

Aluminum Capacitors + 85 °C, Snap-in, General Purpose

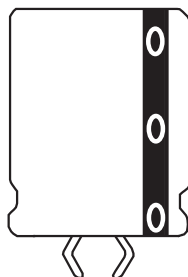


Fig.1 Component Outlines.

FEATURES

- Economical
- General purpose design
- Wide voltage range



QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Nominal case size ØD x L in mm	0.87" x 1.00" [22.0 x 25.0] to 1.38" x 3.15" [35.0 x 80.0]
Operating temperature	- 40 °C to + 85 °C
Rated capacitance range, C _R	39 µF to 180 000 µF
Tolerance on C _R	± 20 %
Rated voltage range, U _R	6.3 WVDC to 450 WVDC
Termination	Snap in
Life validation test at 85 °C	2000 hours: Δ CAP ≤ 15 % from initial measurement. Δ ESR ≤ 1.5 x initial specified limit. Δ DCL ≤ initial specified limit
Shelf life at 85 °C	500 hours: Δ CAP ≤ 15 % from initial measurement. Δ ESR ≤ 1.3 x initial specified limit. Δ DCL ≤ 2 x initial specified limit
DC leakage current	$I = K\sqrt{CV}$ K = 4.0 at + 25 °C I in µA, C in µF, V in Volts

RIPPLE CURRENT MULTIPLIERS				
TEMPERATURE				
AMBIENT TEMPERATURE		MULTIPLIERS		
+ 55 °C		2.0		
+ 65 °C		1.7		
+ 75 °C		1.4		
+ 85 °C		1.0		
FREQUENCY (Hz)				
WVDC	50-60	300 - 1000	1000 AND UP	
16 - 49	0.85	1.10	1.15	
50 - 199	0.83	1.15	1.20	
200 - 400	0.80	1.30	1.40	
ESL (TYPICAL VALUES at 1 MHz to 10 MHz)				
Nominal Diameter	0.87 [22.0]	0.98 [25.0]	1.18 [30.0]	1.38 [35.0]
Typical ESL (nH)	6.0	8.0	10.0	12.0

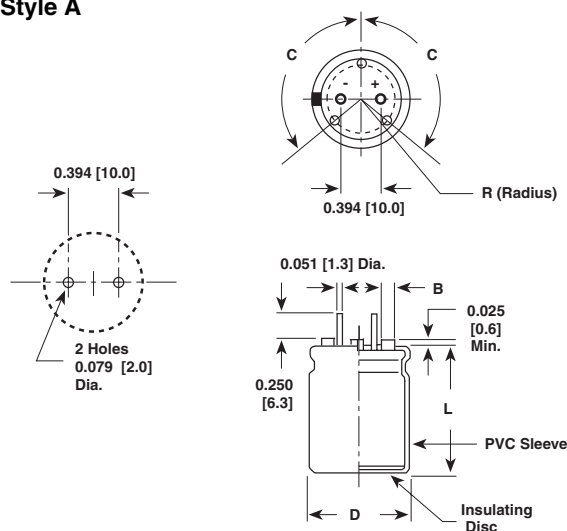
DIMENSIONS in inches [millimeters]					
CASE CODE	DIAMETER	LENGTH	CASE CODE	DIAMETER	LENGTH
	D + 0.04 - 0 [+ 1.0 - 0]	L ± 0.08 [2.0]		D + 0.04 - 0 [+ 1.0 - 0]	L ± 0.08 [2.0]
HA	0.87 [22.0]	1.00 [25.0]	KC	1.18 [30.0]	1.38 [35.0]
HB	0.87 [22.0]	1.18 [30.0]	KD	1.18 [30.0]	1.57 [40.0]
HD	0.87 [22.0]	1.57 [40.0]	KE	1.18 [30.0]	2.00 [50.0]
JA	1.00 [25.0]	1.00 [25.0]	MB	1.38 [35.0]	1.18 [30.0]
JB	1.00 [25.0]	1.18 [30.0]	MC	1.38 [35.0]	1.38 [35.0]
JC	1.00 [25.0]	1.38 [35.0]	MD	1.38 [35.0]	1.57 [40.0]
JD	1.00 [25.0]	1.57 [40.0]	ME	1.38 [35.0]	2.00 [50.0]
JE	1.00 [25.0]	2.00 [50.0]	MF	1.38 [35.0]	2.50 [63.0]
KA	1.18 [30.0]	1.00 [25.0]	MG	1.38 [35.0]	3.18 [80.0]
KB	1.18 [30.0]	1.18 [30.0]			

DIMENSIONS in inches [millimeters]					
CIRCUIT BOARD MOUNT TERMINAL DIMENSIONS*					
DIAMETER		STYLE A			STYLE B
D	CASE CODE	B	R	C	R
1.00 [25.0]	J	0.093 [2.4]	0.301 [7.6]	140 °	N/A
1.18 [30.0]	K	0.125 [3.2]	0.363 [9.2]	120 °	0.391 [9.9]
1.38 [35.0]	M	0.125 [3.2]	0.458 [11.6]	120 °	0.458 [11.6]

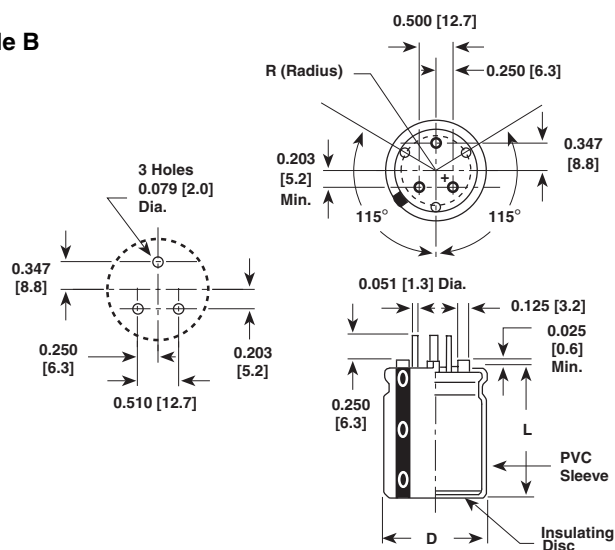
*Style A and B not available in 0.87" [22.0mm] diameter units.

DIMENSIONS AND AVAILABLE FORMS

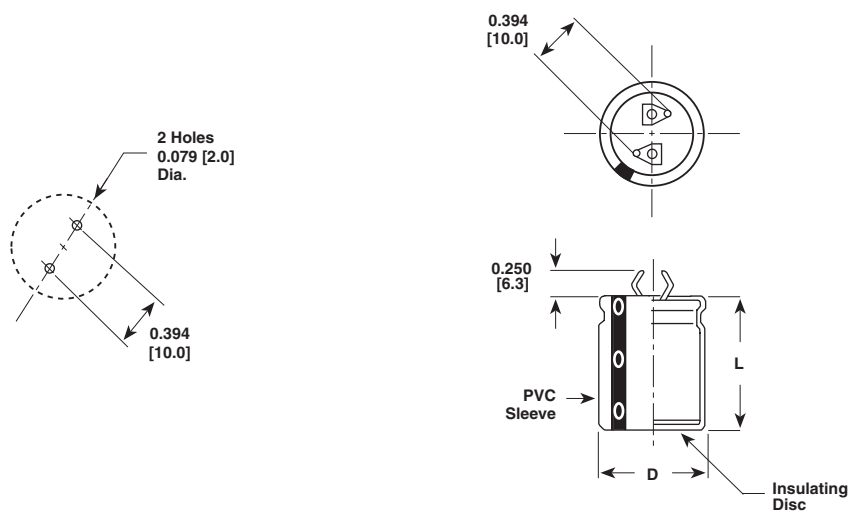
Style A

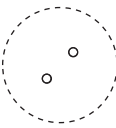
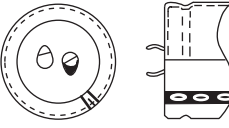
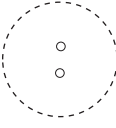
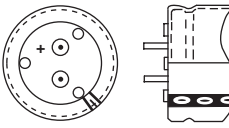
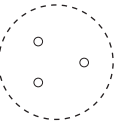
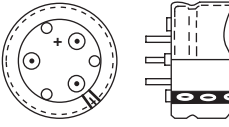


Style B



Style D



TERMINAL CONFIGURATION [numbers in brackets indicate millimeters]					
LEAD CODE	DESCRIPTION	OUTLINE DRAWINGS		AVAILABLE DIAMETERS	AVAILABLE VOLTAGES AND TYPES
		MOUNTING CONFIGURATION	TERMINAL CONFIGURATION		
D	Standard 2 pin snap in			0.87 [22.0] - H 0.98 [25.0] - J 1.18 [30.0] - K 1.38 [35.0] - M	All voltages 81D, 81DA 82D, 82DA
A	2 straight wire lead molded cover with standoffs			0.98 [25.0] - J 1.18 [30.0] - K 1.38 [35.0] - M	All voltages 82D, 82DA
					V <= 250 VDC 81D, 81DA
B	3 straight wire lead molded cover with standoffs			1.18 [30.0] - K 1.38 [35.0] - M	All voltages 82D, 82DA
					V <= 250 VDC 81D, 81DA

ELECTRICAL DATA	
SYMBOL	DESCRIPTION
μF	rated capacitance
± %	M = ± 20 %
DC	voltage rating at 85° C
HA	see dimensions in millimeters table
2	PVC insulating sleeve
D	2 pin snap-in

ORDERING EXAMPLE*

Electrolytic capacitor 82D series

82D 882 M 6R3 HA 2 D

*Note: For lead (Pb)-free, add suffix E3 to part number.

Example: 82D882M6R3HA2DE3

ELECTRICAL DATA AND ORDERING INFORMATION						
CAPACITANCE (μF)	PART NUMBER	NOMINAL CASE SIZE D X L	MAX. ESR at 25 °C (mΩ)		MAX. RIPPLE at + 85 °C (A)	
			120 Hz	20 k - 40 kHz	120 Hz	20 k - 40 kHz
16 WVDC at + 85 °C, SURGE = 20 V						
10000.0	82D103M016HB2D	0.866 x 1.181 [22.0 x 30.0]	86.0	63.0	2.38	2.80
15000.0	82D153M016HD2D	0.866 x 1.575 [22.0 x 40.0]	57.7	42.0	3.25	3.83
15000.0*	82D153M016JC2D	0.984 x 1.378 [25.0 x 35.0]	58.0	43.0	3.33	3.87
22000.0	82D223M016KB2D	1.181 x 1.181 [30.0 x 30.0]	53.7	41.0	3.70	4.20
33000.0	82D333M016KD2D	1.181 x 1.575 [30.0 x 40.0]	35.3	27.0	5.00	5.77
33000.0	82D333M016MC2D	1.378 x 1.378 [35.0 x 35.0]	28.0	21.0	5.96	6.87
47000.0	82D473M016MD2D	1.378 x 1.575 [35.0 x 40.0]	23.0	17.0	6.86	6.65

*These ratings are normally stocked.

Aluminum Capacitors
+ 85 °C, Snap-in, General Purpose

Vishay Sprague

ELECTRICAL DATA AND ORDERING INFORMATION						
CAPACITANCE (μF)	PART NUMBER	NOMINAL CASE SIZE D X L	MAX. ESR at 25 °C (mΩ)		MAX. RIPPLE at + 85 °C (A)	
			120 Hz	20 k - 40 kHz	120 Hz	20 k - 40 kHz
25 WVDC at + 85 °C, SURGE = 30 V						
3300.0	82D332M025HA2D	0.866 x 0.984 [22.0 x 25.0]	110.0	76.0	1.98	2.39
4700.0*	82D472M025HB2D	0.866 x 1.181 [22.0 x 30.0]	85.0	58.0	2.40	2.91
6800.0	82D682M025JB2D	0.984 x 1.181 [25.0 x 30.0]	67.0	47.0	2.94	3.49
10000.0	82D103M025JD2D	0.984 x 1.545 [25.0 x 40.0]	43.4	31.0	4.22	4.96
15000.0	82D153M025JE2D	0.984 x 1.969 [25.0 x 50.0]	33.9	24.0	4.97	5.96
6800.0	82D682M025KA2D	1.181 x 0.984 [30.0 x 25.0]	71.0	54.0	3.00	3.47
10000.0	82D103M025KB2D	1.181 x 1.181 [30.0 x 30.0]	54.0	41.0	3.70	4.20
15000.0	82D153M025KD2D	1.181 x 1.575 [30.0 x 40.0]	36.4	27.0	5.00	5.77
22000.0	82D223M025MD2D	1.378 x 1.575 [35.0 x 40.0]	23.0	17.0	6.84	7.96
35 WVDC at + 85 °C, SURGE = 40 V						
2200.0	82D222M035HA2D	0.866 x 0.984 [22.0 x 25.0]	121.0	76.0	1.88	2.39
3300.0	82D332M035HB2D	0.866 x 1.181 [22.0 x 30.0]	92.0	57.0	2.30	2.94
4700.0	82D472M035JB2D	0.984 x 1.181 [25.0 x 30.0]	72.0	47.0	2.82	3.49
6800.0	82D682M035JD2D	0.984 x 1.575 [25.0 x 40.0]	46.6	30.0	4.08	5.08
10000.0	82D103M035JE2D	0.984 x 1.969 [25.0 x 50.0]	36.3	24.0	4.87	5.96
4700.0	82D472M035KA2D	1.181 x 0.984 [30.0 x 25.0]	75.0	54.0	2.92	3.42
12000.0	82D123M035KD2D	1.181 x 1.575 [30.0 x 40.0]	37.7	27.0	4.89	5.77
10000.0*	82D103M035MB2D	1.378 x 1.181 [35.0 x 30.0]	36.0	24.0	4.97	6.10
15000.0	82D153M035MD2D	1.378 x 1.575 [35.0 x 40.0]	25.0	16.3	6.57	8.13
50 WVDC at + 85 °C, SURGE = 63 V						
1200.0	82D122M050HA2D	0.866 x 0.984 [22.0 x 25.0]	148.0	79.0	1.71	2.32
1800.0	82D182M050HB2D	0.866 x 1.181 [22.0 x 30.0]	108.0	58.0	2.12	2.90
2200.0	82D222M050JB2D	0.984 x 1.181 [25.0 x 30.0]	85.0	48.0	2.61	3.49
3900.0	82D392M050JD2D	0.984 x 1.575 [25.0 x 40.0]	53.6	31.0	3.79	4.96
2700.0	82D272M050KA2D	1.181 x 0.984 [30.0 x 25.0]	85.0	54.0	2.73	3.42
4700.0*	82D472M050MB2D	1.378 x 1.181 [35.0 x 30.0]	43.0	24.0	4.56	6.10
6800.0	82D682M050MD2D	1.378 x 1.575 [35.0 x 40.0]	28.0	16.0	6.21	8.21
10000.0	82D103M050ME2D	1.378 x 1.969 [35.0 x 50.0]	22.0	13.0	7.60	9.87
63 WVDC at + 85 °C, SURGE = 79 V						
1000.0*	82D102M063HA2D	0.866 x 0.984 [22.0 x 25.0]	151.0	75.0	1.69	2.39
1500.0	82D152M063JA2D	0.984 x 0.984 [25.0 x 25.0]	121.0	63.0	2.05	2.86
2200.0	82D222M063JC2D	0.984 x 1.378 [25.0 x 35.0]	72.0	38.0	2.97	4.09
3300.0	82D332M063JD2D	0.984 x 1.575 [25.0 x 40.0]	57.0	30.0	3.69	5.08
3300.0	82D332M063KB2D	1.181 x 1.181 [30.0 x 30.0]	68.0	41.0	3.28	4.20
6800.0	82D682M063KE2D	1.181 x 1.969 [30.0 x 50.0]	34.0	22.0	5.56	6.89
4700.0	82D472M063MC2D	1.378 x 1.378 [35.0 x 35.0]	36.0	20.0	5.24	7.04
100 WVDC at + 85 °C, SURGE = 125 V						
470.0	82D471M100HB2D	0.866 x 1.181 [22.0 x 30.0]	258.0	114.0	1.37	2.07
680.0	82D681M100JB2D	0.984 x 1.181 [25.0 x 30.0]	188.0	86.0	1.75	2.59
1000.0	82D102M100KB2D	1.181 x 1.181 [30.0 x 30.0]	136.0	66.0	2.31	3.31
1500.0	82D152M100KC2D	1.181 x 1.378 [30.0 x 35.0]	106.0	52.0	2.75	3.95
2200.0	82D222M100KE2D	1.181 x 1.969 [30.0 x 50.0]	66.0	33.0	4.02	5.69

*These ratings are normally stocked.

ELECTRICAL DATA AND ORDERING INFORMATION						
CAPACITANCE (μF)	PART NUMBER	NOMINAL CASE SIZE D X L	MAX. ESR at 25 °C (mΩ)		MAX. RIPPLE at + 85 °C (A)	
			120 Hz	20 k - 40 kHz	120 Hz	20 k - 40 kHz
200 WVDC at + 85 °C, SURGE = 250V						
150.0	82D151M200HA2D	0.866 x 0.984 [22.0 x 25.0]	1012.0	361.0	0.697	1.17
220.0	82D221M200HB2D	0.866 x 1.181 [22.0 x 30.0]	594.0	255.0	0.967	1.48
330.0	82D331M200HD2D	0.866 x 1.575 [22.0 x 40.0]	381.0	165.0	1.35	2.06
220.0	82D221M200JA2D	0.984 x 0.984 [25.0 x 25.0]	625.0	272.0	0.967	1.46
470.0	82D471M200JD2D	0.984 x 1.575 [25.0 x 40.0]	271.0	121.0	1.79	2.68
330.0	82D331M200KA2D	1.181 x 0.984 [30.0 x 25.0]	498.0	192.0	1.21	1.96
470.0	82D471M200KB2D	1.181 x 1.181 [30.0 x 30.0]	294.0	136.0	1.64	2.48
680.0	82D681M200KD2D	1.181 x 1575 [30.0 x 40.0]	221.0	87.0	2.14	3.41
1000.0	82D102M200KE2D	1.181 x 1.969 [30.0 x 50.0]	142.0	67.0	2.89	4.22
820.0	82D821M200MC2D	1.378 x 1.378 [35.0 x 35.0]	189.0	93.0	2.46	3.51
1000.0	82D102M200MD2D	1.378 x 1.575 [35.0 x 40.0]	149.0	74.0	2.88	3.41
250 WVDC at + 85 °C, SURGE = 300V						
120.0	82D121M250HA2D	0.866 x 0.984 [22.0 x 25.0]	1077.0	385.0	68.00	1.17
180.0	82D181M250HB2D	0.866 x 1.181 [22.0 x 30.0]	722.0	261.0	88.00	1.52
220.0	82D221M250JB2D	0.984 x 1.181 [25.0 x 30.0]	513.0	189.0	1.13	1.94
330.0	82D331M250JD2D	0.984 x 1.575 [25.0 x 40.0]	382.0	121.0	1.51	2.79
470.0	82D471M250MB2D	1.378 x 1.181 [35.0 x 30.0]	281.0	117.0	1.92	3.07
680.0	82D681M250MD2D	1.378 x 1.575 [35.0 x 40.0]	209.0	74.0	2.43	4.26
1000.0	82D102M250ME2D	1.378 x 1.969 [35.0 x 50.0]	132.0	58.0	3.32	5.21
400 WVDC at + 85°C, SURGE = 450 V						
47.0	82D470M400HA2D	0.866 x 0.984 [22.0 x 25.0]	4310.0	2450.0	0.34	0.45
68.0	82D680M400JA2D	0.984 x 0.984 [25.0 x 25.0]	3020.0	1720.0	0.44	0.58
100.0	82D101M400JB2D	0.984 x 1.181 [25.0 x 30.0]	2060.0	1176.0	0.56	0.74
150.0	82D151M400KB2D	1.181 x 1.181 [30.0 x 30.0]	1430.0	820.0	0.76	1.00
220.0	82D221M400KD2D	1.181 x 1.575 [30.0 x 40.0]	820.0	470.0	1.10	1.46
330.0	82D331M400MD2D	1.378 x 1.575 [35.0 x 40.0]	630.0	360.0	1.39	1.85
450 WVDC at + 85°C, SURGE = 500 V						
39.0	82D390M450HA2D	0.866 x 0.984 [22.0 x 25.0]	4690.0	2460.0	0.32	0.45
56.0	82D560M450JA2D	0.984 x 0.984 [25.0 x 25.0]	3280.0	1730.0	0.42	0.58
100.0	82D101M450JC2D	0.984 x 1.378 [25.0 x 35.0]	1730.0	915.0	0.65	0.89
150.0	82D151M450KC2D	1.181 x 1.378 [30.0 x 35.0]	1150.0	610.0	0.89	1.22
220.0	82D221M450MC2D	1.378 x 1.378 [35.0 x 35.0]	870.0	460.0	1.14	1.56
330.0	82D331M450ME2D	1.378 x 1.969 [35.0 x 50.0]	510.0	274.0	1.68	2.29

Note: Additional Part Numbers in stock include 82D222M050HD2D, 82D472M050JE2D and 82D681M250MD2D. Many other capacitance ratings and voltages are available upon request. Please call for a quotation.



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<u>82D123M035KD2D</u>	<u>82D222M035HA2D</u>	<u>82D562M080ME5D</u>	<u>82D471M250MC5D</u>	<u>82D102M200KE2D</u>
<u>82D151M450KC5D</u>	<u>82D680M400JA2D</u>	<u>82D122M200ME2D</u>	<u>82D682M050MD5D</u>	<u>82D151M300KA2D</u>
<u>82D102M160KE2D</u>	<u>82D471M200KB2D</u>	<u>82D472M035JB2D</u>	<u>82D153M035MD2D</u>	<u>82D272M160MG2D</u>
<u>82D822M050KE2D</u>	<u>82D153M035KE5B</u>	<u>82D102M063HB2D</u>	<u>82D562M035JC5D</u>	<u>82D331M300KD2D</u>
<u>82D472M025HB2D</u>	<u>82D471M350ME2D</u>	<u>82D331M200HD2D</u>	<u>82D682M063KE5D</u>	<u>82D682M063KE2D</u>