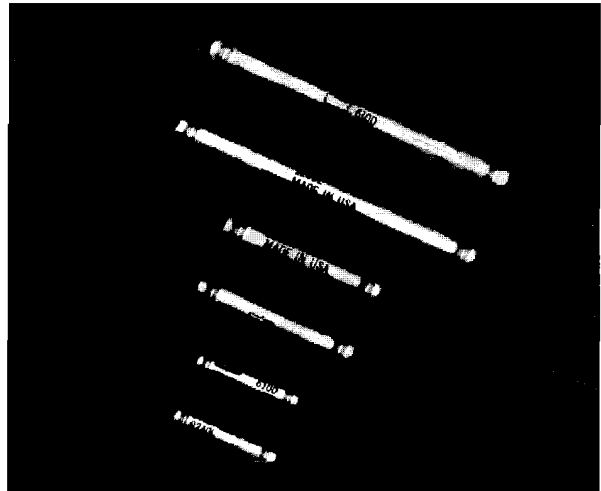


+ 125°C Non-Polar, Miniature Aluminum Capacitors

Features —

- Extended Temperature Range
- Exceptional Capacitance Stability
- Low DC Leakage Current
- Tantalum Foil Replacement
- Mil Version — MIL-C-39018/02



L65-05

General Specifications —

Operating Temperature:
– 55°C to + 125°C.

Voltage Range: 7 - 250 VDC.

Capacitance Range: 0.68μF - 680μF.

Capacitance Tolerance: –10%, +50%.

Case Size Range: 0.296" x 1.000" - 0.390" x 2.812"

Termination: Axial Leads.

Life Validation Test: 2000 hours @ +125°C:

- Δ CAP ± 15% from initial measurement.
- Δ ESR < 1.3x initial specified limit.
- Δ DCL < initial specified limit.

Shelf Test: 500 hrs @ + 125°C:

- C < 10% from initial measurement.
- Δ ESR < 1.2x initial specified limit.
- Δ DCL < 2.0x initial specified limit.

DC Leakage Current: 5 min. charge time.
See Standard Ratings table.

Performance Characteristics —
SEE PAGE 2.

Ripple Current Multipliers:

TEMPERATURE

Ambient Temp.	Multipliers
+ 125°C	1.0
+ 105°C	2.24
+ 95°C	2.65
+ 85°C	3.0
+ 65°C	3.61

FREQUENCY Hz

VDC	50-60	100-120	300-400	>100K
6-60	0.85	1.0	1.10	1.15
61-250	0.83	1.0	1.15	1.20

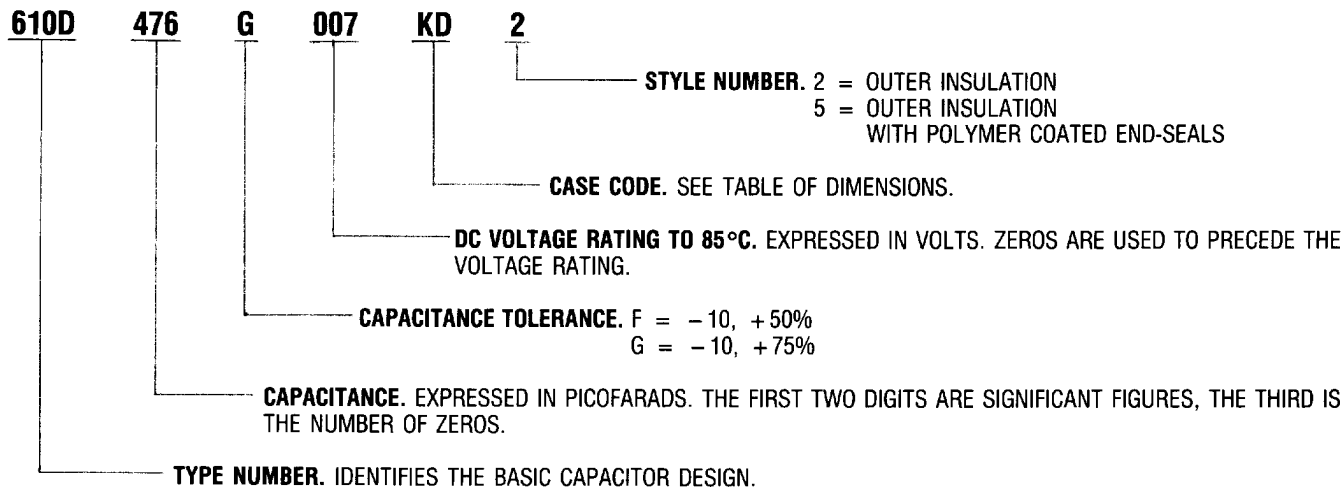
Low Temperature Performance:

Capacitance. The maximum allowable capacitance change with temperature from + 25°C shall be in accordance with the following table:

Rated Voltage at 125°C	Per Cent Capacitance Change at		
	– 55°C	+ 85°C	+ 125°C
5 thru 15	– 30	+ 15	+ 20
20 and up	– 25	+ 15	+ 20

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

Catalog Numbering System



DIMENSIONS IN INCHES

Case Code	With Outer Insulation		Typical Weight (Ounces)
	Diam. (± 0.031)	Length* (Max.)	
KD	0.296	1.000	.067
DE	0.390	1.187	.138
DU	0.390	1.500	.173
DL	0.390	2.187	.247
DR	0.390	2.812	.303

*Style 2. For Style 5 increase the maximum length by 0.125".

DIMENSIONS IN MILLIMETERS

Case Code	With Outer Insulation		Typical Weight (Grams)
	Diam. (± 0.79)	Length* (Max.)	
KD	7.54	25.40	1.9
DE	9.92	30.16	3.9
DU	9.92	38.10	4.9
DL	9.92	55.56	7.0
DR	9.92	71.42	8.6

*Style 2. For Style 5 increase the maximum length by 3.18 mm.



STANDARD RATINGS

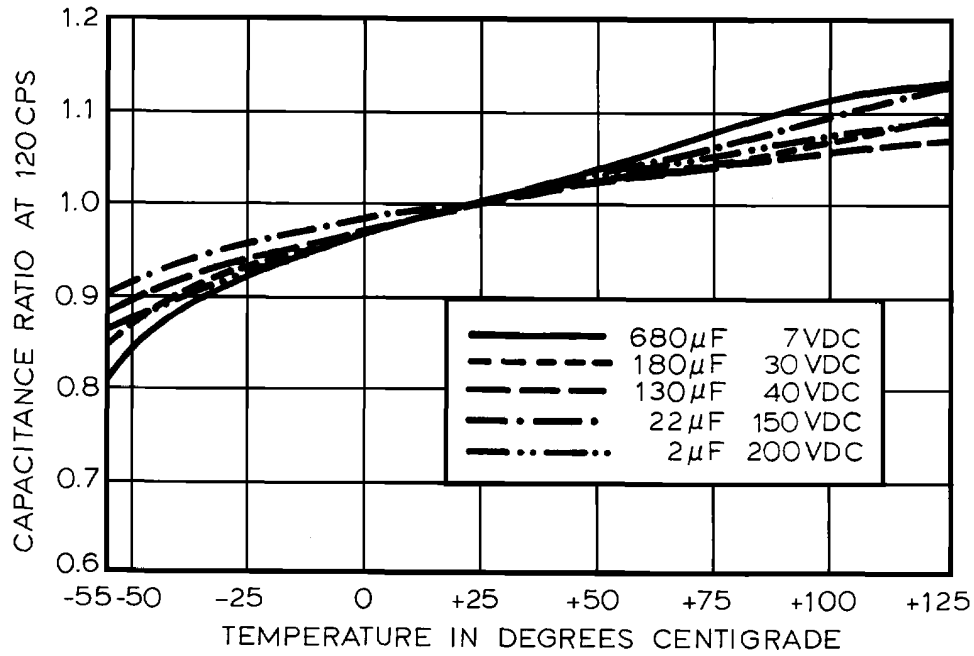
μF	Catalog Number*	Case Size (mm)			Max. Impedance @ -55°C, 120Hz	Max. DC Leakage Current (μA)			Max. ESR @ +25°C 120Hz (Ω)	Max. Ripple Current @ +125°C 120Hz (mA)
		D	x	L		@ +25°C	@ +85°C & +125°C			
7 VOLTS DC WORKING @ +85°C; 5 VOLTS DC WORKING @ +125°C										
47	610D476G007KD2	7.54	x	25.4	64	4	12	5.8	100	
90	610D906G007DE2	9.92	x	30.16	33	7	21	3.0	180	
220	610D227G007DU2	9.92	x	38.1	14	10	30	1.2	300	
470	610D477G007DL2	9.92	x	55.56	6.4	16	48	0.58	500	
680	610D687G007DR2	9.92	x	71.44	4.4	24	72	0.40	700	
10 VOLTS DC WORKING @ +85°C; 7 VOLTS DC WORKING @ +125°C										
39	610D396G010KD2	7.54	x	25.4	77	4	12	7.1	90	
70	610D706G010DE2	9.92	x	30.16	43	7	21	3.9	160	
180	610D187G010DU2	9.92	x	38.1	17	10	30	1.5	270	
330	610D337G010DL2	9.92	x	55.56	9.1	16	48	0.82	440	
470	610D477G010DR2	9.92	x	71.44	6.4	24	72	0.58	600	
15 VOLTS DC WORKING @ +85°C; 10 VOLTS DC WORKING @ +125°C										
33	610D336G015KD2	7.54	x	25.4	91	4	12	8.3	80	
55	610D556G015DE2	9.92	x	30.16	55	7	21	5.0	140	
120	610D127G015DU2	9.92	x	38.1	25	9	27	2.3	220	
150	610D157G015DU2	9.92	x	38.1	20	10	30	1.8	250	
270	610D277G015DL2	9.92	x	55.56	11	16	48	1.0	400	
390	610D397G015DR2	9.92	x	71.44	7.7	24	72	0.70	550	
20 VOLTS DC WORKING @ +85°C; 15 VOLTS DC WORKING @ +125°C										
22	610D226G020KD2	7.54	x	25.4	136	5	15	12	65	
40	610D406G020DE2	9.92	x	30.16	75	7	21	6.9	120	
100	610D107G020DU2	9.92	x	38.1	30	10	30	2.8	260	
200	610D207G020DL2	9.92	x	55.56	15	16	48	1.42	340	
300	610D307G020DR2	9.92	x	71.44	10	24	72	0.92	480	
30 VOLTS DC WORKING @ +85°C; 20 VOLTS DC WORKING @ +125°C										
15	610D156G030KD2	7.54	x	25.4	130	5	15	13	65	
27	610D276G030DE2	9.92	x	30.16	75	7	21	7.4	120	
56	610D566G030DU2	9.92	x	38.1	36	9	27	3.6	180	
68	610D686G030DU2	9.92	x	38.1	30	10	30	2.9	190	
120	610D127G030DL2	9.92	x	55.56	17	15	45	1.7	310	
150	610D157G030DL2	9.92	x	55.56	13	16	48	1.3	340	
180	610D187G030DR2	9.92	x	71.44	11	24	72	1.1	440	
40 VOLTS DC WORKING @ +85°C; 30 VOLTS DC WORKING @ +125°C										
9	610D905G040KD2	7.54	x	25.4	220	6	18	22	50	
17	610D176G040DE2	9.92	x	30.16	120	8	24	12	90	
40	610D406G040DU2	9.92	x	38.1	50	10	30	5.0	150	
85	610D856G040DL2	9.92	x	55.56	24	16	48	2.4	260	
130	610D137G040DR2	9.92	x	71.44	15	24	72	1.5	370	
50 VOLTS DC WORKING @ +85°C; 40 VOLTS DC WORKING @ +125°C										
6.8	610D685G050KD2	7.54	x	25.4	300	6	18	29	40	
12	610D126G050DE2	9.92	x	30.16	170	8	24	17	80	
27	610D276G050DU2	9.92	x	38.1	74	10	30	7.4	120	
56	610D566G050DL2	9.92	x	55.56	36	16	48	3.6	210	
82	610D826G050DR2	9.92	x	71.44	23	24	72	2.4	290	
60 VOLTS DC WORKING @ +85°C; 50 VOLTS DC WORKING @ +125°C										
5.0	610D505G060KD2	7.54	x	25.4	400	7	21	40	35	
9.0	610D905G060DE2	9.92	x	30.16	220	9	27	22	65	
24	610D246G060DU2	9.92	x	38.1	83	11	33	8.3	110	
47	610D476G060DL2	9.92	x	55.56	43	16	48	4.3	200	
70	610D706G060DR2	9.92	x	71.44	29	24	72	2.9	270	



STANDARD RATINGS

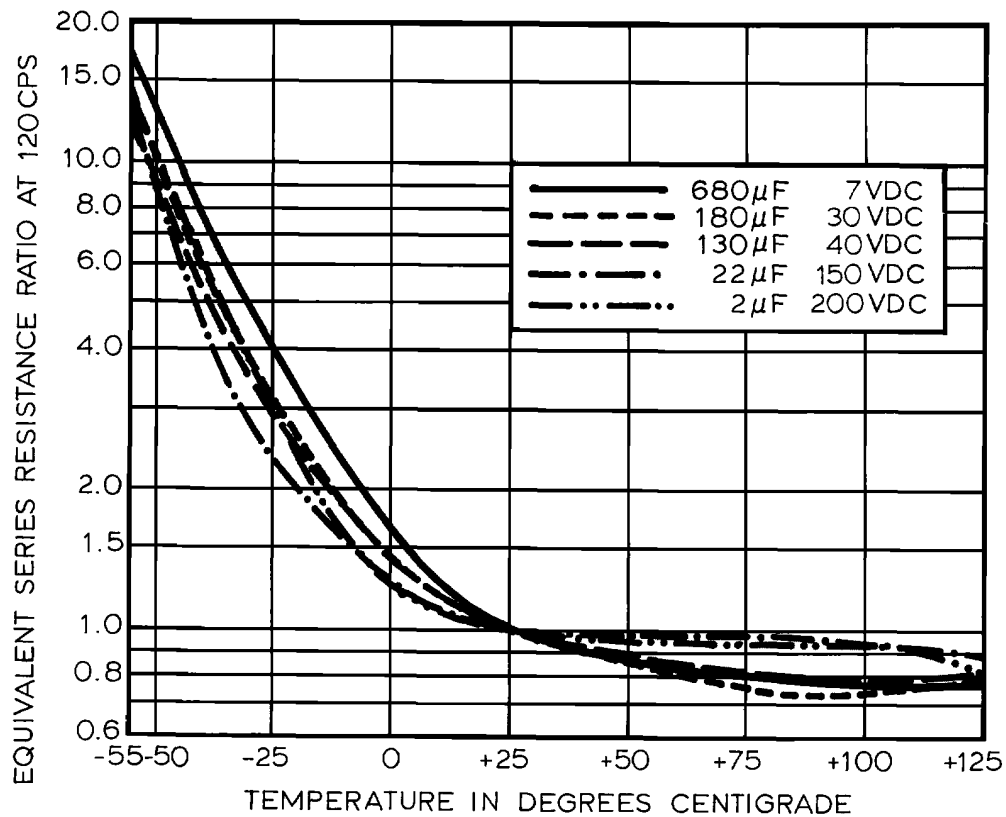
μF	Catalog Number*	Case Size (mm)			Max. Impedance @ -55°C, 120Hz	Max. DC Leakage Current (μA)			Max. ESR @ +25°C 120Hz (Ω)	Max. Ripple Current @ +125°C 120Hz (mA)
		D	x	L		@ +25°C	@ +85°C & +125°C			
75 VOLTS DC WORKING @ +85°C; 60 VOLTS DC WORKING @ +125°C										
3.9	610D395F075KD2	7.54	x	25.4	510	7	21	51	30	
8.0	610D805F075DE2	9.92	x	30.16	250	9	27	25	60	
15	610D156F075DU2	9.92	x	38.1	130	10	30	13.3	90	
18	610D186F075DU2	9.92	x	38.1	110	11	33	11	100	
39	610D396F075DL2	9.92	x	55.56	51	16	48	5.1	170	
56	610D566F075DR2	9.92	x	71.44	36	24	72	3.6	240	
100 VOLTS DC WORKING @ +85°C; 75 VOLTS DC WORKING @ +125°C										
2.2	610D225F100KD2	7.54	x	25.4	910	8	12	91	25	
4.0	610D405F100DE2	9.92	x	30.16	500	12	36	50	45	
12	610D126F100DU2	9.92	x	38.1	170	16	48	17	80	
22	610D226F100DL2	9.92	x	55.56	91	18	54	9.1	130	
33	610D336F100DR2	9.92	x	71.44	61	28	84	6.0	180	
150 VOLTS DC WORKING @ +85°C; 100 VOLTS DC WORKING @ +125°C										
1.8	610D185F150KD2	7.54	x	25.4	1100	10	30	110	20	
3.0	610D305F150DE2	9.92	x	30.16	670	12	36	67	40	
5.6	610D565F150DU2	9.92	x	38.1	360	14	42	36	55	
8.2	610D825F150DU2	9.92	x	38.1	230	16	48	24	70	
12	610D126F150DL2	9.92	x	55.56	170	18	54	17	100	
15	610D156F150DL2	9.92	x	55.56	130	20	60	13	110	
22	610D226F150DR2	9.92	x	71.44	91	28	84	9.1	150	
200 VOLTS DC WORKING @ +85°C; 150 VOLTS DC WORKING @ +125°C										
1.0	610D105F200KD2	7.54	x	25.4	2000	12	36	200	15	
2.0	610D205F200DE2	9.92	x	30.16	1000	16	48	100	30	
5.0	610D505F200DU2	9.92	x	38.1	400	20	60	40	50	
10	610D106F200DL2	9.92	x	55.56	200	24	72	20	90	
15	610D156F200DR2	9.92	x	71.44	130	32	96	13	120	
250 VOLTS DC WORKING @ +85°C; 200 VOLTS DC WORKING @ +125°C										
0.68	610D684F250KD2	7.54	x	25.4	3000	14	42	290	15	
1.0	610D105F250DE2	9.92	x	30.16	2000	18	54	200	20	
3.3	610D335F250DU2	9.92	x	38.1	610	22	66	60	40	
6.8	610D685F250DL2	9.92	x	55.56	300	26	78	29	70	
10	610D106F250DR2	9.92	x	71.44	200	36	108	20	100	

TYPICAL CURVES OF CAPACITANCE
VS. TEMPERATURE



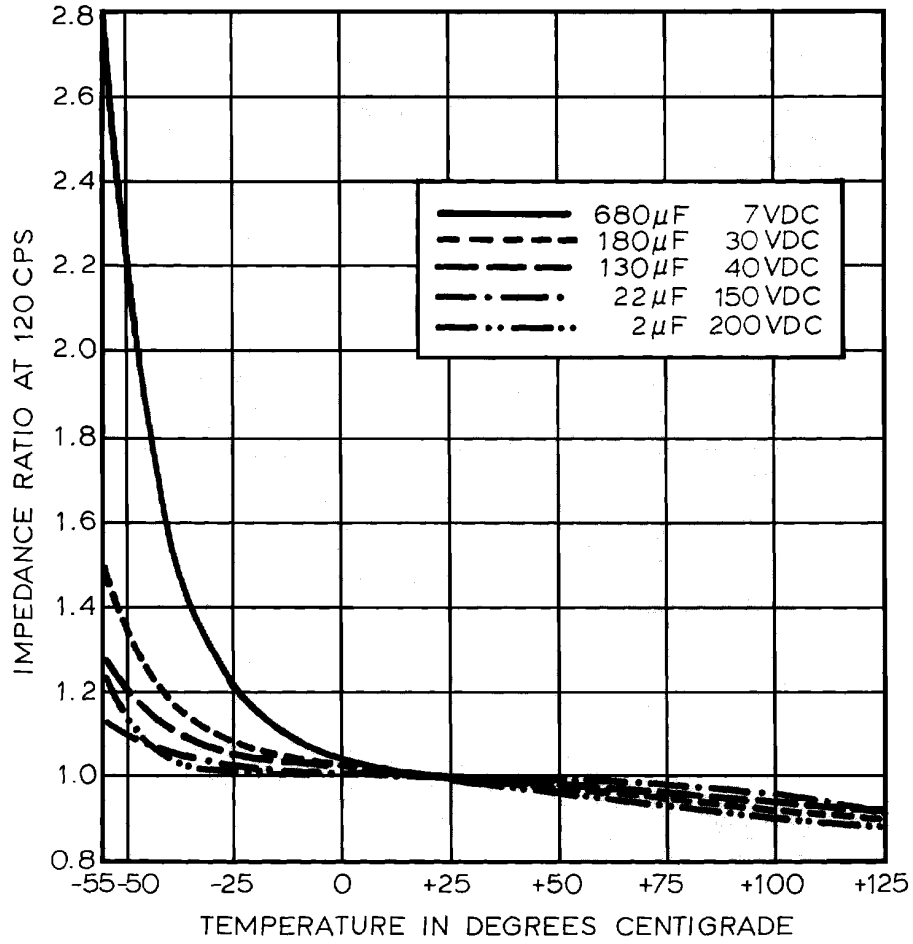
Dwg. No. A-14,882

TYPICAL CURVES OF EQUIVALENT SERIES
RESISTANCE VS. TEMPERATURE



Dwg. No. A-14,883

**TYPICAL CURVES OF IMPEDANCE
VS. TEMPERATURE**



Dwg. No. A-14,884