

PERFORMANCE SPECIFICATION SHEET

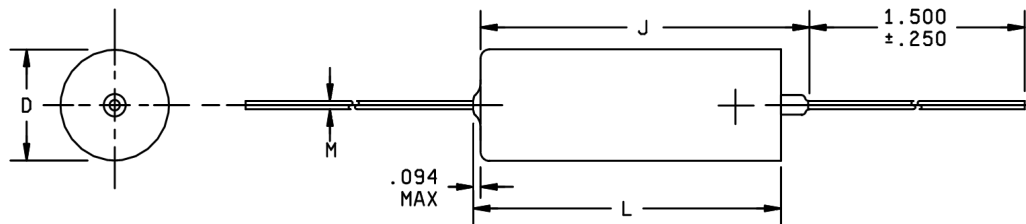
CAPACITOR, FIXED, ELECTROLYTIC (SOLID ELECTROLYTE), TANTALUM
(POLARIZED, SINTERED SLUG), ESTABLISHED RELIABILITY,
STYLE CSR23

FAILURE RATE LEVELS "M", "P" AND "R" ARE
INACTIVE FOR NEW DESIGN AFTER 2 FEBRUARY 1984.

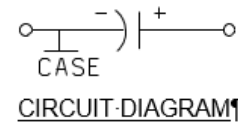
FAILURE RATE LEVEL "S" IS INACTIVE FOR NEW
DESIGN AFTER 15 AUGUST 1984.

This specification sheet is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall
consist of this specification sheet and [MIL-PRF-39003](#).



Inches	mm
.094	2.39
.250	6.35
1.500	38.10



Case size	Dimensions in inches (mm)			
	L ± .031 (0.79)	D ± .016 (0.41)	M ± .002 (0.05)	J max
A	.286 (7.26)	.135 (3.43)	.020 (0.51)	.422 (10.72)
B	.474 (12.04)	.185 (4.70)	.020 (0.51)	.610 (15.49)
C	.686 (17.42)	.289 (7.34)	.025 (0.64)	.822 (20.88)
D	.786 (19.96)	.351 (8.92)	.025 (0.64)	.922 (23.42)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents (in millimeters) are in parentheses and are given for general information only.
3. The case insulation shall extend .015 inch (0.38 mm) minimum beyond each end. However, when a shrink-fitted insulation is used, it shall lap over the ends of the capacitor body.
4. Lead length may be a minimum of 1-inch long for use in tape and reel automatic insertion equipment, when specified.

FIGURE 1. Dimensions and configurations.

AMSC N/A

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.

FSC 5910



REQUIREMENTS:

Dimensions and configuration: See [figure 1](#).

Case type: Tubular, insulated.

Material: Metal (alloy unspecified).

Type of seal: Hermetic.

Leads: Types N-32, N-52, W-32, or W-52 of [MIL-STD-1276](#).

DC rated voltage: See [table I](#). Above +85°C voltage derating is required (see [MIL-PRF-39003](#)).

DC leakage (DCL): See [table I](#).

Capacitance (Cap.) (nom): See [table I](#).

Cap. tolerance: See [table I](#).

Dissipation factor (DF): See [table I](#).

Operating temperature: -55°C to +125°C.

Failure rate level: See [table I](#).

Stability at low and high temperatures: In accordance with [MIL-PRF-39003](#).

Step 1 (+25°C):

DCL: See [table I](#).

Capacitance: Within tolerance of [table I](#) value.

DF: See [table I](#).

Step 2 (-55°C):

Capacitance : Shall not change more than ± 10 percent of step 1 measured value.

DF: See [table I](#).

Step 3 (+25°C):

DCL: See [table I](#).

Capacitance: Shall not change more than ± 2 percent of step 1 measured value.

DF: See [table I](#).

Step 4 (+85°C):

DCL: See [table I](#).

Capacitance: Shall not change more than ± 8 percent of step 1 measured value.

DF: See [table I](#).

MIL-PRF-39003/3K

Step 5 (+125°C):

DCL: See [table I](#).

Capacitance: Shall not change more than ± 12 percent of step 1 measured value.

DF: See [table I](#).

Step 6 (+25°C):

DCL: See [table I](#).

Capacitance: Shall not change more than ± 2 percent of step 1 measured value.

DF: See [table I](#).

Surge voltage: In accordance with [MIL-PRF-39003](#).

DCL: See [table I](#).

Capacitance: Shall not change more than ± 2 percent of initial measured value.

DF: See [table I](#).

Life: In accordance with [MIL-PRF-39003](#).

240, 1,000, and 2,000 hours:

At +25°C (as applicable):

DCL: See [table I](#).

Capacitance: Shall not change more than ± 5 percent of initial measured value.

DF: See [table I](#).

At +85°C:

DCL: See [table I](#).

At +125°C:

DCL: See [table I](#).

4,000, 6,000, 8,000, and 10,000 hours (exponential only):

At +25°C (as applicable):

DCL: 200 percent of initial limit.

Capacitance: Shall not change more than ± 10 percent of initial measured value.

DF: See [table I](#).

MIL-PRF-39003/3K

At +85°C:

DCL: 200 percent of initial limit.

At +125°C:

DCL: 200 percent of initial limit.

Marking: In accordance with [MIL-PRF-39003](#).

TABLE I. Style CSR23 characteristics.

Rated voltage	Cap.	Cap. tolerance	DC leakage			DF -55°C through +125°C	Case size	Part or Identifying Number (PIN) M39003/03 1/ FRL for (%/1,000 hours)							
			+25°C	+85°C	+125°C			M	P	R	S	G	B	C	D
V _{dc}	μF	±%	μA	μA	μA	%		(1.0)	(0.1)	(0.01)	(0.001)	(1.0)	(0.1)	(0.01)	(0.001)
6	10	10	0.9	9	11	6	A	0101-	0201-	0301-	0401-	5001-	2001-	3001-	4001-
6	10	20	0.9	9	11	6	A	0102-	0202-	0302-	0402-	5002-	2002-	3002-	4002-
6	12	10	1	10	12.5	6	A	0103-	0203-	0303-	0403-	5003-	2003-	3003-	4003-
6	100	10	6	60	75	8	B	0104-	0204-	0304-	0404-	5004-	2004-	3004-	4004-
6	100	20	6	60	75	8	B	0105-	0205-	0305-	0405-	5005-	2005-	3005-	4005-
6	330	10	15	150	188	8	C	0106-	0206-	0306-	0406-	5006-	2006-	3006-	4006-
6	330	20	15	150	188	8	C	0107-	0207-	0307-	0407-	5007-	2007-	3007-	4007-
6	390	10	15	150	188	10	C	0108-	0208-	0308-	0408-	5008-	2008-	3008-	4008-
6	470	10	15	150	188	10	C	0109-	0209-	0309-	0409-	5009-	2009-	3009-	4009-
6	470	20	15	150	188	10	C	0110-	0210-	0310-	0410-	5010-	2010-	3010-	4010-
6	680	10	20	200	250	10	D	0111-	0211-	0311-	0411-	5011-	2011-	3011-	4011-
6	680	20	20	200	250	10	D	0112-	0212-	0312-	0412-	5012-	2012-	3012-	4012-
6	820	10	20	200	250	10	D	0113-	0213-	0313-	0413-	5013-	2013-	3013-	4013-
6	1,000	10	30	300	375	10	D	0114-	0214-	0314-	0414-	5014-	2014-	3014-	4014-
6	1,000	20	30	300	375	10	D	0115-	0215-	0315-	0415-	5015-	2015-	3015-	4015-
10	6.8	10	1	10	12.5	6	A	0116-	0216-	0316-	0416-	5016-	2016-	3016-	4016-
10	6.8	20	1	10	12.5	6	A	0117-	0217-	0317-	0417-	5017-	2017-	3017-	4017-
10	8.2	10	1.2	12	15	6	A	0118-	0218-	0318-	0418-	5018-	2018-	3018-	4018-
10	47	10	5	50	63	6	B	0119-	0219-	0319-	0419-	5019-	2019-	3019-	4019-
10	47	20	5	50	63	6	B	0120-	0220-	0320-	0420-	5020-	2020-	3020-	4020-
10	56	10	6	60	75	6	B	0121-	0221-	0321-	0421-	5021-	2021-	3021-	4021-
10	68	10	7	70	88	6	B	0122-	0222-	0322-	0422-	5022-	2022-	3022-	4022-
10	68	20	7	70	88	6	B	0123-	0223-	0323-	0423-	5023-	2023-	3023-	4023-
10	82	10	8	80	100	6	B	0124-	0224-	0324-	0424-	5024-	2024-	3024-	4024-
10	220	10	15	150	188	8	C	0125-	0225-	0325-	0425-	5025-	2025-	3025-	4025-
10	220	20	15	150	188	8	C	0126-	0226-	0326-	0426-	5026-	2026-	3026-	4026-
10	270	10	15	150	188	8	C	0127-	0227-	0327-	0427-	5027-	2027-	3027-	4027-
10	390	10	20	200	250	10	D	0128-	0228-	0328-	0428-	5028-	2028-	3028-	4028-
10	470	10	20	200	250	10	D	0129-	0229-	0329-	0429-	5029-	2029-	3029-	4029-
10	470	20	20	200	250	10	D	0130-	0230-	0330-	0430-	5030-	2030-	3030-	4030-
10	560	10	30	300	375	10	D	0131-	0231-	0331-	0431-	5031-	2031-	3031-	4031-
15	4.7	10	1	10	12.5	4	A	0132-	0232-	0332-	0432-	5032-	2032-	3032-	4032-
15	4.7	20	1	10	12.5	4	A	0133-	0233-	0333-	0433-	5033-	2033-	3033-	4033-
15	5.6	10	1.3	13	16.5	4	A	0134-	0234-	0334-	0434-	5034-	2034-	3034-	4034-
15	33	10	6	60	75	6	B	0135-	0235-	0335-	0435-	5035-	2035-	3035-	4035-
15	33	20	6	60	75	6	B	0136-	0236-	0336-	0436-	5036-	2036-	3036-	4036-
15	39	10	6	60	75	6	B	0137-	0237-	0337-	0437-	5037-	2037-	3037-	4037-
15	150	10	15	150	188	8	C	0138-	0238-	0338-	0438-	5038-	2038-	3038-	4038-
15	150	20	15	150	188	8	C	0139-	0239-	0339-	0439-	5039-	2039-	3039-	4039-
15	180	10	15	150	188	8	C	0140-	0240-	0340-	0440-	5040-	2040-	3040-	4040-
15	220	10	20	200	250	8	D	0141-	0241-	0341-	0441-	5041-	2041-	3041-	4041-
15	220	20	20	200	250	8	D	0142-	0242-	0342-	0442-	5042-	2042-	3042-	4042-
15	270	10	20	200	250	8	D	0143-	0243-	0343-	0443-	5043-	2043-	3043-	4043-

See footnote at end of table.

TABLE I. Style CSR23 characteristics - Continued.

Rated voltage	Cap.	Cap. tolerance	DC leakage			DF -55°C through +125°C	Case size	PIN M39003/03 ^{1/} FRL for (%/1,000 hours)							
			+25°C	+85°C	+125°C			M (1.0)	P (0.1)	R (0.01)	S (0.001)	G (1.0)	B (0.1)	C (0.01)	D (0.001)
V _{dc}	μF	±%	μA	μA	μA	%									
15	330	10	20	200	250	8	D	0144-	0244-	0344-	0444-	5044-	2044-	3044-	4044-
15	330	20	20	200	250	8	D	0145-	0245-	0345-	0445-	5045-	2045-	3045-	4045-
20	2.7	10	0.8	8	10	4	A	0146-	0246-	0346-	0446-	5046-	2046-	3046-	4046-
20	3.3	10	1	10	12.5	4	A	0147-	0247-	0347-	0447-	5047-	2047-	3047-	4047-
20	3.3	20	1	10	12.5	4	A	0148-	0248-	0348-	0448-	5048-	2048-	3048-	4048-
20	3.9	10	1.2	12	15	4	A	0149-	0249-	0349-	0449-	5049-	2049-	3049-	4049-
20	18	10	4	40	50	6	B	0150-	0250-	0350-	0450-	5050-	2050-	3050-	4050-
20	22	10	4	40	50	6	B	0151-	0251-	0351-	0451-	5051-	2051-	3051-	4051-
20	22	20	4	40	50	6	B	0152-	0252-	0352-	0452-	5052-	2052-	3052-	4052-
20	27	10	5	50	63	6	B	0153-	0253-	0353-	0453-	5053-	2053-	3053-	4053-
20	56	10	9	90	110	6	C	0154-	0254-	0354-	0454-	5054-	2054-	3054-	4054-
20	68	10	10	100	125	6	C	0155-	0255-	0355-	0455-	5055-	2055-	3055-	4055-
20	68	20	10	100	125	6	C	0156-	0256-	0356-	0456-	5056-	2056-	3056-	4056-
20	82	10	10	100	125	6	C	0157-	0257-	0357-	0457-	5057-	2057-	3057-	4057-
20	100	10	15	150	188	6	C	0158-	0258-	0358-	0458-	5058-	2058-	3058-	4058-
20	100	20	15	150	188	6	C	0159-	0259-	0359-	0459-	5059-	2059-	3059-	4059-
20	120	10	15	150	188	6	C	0160-	0260-	0360-	0460-	5060-	2060-	3060-	4060-
20	150	10	20	200	250	8	D	0161-	0261-	0361-	0461-	5061-	2061-	3061-	4061-
20	150	20	20	200	250	8	D	0162-	0262-	0362-	0462-	5062-	2062-	3062-	4062-
20	180	10	20	200	250	8	D	0163-	0263-	0363-	0463-	5063-	2063-	3063-	4063-
35	1.8	10	1	10	12.5	4	A	0164-	0264-	0364-	0464-	5064-	2064-	3064-	4064-
35	8.2	10	3.5	35	44	6	B	0165-	0265-	0365-	0465-	5065-	2065-	3065-	4065-
35	10	10	4	40	50	6	B	0166-	0266-	0366-	0466-	5066-	2066-	3066-	4066-
35	10	20	4	40	50	6	B	0167-	0267-	0367-	0467-	5067-	2067-	3067-	4067-
35	33	10	10	100	125	6	C	0168-	0268-	0368-	0468-	5068-	2068-	3068-	4068-
35	33	20	10	100	125	6	C	0169-	0269-	0369-	0469-	5069-	2069-	3069-	4069-
35	39	10	10	100	125	6	C	0170-	0270-	0370-	0470-	5070-	2070-	3070-	4070-
35	47	10	10	100	125	6	C	0171-	0271-	0371-	0471-	5071-	2071-	3071-	4071-
35	47	20	10	100	125	6	C	0172-	0272-	0372-	0472-	5072-	2072-	3072-	4072-
35	56	10	15	150	188	6	D	0173-	0273-	0373-	0473-	5073-	2073-	3073-	4073-
35	68	10	15	150	188	6	D	0174-	0274-	0374-	0474-	5074-	2074-	3074-	4074-
35	68	20	15	150	188	6	D	0175-	0275-	0375-	0475-	5075-	2075-	3075-	4075-
50	1.2	10	0.9	9	11	4	A	0176-	0276-	0376-	0476-	5076-	2076-	3076-	4076-
50	1.5	10	1.2	12	15	4	A	0177-	0277-	0377-	0477-	5077-	2077-	3077-	4077-
50	1.5	20	1.2	12	15	4	A	0178-	0278-	0378-	0478-	5078-	2078-	3078-	4078-
50	5.6	10	4.5	45	56	4	B	0179-	0279-	0379-	0479-	5079-	2079-	3079-	4079-
50	6.8	10	4.5	45	56	6	B	0180-	0280-	0380-	0480-	5080-	2080-	3080-	4080-
50	6.8	20	4.5	45	56	6	B	0181-	0281-	0381-	0481-	5081-	2081-	3081-	4081-
50	22	10	10	100	125	6	C	0182-	0282-	0382-	0482-	5082-	2082-	3082-	4082-
50	22	20	10	100	125	6	C	0183-	0283-	0383-	0483-	5083-	2083-	3083-	4083-
50	27	10	10	100	125	6	C	0184-	0284-	0384-	0484-	5084-	2084-	3084-	4084-
50	33	10	10	100	125	6	D	0185-	0285-	0385-	0485-	5085-	2085-	3085-	4085-
50	33	20	10	100	125	6	D	0186-	0286-	0386-	0486-	5086-	2086-	3086-	4086-
50	39	10	10	100	125	6	D	0187-	0287-	0387-	0487-	5087-	2087-	3087-	4087-

^{1/} Dash number shall include a letter that indicates user preference for surge current/high temperature solder or the dash will be deleted.

Reference documents. In addition to [MIL-PRF-39003](#), this specification sheet references [MIL-STD-1276](#).

Changes from previous issue: The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

(Project 5910-2023-005)

Review activities:

Navy - AS, MC, OS, SH
Air Force - 19

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>.