
120000	401C124M025BC8	6.10	4.50	28.10	30.60	2 X 4 1/8
130000	401C134M025EE8	7.70	5.30	26.60	30.20	1 3/4 X 5 1/8
140000	401C144M025BD8	5.50	4.10	29.90	33.20	2 X 4 5/8
140000	401C144M025EF8	7.10	5.00	29.30	33.20	1 3/4 X 5 5/8
160000	401C164M025BE8	5.10	3.80	31.70	35.60	2 X 5 1/8
180000	401C184M025BF8	4.80	3.60	33.10	37.70	2 X 5 5/8
40 Vdc (60 Vdc Surge)						
8200	401C822M040AK8	44.20	25.90	7.60	8.80	1 3/8 X 1 5/8
12000	401C123M040AA8	30.20	18.30	9.70	11.40	1 3/8 X 2 1/8
20000	401C203M040EA8	24.70	16.50	11.00	13.10	1 3/4 X 2 1/8
22000	401C223M040AH8	22.10	13.60	11.90	13.80	1 3/8 X 2 5/8
23000	401C233M040AB8	17.80	10.70	13.70	16.50	1 3/8 X 3 1/8
27000	401C273M040BA8	14.70	11.10	15.10	17.10	2 X 2 1/8
28000	401C283M040AJ8	14.90	9.00	15.20	18.60	1 3/8 X 3 5/8
30000	401C303M040EH8	17.50	11.70	13.90	16.50	1 3/4 X 2 5/8
34000	401C343M040AC8	13.00	7.90	16.50	20.70	1 3/8 X 4 1/8
38000	401C383M040BH8	10.80	8.00	19.00	21.80	2 X 2 5/8
39000	401C393M040AD8	11.60	7.10	18.10	22.50	1 3/8 X 4 5/8
39000	401C393M040EB8	13.70	9.20	16.90	20.00	1 3/4 X 3 1/8
45000	401C453M040AE8	10.70	6.60	19.70	24.30	1 3/8 X 5 1/8
49000	401C493M040EJ8	11.40	7.70	19.10	22.50	1 3/4 X 3 5/8
50000	401C503M040BB8	8.60	6.30	22.50	25.70	2 X 3 1/8
50000	401C503M040AF8	9.90	6.20	21.30	26.10	1 3/8 X 5 5/8
58000	401C583M040EC8	9.90	6.70	21.10	24.80	1 3/4 X 4 1/8
61000	401C613M040BJ8	7.50	5.30	25.00	28.40	2 X 3 5/8
68000	401C683M040ED8	8.90	6.00	23.40	27.40	1 3/4 X 4 5/8
73000	401C733M040BC8	6.50	4.70	27.00	30.40	2 X 4 1/8
77000	401C773M040EE8	8.10	5.50	25.90	30.00	1 3/4 X 5 1/8
84000	401C843M040BD8	5.90	4.20	29.10	33.00	2 X 4 5/8
86000	401C863M040EF8	7.60	5.20	28.50	33.00	1 3/4 X 5 5/8
100000	401C104M040BE8	5.40	3.90	30.90	35.40	2 X 5 1/8
110000	401C114M040BF8	5.10	3.70	31.80	37.50	2 X 5 5/8
50 Vdc (75 Vdc Surge)						
5600	401C562M050AK8	46.60	27.30	7.20	8.40	1 3/8 X 1 5/8
8400	401C842M050AA8	30.20	19.30	9.20	10.80	1 3/8 X 2 1/8
11000	401C113M050AH8	22.50	14.30	11.60	13.10	1 3/8 X 2 5/8
14000	401C143M050EA8	28.30	18.90	10.00	11.80	1 3/4 X 2 1/8
15000	401C153M050AB8	18.10	11.30	13.40	15.70	1 3/8 X 3 1/8

Type 401C –55 °C to 105 °C Low-ESR, Wide Temperature Grade

Cap. (µF)	Catalog Part Number	ESR Max. 25 °C 120 Hz (mΩ)	ESR Max. 25 °C 20 kHz (mΩ)	Ripple Amps, 85 °C 120 Hz (A)	Ripple Amps, 85 °C 20 kHz (A)	Nominal Size D X L (in)
18000	401C183M050BA8	18.70	14.40	12.40	14.80	2 X 2 1/8
19000	401C193M050AJ8	15.10	9.50	14.60	17.80	1 3/8 X 3 5/8
20000	401C203M050EH8	20.00	13.40	12.70	15.00	1 3/4 X 2 5/8
23000	401C233M050AC8	13.00	8.30	15.30	19.90	1 3/8 X 4 1/8
26000	401C263M050BH8	13.70	10.20	15.90	18.90	2 X 2 5/8
27000	401C273M050AD8	12.20	7.40	16.70	21.70	1 3/8 X 4 5/8
27000	401C273M050EB8	15.60	10.50	15.50	18.20	1 3/4 X 3 1/8
30000	401C303M050AE8	11.20	6.80	18.10	23.40	1 3/8 X 5 1/8
33000	401C333M050EJ8	13.00	8.80	17.60	20.50	1 3/4 X 3 5/8
34000	401C343M050AF8	10.40	6.40	19.40	25.20	1 3/8 X 5 5/8
34000	401C343M050BB8	10.80	8.10	18.90	22.40	2 X 3 1/8
39000	401C393M050EC8	11.20	7.60	19.50	22.70	1 3/4 X 4 1/8
41000	401C413M050BJ8	9.30	6.80	22.60	25.00	2 X 3 5/8
46000	401C463M050ED8	10.00	6.80	21.70	25.20	1 3/4 X 4 5/8
50000	401C503M050BC8	8.10	5.90	24.30	26.90	2 X 4 1/8
52000	401C523M050EE8	9.10	6.20	24.10	27.80	1 3/4 X 5 1/8
58000	401C583M050EF8	8.40	5.80	26.60	30.60	1 3/4 X 5 5/8
58000	401C583M050BD8	7.20	5.30	26.10	29.20	2 X 4 5/8
60000	401C603M050BE8	6.50	4.80	28.00	31.70	2 X 5 1/8
70000	401C703M050BF8	6.10	4.50	28.90	33.90	2 X 5 5/8
	63 Vdc (90 Vdc Surge)					
4800	401C482M063AK8	50.00	28.20	6.90	8.30	1 3/8 X 1 5/8
7200	401C722M063AA8	32.40	19.60	8.90	10.70	1 3/8 X 2 1/8
11000	401C113M063AH8	24.10	14.70	11.20	13.00	1 3/8 X 2 5/8
12000	401C123M063EA8	26.00	19.30	9.90	11.80	1 3/4 X 2 1/8
13000	401C133M063AB8	19.00	11.60	13.00	15.60	1 3/8 X 3 1/8
15000	401C153M063BA8	19.30	14.70	11.90	14.80	2 X 2 1/8
16000	401C163M063AJ8	15.80	9.70	14.20	17.70	1 3/8 X 3 5/8
17000	401C173M063EH8	18.30	13.70	12.50	14.90	1 3/4 X 2 5/8
19000	401C193M063AC8	13.60	8.50	14.90	19.80	1 3/8 X 4 1/8
22000	401C223M063BH8	14.10	10.40	15.30	18.90	2 X 2 5/8
23000	401C233M063EB8	12.70	7.60	16.30	21.50	1 3/8 X 4 5/8
23000	401C233M063AD8	14.30	10.70	15.30	18.10	1 3/4 X 3 1/8
26000	401C263M063AE8	11.60	7.00	17.70	23.30	1 3/8 X 5 1/8
28000	401C283M063EJ8	11.90	8.90	17.30	20.40	1 3/4 X 3 5/8
29000	401C293M063BB8	10.80	6.60	19.10	25.10	1 3/8 X 5 5/8
29000	401C293M063AF8	11.10	8.20	18.10	22.40	2 X 3 1/8
34000	401C343M063EC8	10.30	7.70	19.20	22.60	1 3/4 X 4 1/8
36000	401C363M063BJ8	9.60	6.90	22.20	24.90	2 X 3 5/8
39000	401C393M063ED8	9.20	6.90	21.40	25.10	1 3/4 X 4 5/8
42000	401C423M063BC8	8.30	6.00	24.00	26.80	2 X 4 1/8
45000	401C453M063EE8	8.30	6.30	23.70	27.70	1 3/4 X 5 1/8
50000	401C503M063BD8	7.70	5.90	26.30	30.50	1 3/4 X 5 5/8
50000	401C503M063EF8	7.40	5.40	25.80	29.10	2 X 4 5/8
59000	401C593M063BE8	6.70	4.80	27.70	31.70	2 X 5 1/8
66000	401C663M063BF8	6.20	4.50	28.60	33.80	2 X 5 5/8

Cap. (µF)	Catalog Part Number	ESR Max. 25 °C 120 Hz (mΩ)	ESR Max. 25 °C 20 kHz (mΩ)	Ripple Amps, 85 °C 120 Hz (A)	Ripple Amps, 85 °C 20 kHz (A)	Nominal Size D X L (in)
	75 Vdc (100 Vdc Surge)					
2500	401C252M075AK8	93.80	46.00	5.70	6.40	1 3/8 X 1 5/8
4100	401C412M075AA8	59.00	29.10	7.60	8.60	1 3/8 X 2 1/8
6600	401C662M075AH8	39.80	19.70	9.70	10.70	1 3/8 X 2 5/8
7900	401C792M075EA8	41.00	21.20	9.00	10.70	1 3/4 X 2 1/8
8200	401C822M075AB8	30.30	15.10	11.40	13.10	1 3/8 X 3 1/8
10000	401C103M075BA8	30.80	17.50	9.00	14.30	2 X 2 1/8
10000	401C103M075AJ8	24.60	12.40	12.20	15.00	1 3/8 X 3 5/8
11000	401C113M075EH8	28.70	14.90	11.40	13.60	1 3/4 X 2 5/8
12000	401C123M075AC8	20.90	10.70	12.90	17.00	1 3/8 X 4 1/8
14000	401C143M075BH8	18.30	9.40	14.20	18.70	1 3/8 X 4 5/8
14000	401C143M075AD8	21.70	12.30	13.00	17.80	2 X 2 5/8
15000	401C153M075EB8	22.30	11.70	13.90	16.60	1 3/4 X 3 1/8
16000	401C163M075AE8	16.30	8.50	15.50	20.40	1 3/8 X 5 1/8
18000	401C183M075BB8	14.90	7.90	16.90	22.20	1 3/8 X 5 5/8
18000	401C183M075EJ8	18.30	9.70	15.80	18.70	1 3/4 X 3 5/8
18000	401C183M075AF8	16.80	9.70	15.40	21.60	2 X 3 1/8
22000	401C223M075EC8	15.70	8.30	17.60	20.80	1 3/4 X 4 1/8
23000	401C233M075BJ8	13.90	8.10	21.30	24.10	2 X 3 5/8
25000	401C253M075ED8	13.80	7.40	19.70	23.20	1 3/4 X 4 5/8
27000	401C273M075BC8	12.00	7.00	20.40	26.00	2 X 4 1/8
28000	401C283M075EE8	12.40	6.70	21.80	25.70	1 3/4 X 5 1/8
31000	401C313M075BD8	10.60	6.20	22.30	28.30	2 X 4 5/8
33000	401C333M075EF8	12.80	6.20	24.30	28.40	1 3/4 X 5 5/8
37000	401C373M075BE8	9.30	5.60	24.40	30.80	2 X 5 1/8
41000	401C413M075BF8	8.60	5.20	26.20	32.90	2 X 5 5/8
	100 Vdc (140 Vdc Surge)					
1400	401C142M100AK8	118.00	34.70	4.30	6.20	1 3/8 X 1 5/8
2200	401C222M100AA8	73.10	20.90	5.90	8.50	1 3/8 X 2 1/8
3500	401C352M100AH8	46.50	14.00	7.50	10.60	1 3/8 X 2 5/8
4100	401C412M100EA8	44.70	17.50	8.00	10.30	1 3/4 X 2 1/8
4600	401C462M100AB8	36.00	11.00	9.10	12.90	1 3/8 X 3 1/8
5300	401C532M100BA8	37.50	16.50	8.20	11.90	2 X 2 1/8
5700	401C572M100AJ8	29.60	9.20	10.50	14.70	1 3/8 X 3 5/8
6000	401C602M100EH8	31.30	12.40	10.20	13.10	1 3/4 X 2 5/8
6800	401C682M100AC8	25.30	8.10	11.90	16.50	1 3/8 X 4 1/8
7500	401C752M100BH8	26.30	11.70	10.60	15.30	2 X 2 5/8
7900	401C792M100EB8	22.20	7.20	13.20	18.10	1 3/8 X 4 5/8
7900	401C792M100AD8	24.20	9.70	12.50	15.90	1 3/4 X 3 1/8
9000	401C902M100AE8	19.90	6.60	14.50	19.80	1 3/8 X 5 1/8
9700	401C972M100EJ8	19.90	8.10	14.10	18.00	1 3/4 X 3 5/8
10000	401C103M100BB8	20.40	9.20	12.60	18.20	2 X 3 1/8
10000	401C103M100AF8	18.10	6.20	15.80	21.40	1 3/8 X 5 5/8
12000	401C123M100BJ8	15.80	6.90	16.30	23.60	2 X 4 1/8
12000	401C123M100EC8	17.00	7.00	15.80	20.00	1 3/4 X 4 1/8
12000	401C123M100BC8	16.90	7.60	15.50	22.30	2 X 3 5/8

Type 401C –55 °C to 105 °C Low-ESR, Wide Temperature Grade

Cap. (µF)	Catalog Part Number	ESR Max. 25 °C 120 Hz (mΩ)	ESR Max. 25 °C 20 kHz (mΩ)	Ripple Amps, 85 °C 120 Hz (A)	Ripple Amps, 85 °C 20 kHz (A)	Nominal Size D X L (in)
13000	401C133M100ED8	14.90	6.20	17.60	22.20	1 3/4 X 4 5/8
15000	401C153M100BD8	13.40	5.70	19.60	24.60	1 3/4 X 5 1/8
15000	401C153M100EE8	13.60	6.30	17.90	25.60	2 X 4 5/8
17000	401C173M100EF8	13.80	5.30	21.80	27.20	1 3/4 X 5 5/8
18000	401C183M100BE8	11.80	5.50	19.80	28.10	2 X 5 1/8
20000	401C203M100BF8	10.80	5.10	21.40	30.30	2 X 5 5/8
150 Volts (200 Volts Surge)						
710	401C711M150AK8	342.00	245.00	2.60	3.60	1 3/8 X 1 5/8
1100	401C112M150AA8	228.00	164.00	3.70	5.00	1 3/8 X 2 1/8
1500	401C152M150AH8	159.00	114.00	4.50	6.30	1 3/8 X 2 5/8
1700	401C172M150EA8	145.00	101.00	5.30	7.10	1 3/4 X 2 1/8
1900	401C192M150AB8	122.00	87.20	5.50	7.70	1 3/8 X 3 1/8
2500	401C252M150AJ8	112.00	78.80	7.00	8.60	2 X 2 1/8
2500	401C252M150BA8	98.80	71.00	6.40	8.90	1 3/8 X 3 5/8
2600	401C262M150EH8	100.00	70.30	6.70	9.00	1 3/4 X 2 5/8
2900	401C292M150AC8	83.40	59.90	7.40	10.20	1 3/8 X 4 1/8
3400	401C342M150AD8	80.20	57.00	8.90	11.00	2 X 2 5/8
3400	401C342M150EB8	77.00	54.00	8.30	11.10	1 3/4 X 3 1/8
3400	401C342M150BH8	72.30	52.00	8.20	11.30	1 3/8 X 4 5/8
3900	401C392M150AE8	63.90	46.00	9.20	12.40	1 3/8 X 5 1/8
4200	401C422M150EJ8	62.60	43.90	9.50	12.60	1 3/4 X 3 5/8
4400	401C442M150AF8	62.90	41.40	10.10	13.50	1 3/8 X 5 5/8
4500	401C452M150BB8	60.10	44.20	10.70	13.20	2 X 3 1/8
5000	401C502M150EC8	52.90	37.20	10.70	14.10	1 3/4 X 4 1/8
5500	401C552M150BJ8	48.60	36.30	12.90	16.20	2 X 3 5/8
5800	401C582M150ED8	45.90	32.30	12.00	15.80	1 3/4 X 4 5/8
6600	401C662M150BC8	41.10	31.20	13.70	17.60	2 X 4 1/8
6700	401C672M150EE8	40.60	28.60	13.50	17.50	1 3/4 X 5 1/8
7300	401C732M150BD8	38.00	28.00	14.70	19.20	2 X 4 5/8
7400	401C742M150EF8	36.50	25.70	15.10	19.30	1 3/4 X 5 5/8
8400	401C842M150BE8	34.10	25.20	15.70	20.90	2 X 5 1/8
9400	401C942M150BF8	31.00	23.00	16.80	22.60	2 X 5 5/8
200 Vdc (250 Vdc Surge)						
520	401C521M200AK8	370.00	233.00	2.50	3.50	1 3/8 X 1 5/8
810	401C811M200AA8	247.00	156.00	3.40	4.90	1 3/8 X 2 1/8
1100	401C112M200AH8	172.00	111.00	4.20	6.10	1 3/8 X 2 5/8
1300	401C132M200EA8	151.00	96.20	4.80	7.00	1 3/4 X 2 1/8
1500	401C152M200AB8	132.00	86.60	5.20	7.50	1 3/8 X 3 1/8
1800	401C182M200AJ8	124.00	80.80	6.60	8.40	2 X 2 1/8
1800	401C182M200BA8	107.00	71.80	6.00	8.80	1 3/8 X 3 5/8
1900	401C192M200EH8	105.00	72.40	6.20	8.90	1 3/4 X 2 5/8
2200	401C222M200AC8	90.20	61.80	6.90	10.10	1 3/8 X 4 1/8
2500	401C252M200EB8	89.00	58.10	8.40	10.80	2 X 2 5/8
2500	401C252M200AD8	81.80	54.40	7.70	11.00	1 3/8 X 4 5/8
2500	401C252M200BH8	80.40	55.60	7.60	10.90	1 3/4 X 3 1/8
2800	401C282M200AE8	75.40	49.20	8.60	12.00	1 3/8 X 5 1/8
3100	401C312M200EJ8	65.40	45.20	8.70	12.40	1 3/4 X 3 5/8
3300	401C332M200AF8	66.60	44.70	10.10	12.90	2 X 3 1/8
3300	401C332M200BB8	70.10	45.10	9.50	12.90	1 3/8 X 5 5/8
3700	401C372M200EC8	55.20	38.20	9.80	13.90	1 3/4 X 4 1/8
4000	401C402M200BJ8	53.90	36.40	12.00	15.90	2 X 3 5/8
4400	401C442M200ED8	47.80	33.20	11.00	15.60	1 3/4 X 4 5/8
4800	401C482M200BC8	45.50	30.80	12.90	17.30	2 X 4 1/8
4900	401C492M200EE8	42.30	29.40	12.40	17.50	1 3/4 X 5 1/8
5500	401C552M200EF8	42.10	27.40	14.00	18.90	2 X 4 5/8
5500	401C552M200BD8	38.00	26.40	13.90	19.50	1 3/4 X 5 5/8
6200	401C622M200BE8	37.70	24.30	14.80	20.60	2 X 5 1/8
7000	401C702M200BF8	34.30	21.90	15.50	22.20	2 X 5 5/8
250 Vdc (300 Vdc Surge)						
380	401C381M250AK8	510.00	285.00	2.20	3.30	1 3/8 X 1 5/8
610	401C611M250AA8	309.00	190.00	3.10	4.70	1 3/8 X 2 1/8
860	401C861M250AH8	215.00	132.00	3.90	6.00	1 3/8 X 2 5/8
960	401C961M250EA8	222.00	113.00	4.40	6.60	1 3/4 X 2 1/8
1100	401C112M250AB8	165.00	101.00	4.70	7.30	1 3/8 X 3 1/8
1300	401C132M250AJ8	134.00	82.50	5.50	8.30	1 3/8 X 3 5/8
1400	401C142M250EH8	149.00	91.20	5.90	8.30	2 X 2 1/8
1400	401C142M250BA8	154.00	78.60	5.60	8.50	1 3/4 X 2 5/8
1700	401C172M250AC8	101.00	62.40	6.90	10.30	1 3/8 X 4 5/8
1700	401C172M250AD8	100.00	62.20	6.60	10.00	1 3/8 X 4 1/8
1800	401C182M250EB8	118.00	60.40	6.90	10.40	1 3/4 X 3 1/8
1900	401C192M250BH8	103.00	63.30	7.60	10.60	2 X 2 5/8
2000	401C202M250AE8	88.80	54.90	7.70	11.20	1 3/8 X 5 1/8
2300	401C232M250EJ8	79.30	49.20	8.60	12.20	1 3/8 X 5 5/8
2300	401C232M250AF8	96.00	49.10	7.90	11.80	1 3/4 X 3 5/8
2500	401C252M250BB8	79.30	48.70	9.10	12.70	2 X 3 1/8
2800	401C282M250EC8	81.00	41.50	8.90	13.30	1 3/4 X 4 1/8
3000	401C302M250BJ8	64.50	39.70	11.00	15.70	2 X 3 5/8
3100	401C312M250ED8	70.20	36.00	10.10	14.90	1 3/4 X 4 5/8
3600	401C362M250EE8	62.00	31.90	11.30	16.70	1 3/4 X 5 1/8
3700	401C372M250BC8	54.50	33.60	11.90	17.20	2 X 4 1/8
3900	401C392M250EF8	55.60	28.60	12.70	18.60	1 3/4 X 5 5/8
4200	401C422M250BD8	47.30	29.20	12.80	18.70	2 X 4 5/8
4800	401C482M250BE8	41.90	25.90	13.60	20.00	2 X 5 1/8
5300	401C532M250BF8	37.60	23.30	14.40	21.20	2 X 5 5/8