

+125°C Non-Polar, Miniature Aluminum Capacitors

Features-

- Extended Temperature Range
- Exceptional Capacitance Stability
- Low DC Leakage Current
- Tantalum Replacement
- Military Version – Mil-PRF-39018/02

General Specifications-

Operating Temperature:
-55 to +125°C

Voltage Range:
7.0 – 250 VDC

Capacitance Range:
0.68μF to 680μF

Capacitance Tolerance:
-10%/+50% (Std.)

Case Size Range:
0.296" X 1.000" – 0.390" X 2.812"

Termination:
Axial Leads.

Life Validation Test: 2,000hrs @ +125°C
 Δ CAP \pm 15% From initial measurement.
 Δ ESR \leq 1.30X Initial specified limit.
 Δ DCL \leq Initial specified limit.

Shelf Test: 500hrs @ +125°C
 Δ CAP \leq 10% From initial measurement.
 Δ ESR \leq 1.20X Initial specified limit.
 Δ DCL \leq 2.0X Initial specified limit.

DC Leakage Current: (After 5 min. charge)
See Standard Ratings Table.



Ripple Current Multipliers:

Temperature:

Ambient Temp.	Multiplier
+125°C	1.00
+105°C	2.24
+95°C	2.65
+85°C	3.00
+65°C	3.61

Frequency (Hz)

VDC	50 – 60	300 – 400	>100k
7 – 60	0.85	1.10	1.15
61 – 250	0.83	1.15	1.20

Low Temperature Performance:

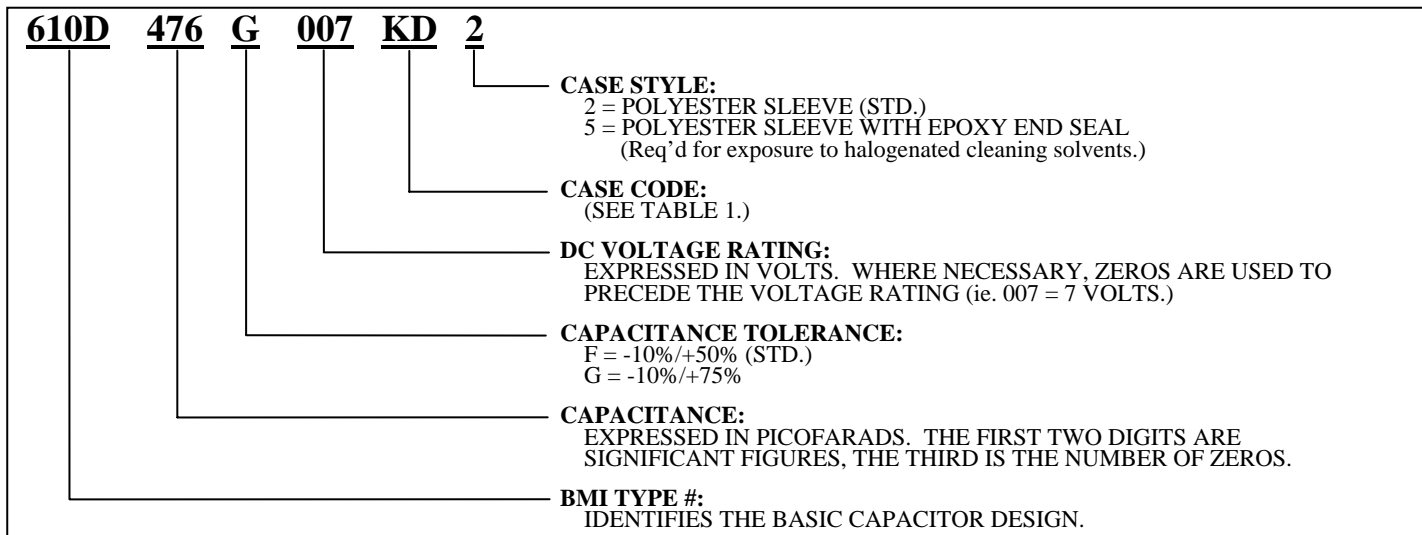
Capacitance Ratio $C^{-55°C}/C^{+25°C}$ min. @ 120Hz.

Rated 125°C VDC	% Capacitance Change at		
	-55°C	+85°C	+125°C
5 thru 15	-30	+15	+20
20 & Up	-25	+15	+20

Impedance:

When measured at a temperature of -55°C and a frequency of 120Hz, the impedance shall not exceed the values listed in the Standard Ratings Table.

PART NUMBER BREAK-DOWN:



Axial-Leaded Capacitor Dimensions

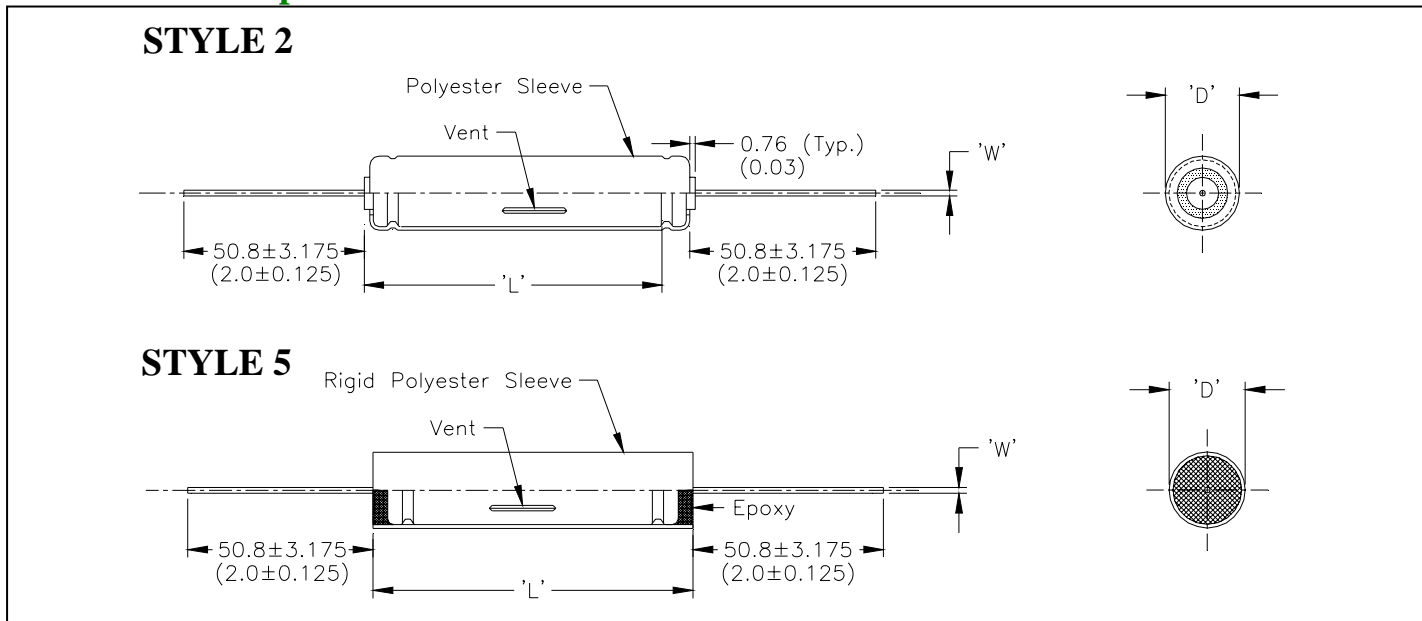


Table 1. Case Dimensions mm(in.)

CASE CODE	NOMINAL		STYLE 2		STYLE 5 (w/epoxy end-seal)		WIRE GAUGE 'W'
	'D'	'L'	'D' MAX.	'L' MAX.	'D' MAX.	'L' MAX.	
KD	7.14 (0.281)	23.83 (0.938)	7.72 (0.304)	25.40 (1.000)	7.72 (0.304)	28.58 (1.125)	No. 20 AWG (0.032")
DE	9.53 (0.375)	28.57 (1.125)	10.11 (0.398)	30.15 (1.187)	10.11 (0.398)	33.33 (1.312)	No. 20 AWG (0.032")
DU	9.53 (0.375)	36.53 (1.438)	10.11 (0.398)	38.10 (1.500)	10.11 (0.398)	41.28 (1.625)	No. 20 AWG (0.032")
DL	9.53 (0.375)	53.98 (2.125)	10.11 (0.398)	55.55 (2.187)	10.11 (0.398)	58.73 (2.312)	No. 20 AWG (0.032")
DR	9.53 (0.375)	69.85 (2.750)	10.11 (0.398)	71.42 (2.812)	10.11 (0.398)	74.60 (2.937)	No. 20 AWG (0.032")

STANDARD RATINGS FOR TYPE 610D

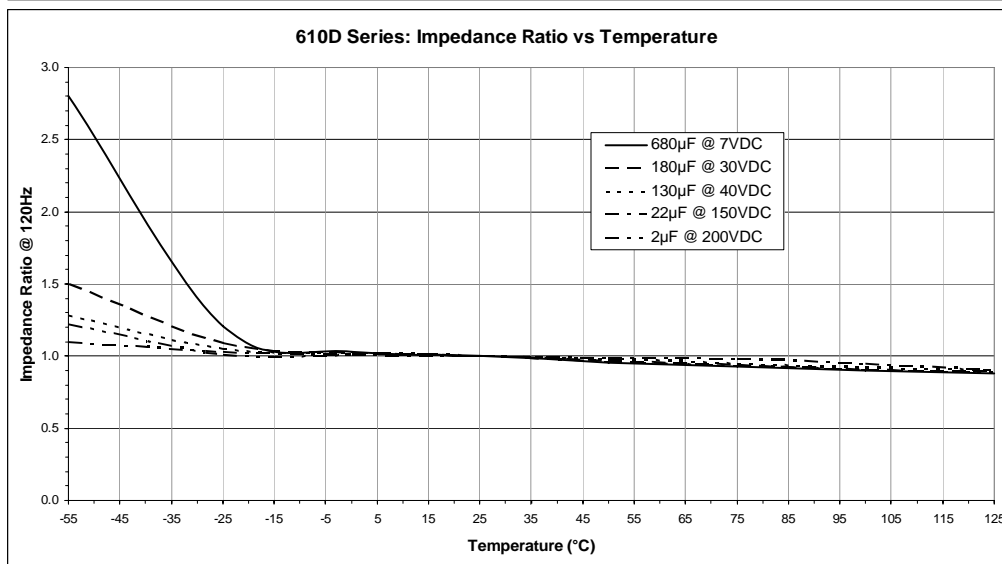
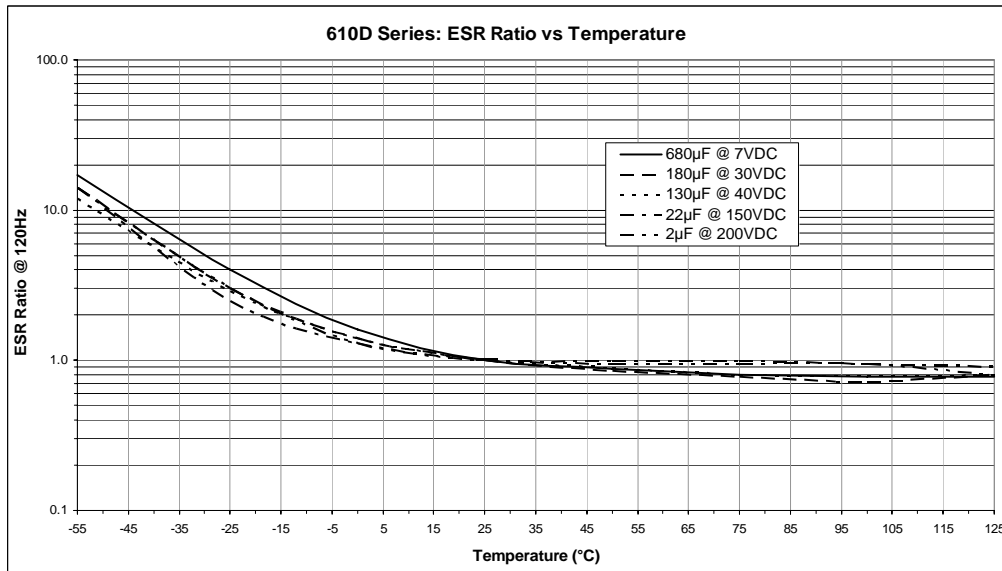
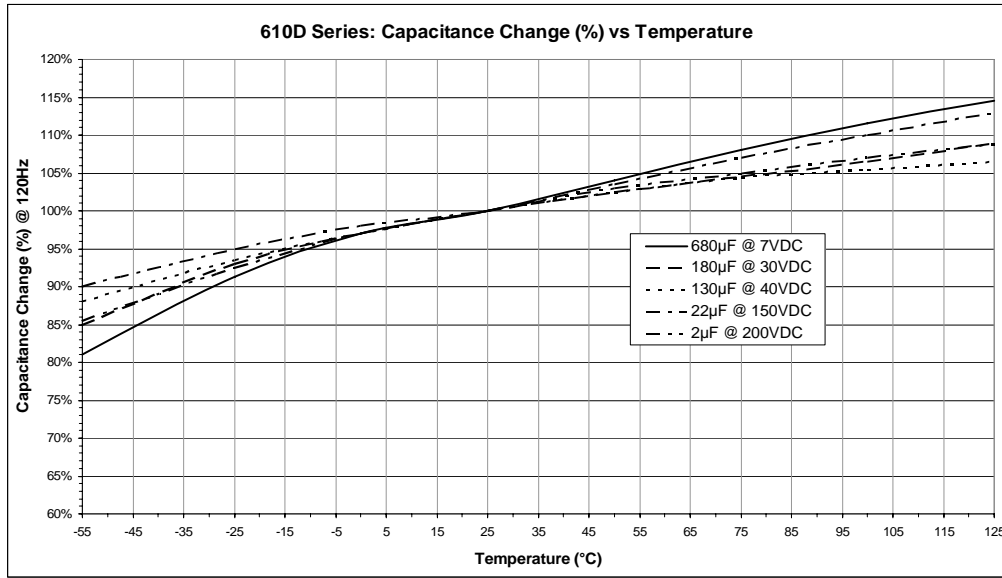
Rated Capacitance (μF)	Catalog Number	Nominal Case Size D x L (mm)	Max. DCL +25°C (μA)	Max. DCL +85°C, +125°C (μA)	Max. ESR +25°C 120Hz (Ω)	Max. Z -55°C 120Hz (Ω)	Max. Ripple Current +125°C 120Hz (mA_{rms})
7 VOLTS DC WORKING @ 85°C; 5 VOLTS DC SURGE @ 125°C							
47	610D476G007KD2	7.14 x 23.81	4	12	5.80	64	100
90	610D906G007DE2	9.53 x 28.57	7	21	3.00	33	180
220	610D227G007DU2	9.53 x 36.51	10	30	1.20	14	300
470	610D477G007DL2	9.53 x 53.97	16	48	0.58	6.4	500
680	610D687G007DR2	9.53 x 69.85	24	72	0.40	4.4	700
10 VOLTS DC WORKING @ 85°C; 7 VOLTS DC SURGE @ 125°C							
39	610D396G010KD2	7.14 x 23.81	4	12	7.10	77	90
70	610D706G010DE2	9.53 x 28.57	7	21	3.90	43	160
180	610D187G010DU2	9.53 x 36.51	10	30	1.50	17	270
330	610D337G010DL2	9.53 x 53.97	16	48	0.82	9.1	440
470	610D477G010DR2	9.53 x 69.85	24	72	0.58	6.4	600
15 VOLTS DC WORKING @ 85°C; 10 VOLTS DC SURGE @ 125°C							
33	610D336G015KD2	7.14 x 23.81	4	12	8.30	91	80
55	610D556G015DE2	9.53 x 28.57	7	21	5.00	55	140
120	610D127G015DU2	9.53 x 36.51	9	27	2.30	25	220
150	610D157G015DU2	9.53 x 36.51	10	30	1.80	20	250
270	610D277G015DL2	9.53 x 53.97	16	48	1.00	11	400
20 VOLTS DC WORKING @ 85°C; 15 VOLTS DC SURGE @ 125°C							
22	610D226G020KD2	7.54 x 25.40	5	15	12.0	136	65
40	610D406G020DE2	9.53 x 28.57	7	21	6.90	75	120
100	610D107G020DU2	9.53 x 36.51	10	30	2.80	30	260
200	610D207G020DL2	9.53 x 53.97	16	48	1.42	15	340
300	610D307G020DR2	9.53 x 69.85	24	72	0.92	10	480
30 VOLTS DC WORKING @ 85°C; 20 VOLTS DC SURGE @ 125°C							
15	610D156G030KD2	7.54 x 25.40	5	15	13.0	130	65
27	610D276G030DE2	9.53 x 28.57	7	21	7.40	75	120
56	610D566G030DU2	9.53 x 36.51	9	27	3.60	36	180
68	610D686G030DU2	9.53 x 36.51	10	30	2.90	30	190
120	610D127G030DL2	9.53 x 53.97	15	45	1.70	17	310
150	610D157G030DL2	9.53 x 53.97	16	48	1.30	13	340
180	610D187G030DR2	9.53 x 69.85	24	72	1.10	11	440
40 VOLTS DC WORKING @ 85°C; 30 VOLTS DC SURGE @ 125°C							
9.0	610D905G040KD2	7.54 x 25.40	6	18	22.0	220	50
17	610D176G040DE2	9.53 x 28.57	8	24	12.0	150	90
40	610D406G040DU2	9.53 x 36.51	10	30	5.00	50	150
85	610D856G040DL2	9.53 x 53.97	16	48	2.40	24	260
130	610D137G040DR2	9.53 x 69.85	24	72	1.50	15	370
50 VOLTS DC WORKING @ 85°C; 40 VOLTS DC SURGE @ 125°C							
6.8	610D685G050KD2	7.54 x 25.40	6	18	29.0	300	40
12	610D126G050DE2	9.53 x 28.57	8	24	17.0	170	80
27	610D276G050DU2	9.53 x 36.51	10	30	7.40	74	120
56	610D566G050DL2	9.53 x 53.97	16	48	3.60	36	210
82	610D826G050DR2	9.53 x 69.85	24	72	2.40	23	290

STANDARD RATINGS FOR TYPE 610D

Rated Capacitance (μF)	Catalog Number	Nominal Case Size D x L (mm)	Max. DCL +25°C (μA)	Max. DCL +85°C, +125°C (μA)	Max. ESR +25°C 120Hz (Ω)	Max. Z -55°C 120Hz (Ω)	Max. Ripple Current +125°C 120Hz (mA _{rms})
60 VOLTS DC WORKING @ 85°C; 40 VOLTS DC SURGE @ 125°C							
5.0	610D505G060KD2	7.54 x 25.40	7	21	40.0	400	35
9.0	610D905G060DE2	9.53 x 28.57	9	27	22.0	220	65
24	610D246G060DU2	9.53 x 36.51	11	33	8.30	83	110
47	610D476G060DL2	9.53 x 53.97	16	48	4.30	43	200
70	610D706G060DR2	9.53 x 69.85	24	72	2.90	29	270
75 VOLTS DC WORKING @ 85°C; 60 VOLTS DC SURGE @ 125°C							
3.9	610D395F075KD2	7.54 x 25.40	7	21	51.0	510	30
8.0	610D805F075DE2	9.53 x 28.57	9	27	25.0	250	60
15	610D156F075DU2	9.53 x 36.51	10	30	13.3	130	90
18	610D186F075DU2	9.53 x 36.51	11	33	11.0	110	100
39	610D396F075DL2	9.53 x 53.97	16	48	5.10	51	170
56	610D566F075DR2	9.53 x 69.85	24	72	3.60	36	240
100 VOLTS DC WORKING @ 85°C; 75 VOLTS DC SURGE @ 125°C							
2.2	610D225F100KD2	7.54 x 25.40	8	12	91.0	910	25
4.0	610D405F100DE2	9.53 x 28.57	12	36	50.0	500	45
12	610D126F100DU2	9.53 x 36.51	16	48	17.0	170	80
22	610D226F100DL2	9.53 x 53.97	18	54	9.10	91	130
33	610D336F100DR2	9.53 x 69.85	28	84	6.00	61	180
150 VOLTS DC WORKING @ 85°C; 100 VOLTS DC SURGE @ 125°C							
1.8	610D185F150KD2	7.54 x 25.40	10	30	110.0	1,100	20
3.0	610D305F150DE2	9.53 x 28.57	12	36	67.0	670	40
5.6	610D565F150DU2	9.53 x 36.51	14	42	36.0	360	55
8.2	610D825F150DU2	9.53 x 36.51	16	48	24.0	230	70
12	610D126F150DL2	9.53 x 53.97	18	54	17.0	170	100
15	610D156F150DL2	9.53 x 53.97	20	60	13.0	130	110
22	610D226F150DR2	9.53 x 69.85	28	84	9.10	91	150
200 VOLTS DC WORKING @ 85°C; 150 VOLTS DC SURGE @ 125°C							
1.0	610D105F200KD2	7.54 x 25.40	12	36	200.0	2,000	15
2.0	610D205F200DE2	9.53 x 28.57	16	48	100.0	1,000	30
5.0	610D505F200DU2	9.53 x 36.51	20	60	40.0	400	50
10	610D106F200DL2	9.53 x 53.97	24	72	20.0	200	90
15	610D156F200DR2	9.53 x 69.85	32	96	13.0	130	120
250 VOLTS DC WORKING @ 85°C; 200 VOLTS DC SURGE @ 125°C							
0.68	610D684F250KD2	7.54 x 25.40	14	42	290.0	3,000	15
1.0	610D105F250DE2	9.53 x 28.57	18	54	200.0	2,000	20
3.3	610D335F250DU2	9.53 x 36.51	22	66	60.0	610	40
6.8	610D685F250DL2	9.53 x 53.97	26	78	29.0	300	70
10	610D106F250DR2	9.53 x 69.85	36	108	20.0	200	100

610D TYPICAL PERFORMANCE PROFILES

TEMPERATURE CHARACTERISTICS



610D TYPICAL PERFORMANCE PROFILES

FREQUENCY CHARACTERISTICS

