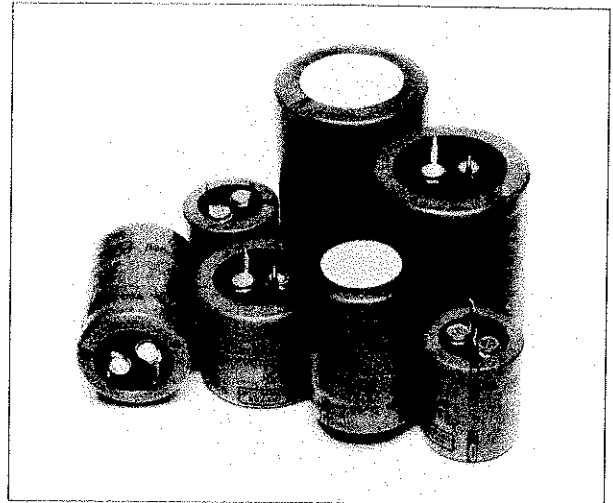




# + 85°C General Purpose Snap Mount Aluminum Capacitors



L65-14

Features

- Economical
- General Purpose Design
- Wide Voltage Range
- Molded Cover Available in 2 or 3 Terminal Design with Standoffs

DC Leakage Current: after 5 min. charge.

$$I = K\sqrt{CV}$$

$$K = 4.0 @ +25^\circ\text{C}$$

I in  $\mu\text{a}$ , C in  $\mu\text{F}$ , V in Volts

General Specifications

Operating Temperature:

-40°C to +85°C.

Voltage Range: 6.3 - 450 VDC.

Capacitance Range: 39 $\mu\text{F}$  - 180,000 $\mu\text{F}$ .

Capacitance Tolerance:  $\pm 20\%$ .

Case Size Range: 22 x 25mm - 35 x 80mm.

Termination: See outline drawings.

Life Validation Test: 2000 hrs @ +85°C:

$\Delta$  CAP  $\leq 15\%$  from initial measurement.

$\Delta$  ESR  $\leq 1.5x$  initial specified limit.

$\Delta$  DCL  $\leq$  initial specified limit.

Shelf Test: 500 hrs @ +85°C:

$\Delta$  CAP  $\leq 15\%$  from initial measurement.

$\Delta$  ESR  $\leq 1.3x$  initial specified limit.

$\Delta$  DCL  $\leq 2x$  initial specified limit.

Ripple Current Multipliers:

Ambient Temp.	TEMPERATURE			
	+55°C	+65°C	+75°C	+85°C
Multipliers	2.0	1.7	1.4	1.0

Rated VDC	FREQUENCY (HZ)		
	50-60	300-1000	Above 1000
16-49	0.85	1.10	1.15
50-199	0.83	1.15	1.20
200-450	0.80	1.30	1.40

See outline drawings for details.

SEE PAGE 2.

Note: Type 82D Original Ratings are recommended for replacement applications only. For new designs, see Type 82DA.

### Catalog Numbering System

**82D 822 M 6R3 HA 2 D**

**LEAD CODE.** D = 2 PIN SNAP IN (Standard).  
SEE TERMINAL CONFIGURATION, PAGE 112  
FOR LEAD CODE OPTIONS.

**CASE STYLE.** 2 = PVC INSULATING SLEEVE (Standard).  
5 = PVC SLEEVE WITH RESIN END SEAL.  
(Required for exposure to halogenated cleaning solvents).

**CASE CODE.** SEE DIMENSIONS.

**DC VOLTAGE RATING.** EXPRESSED IN VOLTS. AN 'R' INDICATES A DECIMAL POINT.  
FOR EXAMPLE, 6R3 = 6.3 VOLTS.

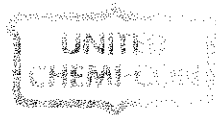
**CAPACITANCE TOLERANCE.** M =  $\pm 20\%$ .

**CAPACITANCE.** EXPRESSED IN MICROFARADS. THE FIRST TWO DIGITS ARE SIGNIFICANT FIGURES, THE  
THIRD IS THE NUMBER OF ZEROS.

**TYPE NUMBER.** IDENTIFIES THE BASIC CAPACITOR DESIGN.

### DIMENSIONS

CASE CODE	MILLIMETERS		INCHES		STYLE 2 TYPICAL WEIGHT (GRAMS)
	DIAMETER D +1/-0	LENGTH L $\pm 2$	DIAMETER D, +0.04/-0	LENGTH L, $\pm 0.08$	
HA	22	25	0.87	1.00	16
HB	22	30	0.87	1.18	19
HD	22	40	0.87	1.57	24
JA	25	25	1.00	1.00	20
JB	25	30	1.00	1.18	24
JC	25	35	1.00	1.38	27
JD	25	40	1.00	1.57	31
JE	25	50	1.00	2.00	38
KA	30	25	1.18	1.00	30
KB	30	30	1.18	1.18	35
KC	30	35	1.18	1.38	39
KD	30	40	1.18	1.57	44
KE	30	50	1.18	2.00	53
MB	35	30	1.38	1.18	48
MC	35	35	1.38	1.38	54
MD	35	40	1.38	1.57	61
ME	35	50	1.38	2.00	74
MF	35	63	1.38	2.50	91
MG	35	80	1.38	3.18	113



# SNAP MOUNT CAPACITORS

TYPE 82D

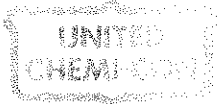
## STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
8.3 VOLTS DC WORKING; 4 VOLTS DC SURGE							
8200	82D822M6R3HA2D	22	x 25	87.0	68.0	2.23	2.52
18000	82D183M6R3HB2D	22	x 30	79.0	61.0	2.47	2.84
27000	82D273M6R3HD2D	22	x 40	52.0	40.0	3.43	3.90
12000	82D123M6R3JA2D	25	x 25	73.0	58.0	2.62	2.97
27000	82D273M6R3JB2D	25	x 30	65.0	50.0	2.97	3.39
33000	82D333M6R3JC2D	25	x 35	52.0	41.0	3.52	3.94
39000	82D393M6R3JD2D	25	x 40	42.0	33.0	4.29	4.85
56000	82D563M6R3JE2D	25	x 50	33.0	26.0	5.09	5.62
18000	82D183M6R3KA2D	30	x 25	66.0	54.0	3.11	3.48
39000	82D393M6R3KB2D	30	x 30	51.0	41.0	3.76	4.20
47000	82D473M6R3KC2D	30	x 35	41.0	33.0	4.42	4.98
68000	82D683M6R3KD2D	30	x 40	33.0	27.0	5.22	5.77
82000	82D823M6R3KE2D	30	x 50	27.0	21.0	6.29	7.13
56000	82D563M6R3MB2D	35	x 30	31.0	25.0	5.37	5.97
68000	82D683M6R3MC2D	35	x 35	26.0	20.0	6.12	6.94
82000	82D823M6R3MD2D	35	x 40	21.0	16.3	7.24	8.17
100000	82D104M6R3ME2D	35	x 50	17.0	13.5	8.66	9.68
150000	82D154M6R3MF2D	35	x 63	13.3	10.6	10.80	12.20
180000	82D184M6R3MG2D	35	x 80	11.0	9.0	12.80	14.20
10 VOLTS DC WORKING; 12 VOLTS DC SURGE							
6800	82D682M010HA2D	22	x 25	92.0	70.0	2.17	2.49
12000	82D123M010HB2D	22	x 30	85.0	64.0	2.40	2.77
22000	82D223M010HD2D	22	x 40	54.0	41.0	3.38	3.91
10000	82D103M010JA2D	25	x 25	74.0	57.0	2.62	3.01
18000	82D183M010JB2D	25	x 30	67.0	51.0	2.94	3.38
22000	82D223M010JC2D	25	x 35	55.0	42.0	3.42	3.94
27000	82D273M010JD2D	25	x 40	44.4	34.0	4.15	4.74
39000	82D393M010JE2D	25	x 50	34.6	26.0	4.97	5.79
15000	82D153M010KA2D	30	x 25	67.0	54.0	3.10	3.47
27000	82D273M010KB2D	30	x 30	53.0	41.0	3.70	4.20
39000	82D393M010KC2D	30	x 35	43.0	34.0	4.34	4.87
47000	82D473M010KD2D	30	x 40	34.7	27.0	5.10	5.77
56000	82D563M010KE2D	30	x 50	27.7	21.0	6.29	7.13
39000	82D393M010MB2D	35	x 30	33.0	26.0	5.21	5.85
47000	82D473M010MC2D	35	x 35	27.0	21.0	6.05	6.87
56000	82D563M010MD2D	35	x 40	22.0	17.0	7.00	7.96
82000	82D823M010ME2D	35	x 50	17.1	13.4	8.62	9.73
100000	82D104M010MF2D	35	x 63	14.1	11.0	10.50	11.90
150000	82D154M010MG2D	35	x 80	11.1	9.0	12.80	14.10
16 VOLTS DC WORKING; 20 VOLTS DC SURGE							
5600	82D562M016HA2D	22	x 25	96.0	71.0	2.12	2.46
10000	82D103M016HB2D	22	x 30	86.0	63.0	2.38	2.80
15000	82D153M016HD2D	22	x 40	57.7	42.0	3.25	3.83
8200	82D822M016JA2D	25	x 25	77.0	58.0	2.57	2.97
12000	82D123M016JB2D	25	x 30	71.0	53.0	2.85	3.29
15000	82D153M016JC2D	25	x 35	58.0	43.0	3.33	3.87



STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
20 VOLTS DC WORKING; 20 VOLTS DC SURGE (30ms)							
22000	82D223M016JD2D	25	x 40	44.8	33.0	4.15	4.85
27000	82D273M016JE2D	25	x 50	35.0	26.0	4.89	5.69
12000	82D123M016KA2D	30	x 25	67.7	54.0	3.07	3.47
22000	82D223M016KB2D	30	x 30	53.7	41.0	3.70	4.20
27000	82D273M016KC2D	30	x 35	43.8	33.0	4.27	4.98
33000	82D333M016KD2D	30	x 40	35.3	27.0	5.00	5.77
39000	82D393M016KE2D	30	x 50	28.0	21.8	6.12	6.89
27000	82D273M016MB2D	35	x 30	35.0	26.0	5.05	5.85
33000	82D333M016MC2D	35	x 35	28.0	21.0	5.96	6.87
47000	82D473M016MD2D	35	x 40	23.0	17.0	6.86	6.65
56000	82D563M016ME2D	35	x 50	17.5	13.3	8.51	9.78
82000	82D823M016MF2D	35	x 63	14.0	11.0	10.60	11.90
100000	82D104M016MG2D	35	x 80	11.2	9.0	12.70	14.10
25 VOLTS DC WORKING; 30 VOLTS DC SURGE							
3300	82D332M025HA2D	22	x 25	110.0	76.0	1.98	2.39
4700	82D472M025HB2D	22	x 30	85.0	58.0	2.40	2.91
8200	82D822M025HD2D	22	x 40	54.0	37.0	3.38	4.06
4700	82D472M025JA2D	25	x 25	86.0	60.0	2.43	2.93
6800	82D682M025JB2D	25	x 30	67.0	47.0	2.94	3.49
8200	82D822M025JC2D	25	x 35	54.0	38.0	3.47	4.09
10000	82D103M025JD2D	25	x 40	43.4	31.0	4.22	4.96
15000	82D153M025JE2D	25	x 50	33.9	24.0	4.97	5.96
6800	82D682M025KA2D	30	x 25	71.0	54.0	3.00	3.47
10000	82D103M025KB2D	30	x 30	54.0	41.0	3.70	4.20
12000	82D123M025KC2D	30	x 35	44.0	33.0	4.27	4.98
15000	82D153M025KD2D	30	x 40	36.4	27.0	5.00	5.77
22000	82D223M025KE2D	30	x 50	28.1	22.0	6.12	6.89
12000	82D123M025MB2D	35	x 30	35.0	25.0	5.05	5.97
18000	82D183M025MC2D	35	x 35	28.0	20.0	5.96	7.04
22000	82D223M025MD2D	35	x 40	23.0	17.0	6.84	7.96
27000	82D273M025ME2D	35	x 50	17.5	13.0	8.51	9.87
33000	82D333M025MF2D	35	x 63	14.0	10.0	10.60	12.50
47000	82D473M025MG2D	35	x 80	11.2	9.0	12.70	14.10
35 VOLTS DC WORKING; 40 VOLTS DC SURGE							
2200	82D222M035HA2D	22	x 25	121.0	76.0	1.88	2.39
3300	82D332M035HB2D	22	x 30	92.0	57.0	2.30	2.94
4700	82D472M035HD2D	22	x 40	59.0	37.0	3.21	4.06
3300	82D332M035JA2D	25	x 25	95.0	62.0	2.32	2.86
4700	82D472M035JB2D	25	x 30	72.0	47.0	2.82	3.49
5600	82D562M035JC2D	25	x 35	58.0	38.0	3.33	4.09
6800	82D682M035JD2D	25	x 40	46.6	30.0	4.08	5.08
10000	82D103M035JE2D	25	x 50	36.3	24.0	4.87	5.96
4700	82D472M035KA2D	30	x 25	75.0	54.0	2.92	3.42
6800	82D682M035KB2D	30	x 30	57.0	41.0	3.60	4.20
8200	82D822M035KC2D	30	x 35	46.6	33.0	4.20	4.98
12000	82D123M035KD2D	30	x 40	37.7	27.0	4.89	5.77
15000	82D153M035KE2D	30	x 50	30.5	22.0	5.96	6.89



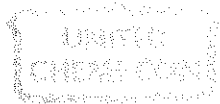
STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ + 25°C (mΩ)		Max. Ripple Current @ + 85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
35 VOLTS DC WORKING; 40 VOLTS DC SURGE (Cont)							
10000	82D103M035MB2D	35	x 30	36.0	24.0	4.97	6.10
12000	82D123M035MC2D	35	x 35	29.3	20.0	5.82	7.04
15000	82D153M035MD2D	35	x 40	25.0	16.3	6.57	8.13
18000	82D183M035ME2D	35	x 50	19.0	13.0	8.17	9.87
27000	82D273M035MF2D	35	x 63	15.0	10.0	10.20	12.50
33000	82D333M035MG2D	35	x 80	12.0	9.0	12.20	14.10
50 VOLTS DC WORKING; 63 VOLTS DC SURGE							
1200	82D122M050HA2D	22	x 25	148.0	79.0	1.71	2.32
1800	82D182M050HB2D	22	x 30	108.0	58.0	2.12	2.90
2700	82D272M050HD2D	22	x 40	70.0	38.0	2.96	3.98
1800	82D182M050JA2D	25	x 25	110.0	62.0	2.15	2.86
2200	82D222M050JB2D	25	x 30	85.0	48.0	2.61	3.49
2700	82D272M050JC2D	25	x 35	68.0	38.0	3.07	4.17
3900	82D392M050JD2D	25	x 40	53.6	31.0	3.79	4.96
5600	82D562M050JE2D	25	x 50	42.0	24.0	4.51	5.96
2700	82D272M050KA2D	30	x 25	85.0	54.0	2.73	3.42
3900	82D392M050KB2D	30	x 30	65.0	41.0	3.35	4.20
4700	82D472M050KC2D	30	x 35	53.0	33.0	3.89	4.98
5600	82D562M050KD2D	30	x 40	42.4	27.7	4.54	5.61
8200	82D822M050KE2D	30	x 50	33.0	22.0	5.69	6.89
4700	82D472M050MB2D	35	x 30	43.0	24.0	4.56	6.10
5600	82D562M050MC2D	35	x 35	34.0	20.0	5.40	7.04
6800	82D682M050MD2D	35	x 40	28.0	16.0	6.21	8.21
10000	82D103M050ME2D	35	x 50	22.0	13.0	7.60	9.87
12000	82D123M050MF2D	35	x 63	17.3	10.5	9.53	12.20
18000	82D183M050MG2D	35	x 80	14.0	9.0	11.40	14.10
63 VOLTS DC WORKING; 79 VOLTS DC SURGE							
1000	82D102M063HA2D	22	x 25	151.0	75.0	1.69	2.39
1500	82D152M063HB2D	22	x 30	118.0	59.0	2.03	2.87
2200	82D222M063HD2D	22	x 40	74.0	38.0	2.87	3.98
1500	82D152M063JA2D	25	x 25	121.0	63.0	2.05	2.86
1800	82D182M063JB2D	25	x 30	88.0	46.0	2.54	3.54
2200	82D222M063JC2D	25	x 35	72.0	38.0	2.97	4.09
3300	82D332M063JD2D	25	x 40	57.0	30.0	3.69	5.08
3900	82D392M063JE2D	25	x 50	44.0	24.0	4.35	5.96
2200	82D222M063KA2D	30	x 25	90.0	54.0	2.67	3.42
3300	82D332M063KB2D	30	x 30	68.0	41.0	3.28	4.20
3900	82D392M063KC2D	30	x 35	55.0	33.0	3.84	4.98
4700	82D472M063KD2D	30	x 40	44.0	27.0	4.47	5.77
6800	82D682M063KE2D	30	x 50	34.0	22.0	5.56	6.89
3900	82D392M063MB2D	35	x 30	45.0	24.0	4.42	6.10
4700	82D472M063MC2D	35	x 35	36.0	20.0	5.24	7.04
6800	82D682M063MD2D	35	x 40	29.0	16.0	6.10	8.21
8200	82D822M063ME2D	35	x 50	23.0	13.0	7.43	9.87
10000	82D103M063MF2D	35	x 63	18.4	10.4	9.26	12.30
15000	82D153M063MG2D	35	x 80	14.1	9.0	11.30	14.10



STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
50 VOLTS DC WORKING; 100 VOLTS DC SURGE							
680	82D681M080HA2D	22	x 25	268.0	150.0	1.26	1.69
820	82D821M080HB2D	22	x 30	203.0	114.0	1.54	2.07
1500	82D152M080HD2D	22	x 40	131.0	74.0	2.15	2.87
1000	82D102M080JA2D	25	x 25	200.0	114.0	1.59	2.11
1200	82D122M080JB2D	25	x 30	160.0	91.0	1.90	2.52
1500	82D152M080JC2D	25	x 35	126.0	72.0	2.26	3.01
1800	82D182M080JD2D	25	x 40	99.0	57.0	2.77	3.69
2700	82D272M080JE2D	25	x 50	75.0	44.0	3.34	4.35
1500	82D152M080KA2D	30	x 25	147.0	87.0	2.08	2.71
1800	82D182M080KB2D	30	x 30	109.0	66.0	2.58	3.31
2200	82D222M080KC2D	30	x 35	86.0	52.0	3.07	3.95
3300	82D332M080KD2D	30	x 40	69.0	42.0	3.57	4.62
3900	82D392M080KE2D	30	x 50	54.0	33.0	4.44	5.69
2700	82D272M080MB2D	35	x 30	75.0	44.0	3.45	4.50
3300	82D332M080MC2D	35	x 35	61.0	35.0	4.00	5.30
3900	82D392M080MD2D	35	x 40	48.0	28.0	4.71	6.21
5600	82D562M080ME2D	35	x 50	37.0	22.0	5.86	7.58
6800	82D682M080MF2D	35	x 63	29.0	17.0	7.37	9.61
10000	82D103M080MG2D	35	x 80	23.0	13.5	8.90	11.50
100 VOLTS DC WORKING; 125 VOLTS DC SURGE							
390	82D391M100HA2D	22	x 25	343.0	151.0	1.12	1.69
470	82D471M100HB2D	22	x 30	258.0	114.0	1.37	2.07
820	82D821M100HD2D	22	x 40	161.0	72.0	1.94	2.90
560	82D561M100JA2D	25	x 25	253.0	115.0	1.41	2.10
680	82D681M100JB2D	25	x 30	188.0	86.0	1.75	2.59
820	82D821M100JC2D	25	x 35	150.0	69.0	2.06	3.04
1200	82D122M100JD2D	25	x 40	125.0	57.0	2.46	3.64
1500	82D152M100JE2D	25	x 50	90.0	42.0	3.05	4.51
820	82D821M100KA2D	30	x 25	178.0	86.0	1.89	2.73
1000	82D102M100KB2D	30	x 30	136.0	66.0	2.31	3.31
1500	82D152M100KC2D	30	x 35	106.0	52.0	2.75	3.95
1800	82D182M100KD2D	30	x 40	86.0	42.0	3.21	4.62
2200	82D222M100KE2D	30	x 50	66.0	33.0	4.02	5.69
1500	82D152M100MB2D	35	x 30	98.0	44.0	3.01	4.50
1800	82D182M100MC2D	35	x 35	79.0	36.0	3.53	5.19
2200	82D222M100MD2D	35	x 40	61.0	28.0	4.18	6.21
2700	82D272M100ME2D	35	x 50	46.0	22.0	4.76	7.58
3900	82D392M100MF2D	35	x 63	36.0	17.2	6.61	9.57
4700	82D472M100MG2D	35	x 80	28.0	13.5	8.07	11.50
160 VOLTS DC WORKING; 200 VOLTS DC SURGE							
180	82D181M160HA2D	22	x 25	741.0	392.0	0.809	1.11
220	82D221M160HB2D	22	x 30	551.0	291.0	1.00	1.37
390	82D391M160HD2D	22	x 40	344.0	184.0	1.41	1.93
220	82D221M160JA2D	25	x 25	548.0	296.0	1.02	1.39
330	82D331M160JB2D	25	x 30	411.0	221.0	1.26	1.71



STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ + 25°C (mΩ)		Max. Ripple Current @ + 85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
150 VOLTS DC WORKING; 200 VOLTS DC SURGE (Cont.)							
390	82D391M160JC2D	25	x 35	326.0	176.0	1.49	2.03
470	82D471M160JD2D	25	x 40	256.0	139.0	1.83	2.49
680	82D681M160JE2D	25	x 50	194.0	107.0	2.21	2.96
390	82D391M160KA2D	30	x 25	374.0	211.0	1.39	1.85
470	82D471M160KB2D	30	x 30	278.0	157.0	1.72	2.28
680	82D681M160KC2D	30	x 35	222.0	128.0	2.02	2.67
820	82D821M160KD2D	30	x 40	175.0	99.0	2.39	3.17
1000	82D102M160KE2D	30	x 50	136.0	77.0	2.95	3.91
680	82D681M160MB2D	35	x 30	221.0	130.0	2.14	2.79
820	82D821M160MC2D	35	x 35	176.0	104.0	2.52	3.28
1200	82D122M160MD2D	35	x 40	139.0	83.0	2.96	3.84
1500	82D152M160ME2D	35	x 50	107.0	64.0	3.65	4.72
1800	82D182M160MF2D	35	x 63	82.0	50.0	4.64	5.99
2700	82D272M160MG2D	35	x 80	62.0	38.0	5.72	7.31
200 VOLTS DC WORKING; 250 VOLTS DC SURGE							
150	82D151M200HA2D	22	x 25	1012.0	361.0	0.697	1.17
220	82D221M200HB2D	22	x 30	594.0	255.0	0.967	1.48
330	82D331M200HD2D	22	x 40	381.0	165.0	1.35	2.06
220	82D221M200JA2D	25	x 25	625.0	272.0	0.967	1.46
270	82D271M200JB2D	25	x 30	525.0	191.0	1.12	1.85
390	82D391M200JC2D	25	x 35	341.0	151.0	1.47	2.22
470	82D471M200JD2D	25	x 40	271.0	121.0	1.79	2.68
560	82D561M200JE2D	25	x 50	205.0	91.0	2.17	3.25
330	82D331M200KA2D	30	x 25	498.0	192.0	1.21	1.96
470	82D471M200KB2D	30	x 30	294.0	136.0	1.64	2.48
560	82D561M200KC2D	30	x 35	279.0	107.0	1.82	2.95
680	82D681M200KD2D	30	x 40	221.0	87.0	2.14	3.41
1000	82D102M200KE2D	30	x 50	142.0	67.0	2.89	4.22
560	82D561M200MB2D	35	x 30	287.0	116.0	1.89	2.97
820	82D821M200MC2D	35	x 35	189.0	93.0	2.46	3.51
1000	82D102M200MD2D	35	x 40	149.0	74.0	2.88	3.41
1200	82D122M200ME2D	35	x 50	116.0	58.0	3.54	5.01
1800	82D182M200MF2D	35	x 63	89.0	45.0	4.51	6.35
2200	82D222M200MG2D	35	x 80	68.0	30.0	5.58	7.58
250 VOLTS DC WORKING; 300 VOLTS DC SURGE							
120	82D121M250HA2D	22	x 25	1077.0	385.0	68.00	1.17
180	82D181M250HB2D	22	x 30	722.0	261.0	88.00	1.52
220	82D221M250HD2D	22	x 40	558.0	166.0	1.12	2.12
180	82D181M250JA2D	25	x 25	753.0	275.0	0.89	1.51
220	82D221M250JB2D	25	x 30	513.0	189.0	1.13	1.94
270	82D271M250JC2D	25	x 35	494.0	151.0	1.21	2.31
330	82D331M250JD2D	25	x 40	382.0	121.0	1.51	2.79
470	82D471M250JE2D	25	x 50	243.0	93.0	1.99	3.35
270	82D271M250KA2D	30	x 25	500.0	194.0	1.21	2.02
330	82D331M250KB2D	30	x 30	398.0	135.0	1.44	2.58
390	82D391M250KC2D	30	x 35	328.0	109.0	1.68	3.03



STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters D x L	Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)	
			120Hz	20k-40k	120Hz	20k-40k
250 VOLTS DC WORKING, 400 VOLTS DC SURGE (Peak)						
560	82D561M250KD2D	30 x 40	283.0	87.0	2.16	3.54
680	82D681M250KE2D	30 x 50	198.0	67.0	2.46	4.41
470	82D471M250MB2D	35 x 30	281.0	117.0	1.92	3.07
560	82D561M250MC2D	35 x 35	270.0	94.0	2.06	3.62
680	82D681M250MD2D	35 x 40	209.0	74.0	2.43	4.26
1000	82D102M250ME2D	35 x 50	132.0	58.0	3.32	5.21
1200	82D122M250MF2D	35 x 63	108.0	40.0	4.09	6.49
1500	82D152M250MG2D	35 x 80	93.0	35.0	4.73	8.01
300 VOLTS DC WORKING, 500 VOLTS DC SURGE						
68	82D680M300HA2D	22 x 25	3100.0	1800.0	0.39	0.52
100	82D101M300HB2D	22 x 30	2090.0	1210.0	0.51	0.68
120	82D121M300HD2D	22 x 40	1340.0	780.0	0.72	0.94
100	82D101M300JA2D	25 x 25	2180.0	1270.0	0.52	0.67
150	82D151M300JB2D	25 x 30	1490.0	870.0	0.66	1.13
180	82D181M300JC2D	25 x 35	1160.0	680.0	0.97	1.26
220	82D221M300JD2D	25 x 40	900.0	520.0	1.20	1.58
270	82D271M300JE2D	25 x 50	670.0	390.0	1.46	1.91
150	82D151M300KA2D	30 x 25	1530.0	900.0	0.69	0.90
220	82D221M300KB2D	30 x 30	970.0	570.0	0.92	1.20
270	82D271M300KC2D	30 x 35	780.0	460.0	1.08	1.41
330	82D331M300KD2D	30 x 40	600.0	350.0	1.29	1.69
470	82D471M300KE2D	30 x 50	440.0	260.0	1.64	2.14
270	82D271M300MB2D	35 x 30	750.0	450.0	1.16	1.50
330	82D331M300MC2D	35 x 35	590.0	350.0	1.38	1.80
470	82D471M300MD2D	35 x 40	450.0	270.0	1.65	2.13
560	82D561M300ME2D	35 x 50	340.0	200.0	2.06	2.68
820	82D821M300MF2D	35 x 63	250.0	150.0	2.67	3.45
1000	82D102M300MG2D	35 x 80	190.0	110.0	3.29	4.33
350 VOLTS DC WORKING, 500 VOLTS DC SURGE						
56	82D560M350HA2D	22 x 25	3360.0	1800.0	0.38	0.52
82	82D820M300HB2D	22 x 30	2270.0	1220.0	0.49	0.67
120	82D121M350HD2D	22 x 40	1390.0	740.0	0.71	0.96
82	82D820M350JA2D	25 x 25	2370.0	1280.0	0.49	0.67
120	82D121M350JB2D	25 x 30	1620.0	880.0	0.63	0.86
150	82D151M350JC2D	25 x 35	1270.0	690.0	0.76	1.03
180	82D181M350JD2D	25 x 40	990.0	540.0	0.93	1.27
220	82D221M350JE2D	25 x 50	727.0	395.0	1.14	1.55
120	82D121M350KA2D	30 x 25	1550.0	840.0	0.68	0.93
180	82D181M350KB2D	30 x 30	1100.0	600.0	0.87	1.17
220	82D221M350KC2D	30 x 35	838.0	450.0	1.04	1.42
270	82D271M350KD2D	30 x 40	645.0	350.0	1.25	1.69
330	82D331M350KE2D	30 x 50	480.0	265.0	1.57	2.12
220	82D221M350MB2D	35 x 30	850.0	470.0	1.09	1.47
270	82D271M350MC2D	35 x 35	660.0	360.0	1.31	1.77
330	82D331M350MD2D	35 x 40	485.0	270.0	1.59	2.13
470	82D471M350ME2D	35 x 50	360.0	200.0	2.00	2.68
680	82D681M350MF2D	35 x 63	270.0	150.0	2.57	3.45
820	82D821M350MG2D	35 x 80	202.0	115.0	3.20	4.23





STANDARD RATINGS

μF	Catalog Number	Nominal Case Size Millimeters		Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)	
		D	x L	120Hz	20k-40k	120Hz	20k-40k
385 VOLTS DC WORKING; 415 VOLTS DC SURGE							
47	82D470M385HA2D	22	x 25	3450.0	1800.0	0.38	0.52
68	82D680M385HB2D	22	x 30	2320.0	1210.0	0.49	0.67
120	82D121M385HD2D	22	x 40	1400.0	730.0	0.70	0.97
68	82D680M385JA2D	25	x 25	2430.0	1280.0	0.49	0.67
100	82D101M385JB2D	25	x 30	1650.0	870.0	0.63	0.86
120	82D121M385JC2D	25	x 35	1340.0	700.0	0.74	1.02
180	82D181M385JD2D	25	x 40	1020.0	540.0	0.92	1.26
220	82D221M385JE2D	25	x 50	780.0	410.0	1.10	1.52
120	82D121M385KA2D	30	x 25	1580.0	830.0	0.68	0.94
150	82D151M385KB2D	30	x 30	1130.0	600.0	0.85	1.17
220	82D221M385KC2D	30	x 35	852.0	450.0	1.04	1.42
270	82D271M385KD2D	30	x 40	670.0	360.0	1.22	1.67
330	82D331M385KE2D	30	x 50	500.0	265.0	1.54	2.12
220	82D221M385MB2D	35	x 30	880.0	460.0	1.07	1.48
270	82D271M385MC2D	35	x 35	660.0	350.0	1.31	1.79
330	82D331M385MD2D	35	x 40	510.0	270.0	1.55	2.13
470	82D471M385ME2D	35	x 50	380.0	200.0	1.95	2.68
560	82D561M385MF2D	35	x 63	288.0	150.0	2.49	3.45
820	82D821M385MG2D	35	x 80	210.0	110.0	3.13	4.33
400 VOLTS DC WORKING; 450 VOLTS DC SURGE							
47	82D470M400HA2D	22	x 25	4310.0	2450.0	0.34	0.45
68	82D680M400HB2D	22	x 30	2890.0	1640.0	0.44	0.58
100	82D101M400HD2D	22	x 40	1740.0	990.0	0.63	0.83
68	82D680M400JA2D	25	x 25	3020.0	1720.0	0.44	0.58
100	82D101M400JB2D	25	x 30	2060.0	1176.0	0.56	0.74
120	82D121M400JC2D	25	x 35	1600.0	910.0	0.67	0.89
150	82D151M400JD2D	25	x 40	1280.0	730.0	0.82	1.09
220	82D221M400JE2D	25	x 50	960.0	540.0	0.99	1.33
100	82D101M400KA2D	30	x 25	1980.0	1120.0	0.61	0.81
150	82D151M400KB2D	30	x 30	1430.0	820.0	0.76	1.00
180	82D181M400KC2D	30	x 35	1040.0	600.0	0.94	1.23
220	82D221M400KD2D	30	x 40	820.0	470.0	1.10	1.46
330	82D331M400KE2D	30	x 50	620.0	350.0	1.38	1.84
180	82D181M400MB2D	35	x 30	1070.0	610.0	0.97	1.29
270	82D271M400MC2D	35	x 35	840.0	480.0	1.16	1.53
330	82D331M400MD2D	35	x 40	630.0	360.0	1.39	1.85
390	82D391M400ME2D	35	x 50	480.0	270.0	1.73	2.31
560	82D561M400MF2D	35	x 63	350.0	200.0	2.26	2.99
820	82D821M400MG2D	35	x 80	260.0	150.0	2.82	3.71
450 VOLTS DC WORKING; 500 VOLTS DC SURGE							
39	82D390M450HA2D	22	x 25	4690.0	2460.0	0.32	0.45
56	82D560M450HB2D	22	x 30	3120.0	1640.0	0.42	0.58
100	82D101M450HD2D	22	x 40	1880.0	990.0	0.61	0.83
56	82D560M450JA2D	25	x 25	3280.0	1730.0	0.42	0.58
82	82D820M450JB2D	25	x 30	2230.0	1170.0	0.54	0.75
100	82D101M450JC2D	25	x 35	1730.0	915.0	0.65	0.89

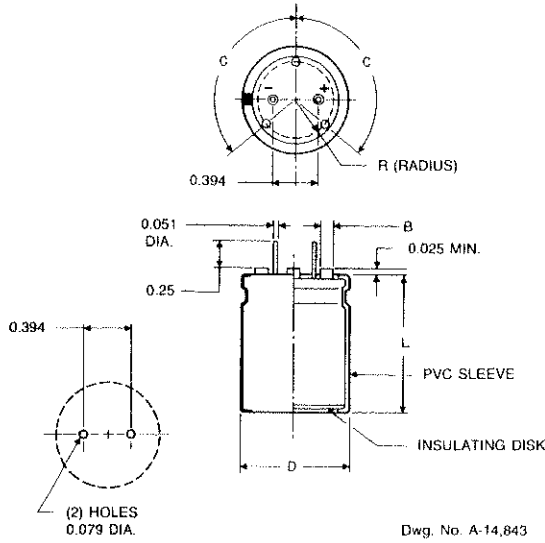


STANDARD RATINGS

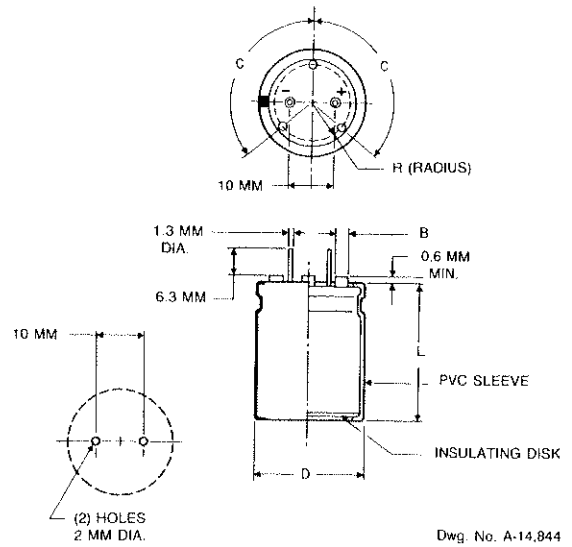
μF	Catalog Number	Nominal Case Size Millimeters D x L	Max. ESR @ +25°C (mΩ)		Max. Ripple Current @ +85°C (A)		
			120Hz	20k-40k	120Hz	20k-40k	
450 VOLTS DC WORKING; 500 VOLTS DC SURGE (100μS)							
120	82D121M450JD2D	25 x 40	1360.0	720.0	0.80	1.09	
180	82D181M450JE2D	25 x 50	1040.0	550.0	0.96	1.31	
82	82D820M450KA2D	30 x 25	2120.0	1120.0	0.59	0.81	
120	82D121M450KB2D	30 x 30	1470.0	780.0	0.75	1.03	
150	82D151M450KC2D	30 x 35	1150.0	610.0	0.89	1.22	
180	82D181M450KD2D	30 x 40	910.0	480.0	1.05	1.44	
270	82D271M450KE2D	30 x 50	680.0	360.0	1.32	1.82	
150	82D151M450MB2D	35 x 30	1170.0	620.0	0.93	1.28	
220	82D221M450MC2D	35 x 35	870.0	460.0	1.14	1.56	
270	82D271M450MD2D	35 x 40	690.0	370.0	1.33	1.82	
330	82D331M450ME2D	35 x 50	510.0	274.0	1.68	2.29	
470	82D471M450MF2D	35 x 63	380.0	205.0	2.17	2.95	
680	82D681M450MG2D	35 x 80	280.0	150.0	2.71	3.71	

**OUTLINE DRAWINGS**

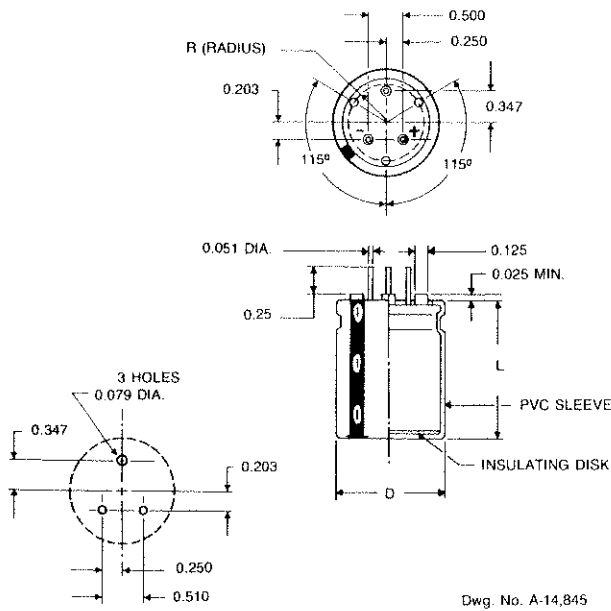
**STYLE A  
(INCHES)**



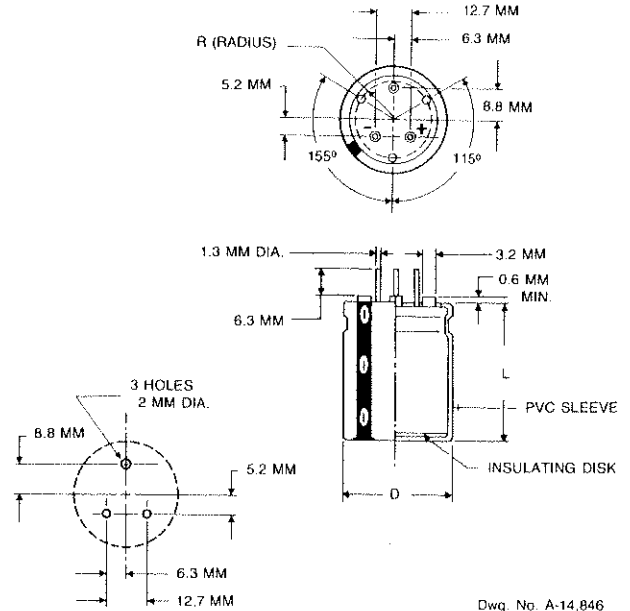
**STYLE A  
(MILLIMETERS)**



**STYLE B  
(INCHES)**



**STYLE B  
(MILLIMETERS)**



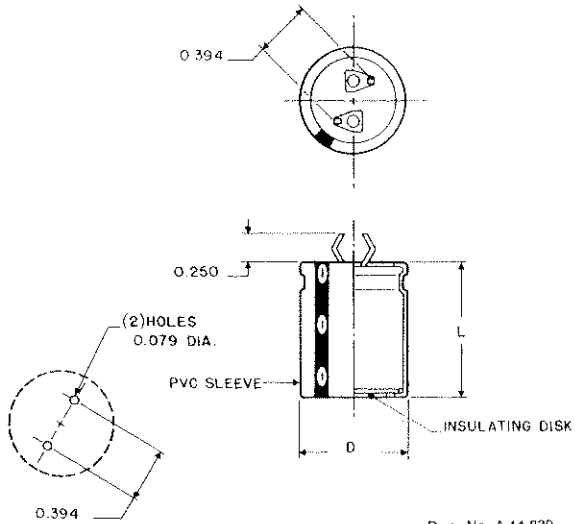
**CIRCUIT BOARD MOUNT TERMINAL DIMENSIONS\***

DIAMETER			STYLE A DIMENSIONS				STYLE B DIMENSIONS		
D mm	D in.	CODE	B mm	B in.	R mm	R in.	C	R mm	R in.
25	1.00	J	2.4	0.093	7.6	0.301	140	N/A	N/A
30	1.18	K	3.2	0.125	9.2	0.363	120	9.9	0.391
35	1.38	M	3.2	0.125	11.6	0.458	120	11.6	0.458

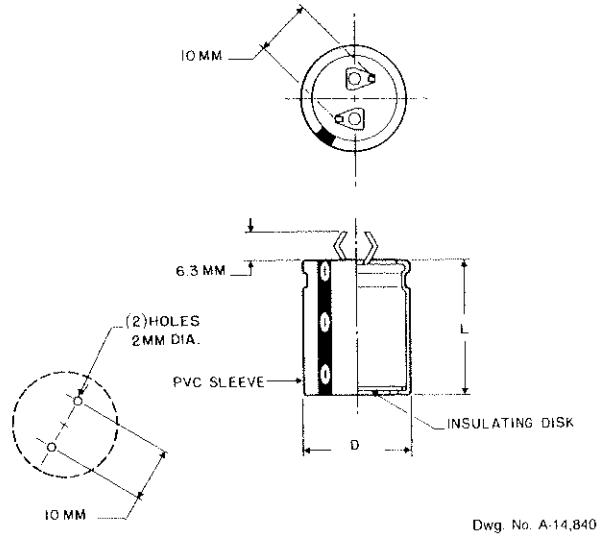
\*Note: Style A & B not available in 22 mm dia. units.

OUTLINE DRAWINGS

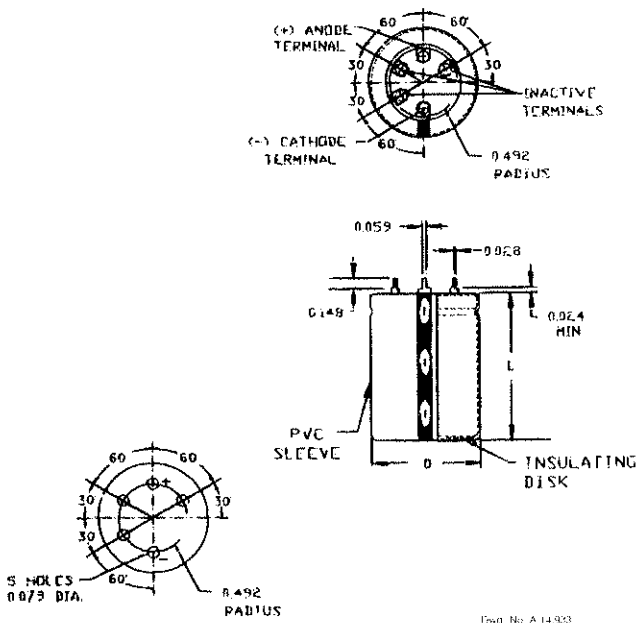
**STYLE D  
(INCHES)**



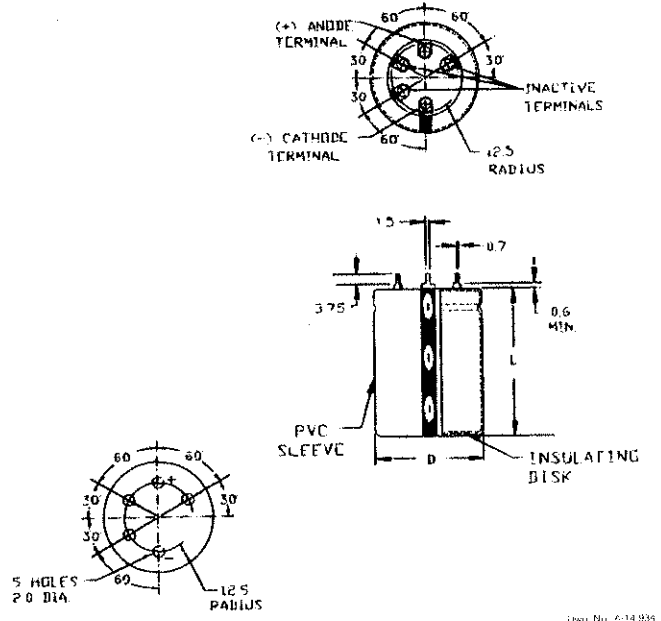
**STYLE D  
(MILLIMETERS)**



**STYLE F  
(INCHES)**



**STYLE F  
(MILLIMETERS)**



### TERMINAL CONFIGURATION

LEAD CODE	DESCRIPTION	OUTLINE DRAWINGS		AVAILABLE DIAMETERS	AVAILABLE VOLTAGES & TYPES
		MOUNTING CONFIGURATION	TERMINAL CONFIGURATION		
D	STANDARD 2 PIN SNAP-IN			22, 25, 30, 35 H, J, K, M	ALL VOLTAGES 81D, 81DA, 82D, 82DA
A	2 STRAIGHT WIRE LEAD MOLDED COVER WITH STANDOFFS			25, 30, 35 J, K, M	ALL VOLTAGES 82D, 82DA  V <= 250VDC 81D, 81DA
B	3 STRAIGHT WIRE LEAD MOLDED COVER WITH STANDOFFS			30, 35 K, M	ALL VOLTAGES 82D, 82DA  V <= 250VDC 81D, 81DA
G	3 STRAIGHT STANDOFF PINS			30 K	ALL VOLTAGES 81D, 81DA, 82D, 82DA
H	4 STRAIGHT STANDOFF PINS			35 M	ALL VOLTAGES 81D, 81DA, 82D, 82DA
F	5 STRAIGHT STANDOFF PINS			40 N	ALL VOLTAGES 81D, 81DA, 82D, 82DA
J	4 PIN SNAP-IN			35 M	ALL VOLTAGES 81D, 81DA, 82D, 82DA

Note: For terminal dimensions for Codes G, H, and J, consult United Chemi-Con.