

INCH-POUND

MIL-PRF-39018/1H
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 SUPERSEDING
 MIL-PRF-39018/1G
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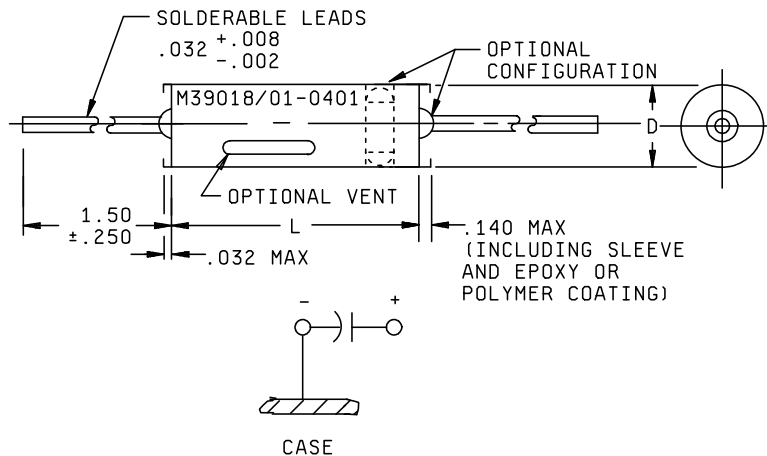
PERFORMANCE SPECIFICATION SHEET

CAPACITORS, FIXED, ELECTROLYTIC (ALUMINUM OXIDE)
 (POLARIZED), NON-ESTABLISHED RELIABILITY AND ESTABLISHED RELIABILITY
 STYLES CU12 (UNINSULATED), CU13 (INSULATED), AND CUR13 (INSULATED)

STYLE CU12 INACTIVE FOR
 DESIGN AFTER 23 MARCH 1972

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

The requirements for acquiring the capacitors described herein shall consist of this specification sheet and [MIL-PRF-39018](#).



Case size	Dimensions		Inches	mm	Inches	mm
	L ± .031	D ± .015 See note 4				
A0	.938	.281	.002	0.05	.375	9.53
A1	.938	.375	.008	0.20	.938	23.83
A2	1.125	.375	.015	0.38	1.125	28.57
A3	1.375	.375	.031	0.79	1.375	34.92
A4	1.625	.375	.032	0.81	1.50	38.1
A5	2.188	.375	.140	3.56	1.625	41.27
A6	2.688	.375	.250	6.35	2.188	55.58
			.281	7.14	2.688	68.28

FIGURE 1. Styles CU12, CU13, and CUR13 capacitors.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. These capacitors are not intended to be mounted by their leads.
4. The "D" dimensions for styles CU13 and CUR13 shall be not more than .008 (0.20 mm) larger than the specified bare case diameter.

FIGURE 1. Styles CU12, CU13, and CUR13 capacitors - Continued.

REQUIREMENTS:

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

Case: Type - Tubular.

Material - Metal.

Leads - See [figure 1](#).

DC rated voltage: See [table I](#).

Reverse voltage: 3.0 volts maximum.

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

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

Failure rate level (CUR13 only): M, P, R, and S.

Operating temperature range: -55°C to +85°C derated to +125°C (see [table I](#)).

Burn-in (CUR13 only): In accordance with [MIL-PRF-39018](#).

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

Equivalent series resistance (ESR): See [table I](#).

Low temperature exposure:

DCL: See [table I](#).

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

ESR: See [table I](#).

Solderability: In accordance with [MIL-PRF-39018](#).

Terminal strength: [Method 211 of MIL-STD-202](#), test condition A (3 pounds) and test condition D (3 rotations).

TABLE I. Styles CU12, CU13, and CUR13 capacitors.

DC rated voltage		Cap.	DC surge voltage		ESR		Max. Imped. at -55°C and 120 Hz	DC leakage		Max. ac ripple current 120 Hz at 85°C 1/	Case size	Dash number								
												Style CU12			Style CU13			Style CUR13 2/		
+85°C	+125°C		+85°C	+125°C	+25°C	+85°C and +125°C		+25°C	+85°C and +125°C			Capacitance tolerance			Capacitance tolerance			Capacitance tolerance		
												-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75
volts		μF	volts		Ω		Ω	μA		mA		Percent			Percent			Percent		
7	5	220	10	7	1.21	1.51	20	3	18	290 3/	A1	0401	---	0501	0601	---	0701	1001-	---	1101-
7	5	270	10	7	.98	1.23	17	3	18	360 3/	A2	0402	---	0502	0602	---	0702	1002-	---	1102-
7	5	390	10	7	.68	.85	12	4	24	520 3/	A3	0403	---	0503	0603	---	0703	1003-	---	1103-
7	5	560	10	7	.47	.59	8	5	30	750 3/	A4	0404	---	0504	0604	---	0704	1004-	---	1104-
7	5	820	10	7	.32	.40	5.5	7	42	1100 3/	A5	0405	---	0505	0605	---	0705	1005-	---	1105-
7	5	1000	10	7	.27	.33	4.5	10	60	1350 3/	A6	0406	---	0506	0606	---	0706	1006-	---	1106-
10	7	100	15	10	2.65	3.32	38	2	12	285 3/	A0	0407	---	0507	0607	---	0707	1007-	---	1107-
10	7	180	15	10	1.47	1.84	25	3	18	438 3/	A1	0408	---	0508	0608	---	0708	1008-	---	1108-
10	7	220	15	10	1.21	1.51	20	3	18	527 3/	A2	0409	---	0509	0609	---	0709	1009-	---	1109-
10	7	330	15	10	.80	1.00	14	4	24	696 3/	A3	0410	---	0510	0610	---	0710	1010-	---	1110-
10	7	470	15	10	.56	.71	9.6	5	30	892 3/	A4	0411	---	0511	0611	---	0711	1011-	---	1111-
10	7	680	15	10	.39	.49	6.6	7	42	1210	A5	0412	---	0512	0612	---	0712	1012-	---	1112-
10	7	820	15	10	.32	.40	5.5	10	60	1490	A6	0413	---	0513	0613	---	0713	1013-	---	1113-
15	10	68	20	15	3.90	4.86	66	2	12	181 3/	A0	0414	---	0514	0614	---	0714	1014-	---	1114-
15	10	82	20	15	3.23	4.04	55	2	12	219 3/	A0	0415	---	0515	0615	---	0715	1015-	---	1115-
15	10	150	20	15	1.77	2.21	30	3	18	400	A1	0416	---	0516	0616	---	0716	1016-	---	1116-
15	10	180	20	15	1.47	1.84	25	3	18	475	A2	0417	---	0517	0617	---	0717	1017-	---	1117-
15	10	270	20	15	.98	1.23	17	4	24	628	A3	0418	---	0518	0618	---	0718	1018-	---	1118-
15	10	390	20	15	.68	.85	12	5	30	810	A4	0419	---	0519	0619	---	0719	1019-	---	1119-
15	10	560	20	15	.47	.59	8	7	42	1100	A5	0420	---	0520	0620	---	0720	1020-	---	1120-
15	10	680	20	15	.39	.49	6.6	10	60	1320	A6	0421	---	0521	0621	---	0721	1021-	---	1121-
30	20	33	40	30	8.04	10.05	91	2	12	164	A0	0422	---	0522	0622	---	0722	1022-	---	1122-
30	20	47	40	30	5.64	7.05	64	2	12	196	A0	0423	---	0523	0623	---	0723	1023-	---	1123-
30	20	82	40	30	3.23	4.04	36	3	18	297	A1	0424	---	0524	0624	---	0724	1024-	---	1124-
30	20	100	40	30	2.65	3.33	30	3	18	353	A2	0425	---	0525	0625	---	0725	1025-	---	1125-
30	20	120	40	30	2.21	2.76	25	4	24	419	A3	0426	---	0526	0626	---	0726	1026-	---	1126-
30	20	150	40	30	1.77	2.21	20	4	24	470	A3	0427	---	0527	0627	---	0727	1027-	---	1127-
30	20	220	40	30	1.20	1.51	14	5	30	607	A4	0428	---	0528	0628	---	0728	1028-	---	1128-
30	20	330	40	30	.80	1.00	9.1	7	42	848	A5	0429	---	0529	0629	---	0729	1029-	---	1129-
30	20	390	40	30	.68	.85	7.7	10	60	1000	A6	0430	---	0530	0630	---	0730	1030-	---	1130-

See footnotes at end of table.

TABLE I. Styles CU12, CU13, and CUR13 capacitors - Continued.

DC rated voltage		Cap	DC surge voltage		ESR		Max. Imped. at -55°C and 120 Hz	DC leakage		Max. ac ripple current 120 Hz at 85°C 1/	Case size	Dash number								
												Style CU12			Style CU13			Style CUR13 2/		
+85°C	+125°C		+85°C	+125°C	+25°C	+85°C and +125°C		+25°C	+85°C and +125°C			Capacitance tolerance			Capacitance tolerance			Capacitance tolerance		
												-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75
volts		μF	volts		Ω		Ω	μA		mA		Percent			Percent			Percent		
50	40	22	60	50	9.04	15.07	140	2	12	134	A0	0431	---	0531	0631	---	0731	1031-	---	1131-
50	40	33	60	50	5.03	10.05	91	3	18	188	A1	0432	---	0532	0632	---	0732	1032-	---	1132-
50	40	47	60	50	4.23	7.05	64	3	18	243	A2	0433	---	0533	0633	---	0733	1033-	---	1133-
50	40	56	60	50	3.55	5.92	54	4	24	286	A3	0434	---	0534	0634	---	0734	1034-	---	1134-
50	40	68	60	50	2.92	4.88	44	4	24	315	A3	0435	---	0535	0635	---	0735	1035-	---	1135-
50	40	100	60	50	1.99	3.32	30	5	30	410	A4	0436	---	0536	0636	---	0736	1036-	---	1136-
50	40	150	60	50	1.33	2.21	20	7	42	571	A5	0437	---	0537	0637	---	0737	1037-	---	1137-
50	40	180	60	50	1.11	1.84	17	10	60	680	A6	0438	---	0538	0638	---	0738	1038-	---	1138-
75	60	12	90	75	16.58	27.63	250	2	12	96	A0	0439	---	0539	0639	---	0739	1039-	---	1139-
75	60	22	90	75	9.04	15.07	140	3	18	153	A1	0440	---	0540	0640	---	0740	1040-	---	1140-
75	60	33	90	75	6.03	10.05	91	3	18	204	A2	0441	---	0541	0641	---	0741	1041-	---	1141-
75	60	47	90	75	4.27	7.05	64	4	24	262	A3	0442	---	0542	0642	---	0742	1042-	---	1142-
75	60	68	90	75	2.92	4.88	44	5	30	337	A4	0443	---	0543	0643	---	0743	1043-	---	1143-
75	60	100	90	75	1.99	3.32	30	7	42	506	A5	0444	---	0544	0644	---	0744	1044-	---	1144-
75	60	120	90	75	1.65	2.76	25	10	60	555	A6	0445	---	0545	0645	---	0745	1045-	---	1145-
100	75	8.2	125	100	24.26	40.44	360	2	12	82	A0	0446	---	0546	0646	---	0746	1046-	---	1146-
100	75	12	125	100	16.54	27.63	250	3	18	109	A1	0447	---	0547	0647	---	0747	1047-	---	1147-
100	75	15	125	100	13.26	22.10	200	3	18	137	A2	0448	---	0548	0648	---	0748	1048-	---	1148-
100	75	22	125	100	9.04	15.07	140	4	24	179	A3	0449	---	0549	0649	---	0749	1049-	---	1149-
100	75	33	125	100	6.03	10.05	91	5	30	235	A4	0450	---	0550	0650	---	0750	1050-	---	1150-
100	75	47	125	100	4.23	7.05	64	7	42	319	A5	0451	---	0551	0651	---	0751	1051-	---	1151-
100	75	68	125	100	2.92	4.88	44	10	60	417	A6	0452	---	0552	0652	---	0752	1052-	---	1152-
150	100	4.7	175	125	28.22	56.44	640	2	12	69	A0	0453	0553	---	0653	0753	---	1053-	1153-	---
150	100	5.6	175	125	23.68	47.37	540	2	12	75	A0	0454	0554	---	0654	0754	---	1054-	1154-	---
150	100	8.2	175	125	10.17	32.35	360	3	18	105	A1	0455	0555	---	0655	0755	---	1055-	1155-	---
150	100	12	175	125	11.05	22.10	250	3	18	137	A2	0456	0556	---	0656	0756	---	1056-	1156-	---
150	100	18	175	125	7.37	14.74	170	4	24	182	A3	0457	0557	---	0657	0757	---	1057-	1157-	---
150	100	22	175	125	6.03	12.06	140	5	30	214	A4	0458	0558	---	0658	0758	---	1058-	1158-	---
150	100	33	175	125	4.02	8.04	91	7	42	300	A5	0459	0559	---	0659	0759	---	1059-	1159-	---
150	100	56	175	125	2.37	4.74	54	10	60	423	A6	0460	0560	---	0660	0760	---	1060-	1160-	---

See footnotes at end of table.

TABLE I. Styles CU12, CU13, and CUR13 capacitors - Continued.

DC rated voltage		Cap	DC surge voltage		ESR		Max. Imped. at -55°C and 120 Hz	DC leakage		Max. ac ripple current 120 Hz at 85°C 1/	Case size	Dash number								
												Style CU12			Style CU13			Style CUR13 2/		
+85°C	+125°C		+85°C	+125°C	+25°C	+85°C and +125°C		+25°C	+85°C and +125°C			Capacitance tolerance			Capacitance tolerance			Capacitance tolerance		
												-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75
volts		μF	volts		Ω		Ω	μA		mA		Percent			Percent			Percent		
200	150	3.3	225	175	40.30	80.38	770	4	24	63	A0	0490	0590	---	0690	0790	---	1061-	1161-	---
200	150	3.9	225	175	34.01	68.02	500	4	24	68	A0	0461	0561	---	0661	0761	---	1089-	1189-	---
200	150	5.6	225	175	23.68	47.37	333	6	36	86	A1	0462	0562	---	0662	0762	---	1062-	1162-	---
200	150	8.2	225	175	16.17	32.35	250	6	36	113	A2	0463	0563	---	0663	0763	---	1063-	1163-	---
200	150	12	225	175	11.05	22.10	154	8	48	148	A3	0464	0564	---	0664	0764	---	1064-	1164-	---
200	150	15	225	175	8.84	17.68	118	10	60	177	A4	0465	0565	---	0665	0765	---	1065-	1165-	---
200	150	27	225	175	4.91	9.82	77	14	84	271	A5	0466	0566	---	0666	0766	---	1066-	1166-	---
200	150	39	225	175	3.40	6.80	51	20	120	353	A6	0467	0567	---	0667	0767	---	1067-	1167-	---
250	200	2.2	275	225	60.45	120.57	910	4	24	58	A0	0491	0591	---	0691	0791	---	1068-	1168-	---
250	200	3.3	275	225	40.19	80.38	910	4	24	70	A0	0468	0568	---	0668	0768	---	1090-	1190-	---
250	200	5.6	275	225	23.68	47.37	540	6	36	86	A1	0469	0569	---	0669	0769	---	1069-	1169-	---
250	200	6.8	275	225	19.50	39.01	440	6	36	103	A2	0470	0570	---	0670	0770	---	1070-	1170-	---
250	200	10	275	225	13.26	26.53	300	8	48	125	A3	0471	0571	---	0671	0771	---	1071-	1171-	---
250	200	12	275	225	11.05	22.10	250	10	60	159	A4	0472	0572	---	0672	0772	---	1072-	1172-	---
250	200	22	275	225	6.03	12.06	140	14	84	245	A5	0473	0573	---	0673	0773	---	1073-	1173-	---
250	200	27	275	225	4.91	9.82	110	20	120	294	A6	0474	0574	---	0674	0774	---	1074-	1174-	---
300	225	1.5	325	250	132.66	221.05	1300	16	96	42	A0	0492	0592	---	0692	0792	---	1075-	1175-	---
300	225	2.2	325	250	90.43	150.71	1300	16	96	51	A0	0475	0575	---	0675	0775	---	1091-	1191-	---
300	225	3.9	325	250	51.01	85.02	640	20	120	71	A1	0493	0593	---	0693	0793	---	1076-	1176-	---
300	225	4.7	325	250	42.33	70.55	640	20	120	78	A1	0476	0576	---	0676	0776	---	1092-	1192-	---
300	225	5.6	325	250	35.53	59.21	440	22	132	84	A2	0489	0589	---	0689	0789	---	1077-	1177-	---
300	225	8.2	325	250	24.26	40.44	370	24	144	110	A3	0478	0578	---	0678	0778	---	1078-	1178-	---
300	225	10	325	250	19.89	33.16	300	26	156	130	A4	0479	0579	---	0679	0779	---	1079-	1179-	---
300	225	16	325	250	12.43	20.72	200	30	180	185	A5	0480	0580	---	0680	0780	---	1080-	1180-	---
300	225	18	325	250	11.05	18.42	170	36	216	217	A6	0481	0581	---	0681	0781	---	1081-	1181-	---
350	275	1.0	375	300	199.00	331.57	2000	20	120	35	A0	0494	0594	---	0694	0794	---	1082-	1182-	---
350	275	3.3	375	300	60.29	100.42	910	26	156	59	A1	0483	0583	---	0683	0783	---	1083-	1183	---
350	275	3.9	375	300	51.01	85.02	770	28	168	70	A2	0484	0584	---	0684	0784	---	1084-	1184-	---
350	275	5.6	375	300	35.53	59.21	540	32	192	90	A3	0485	0585	---	0685	0785	---	1085-	1185-	---
350	275	6.8	375	300	29.26	48.76	440	34	204	107	A4	0486	0586	---	0686	0786	---	1086-	1186-	---
350	275	10	375	300	19.89	33.16	300	38	228	148	A5	0487	0587	---	0687	0787	---	1087-	1187-	---
350	275	12	375	300	16.58	27.63	250	42	252	174	A6	0488	0588	---	0688	0788	---	1088-	1188-	---

1/ The ripple current values shown are representative values not supported by test data.

2/ The last letter in dash number will indicate FR level symbol ("M", "P", "R", or "S"). For style CUR13 with random vibration, the letter "R" will be used in place of the dash between the spec sheet number and the dash number (i.e., M39018/01R1046M).

3/ Maximum current due to voltage limitations.

Stability at reduced and high temperatures:

Step 1 (at +25°C):

DCL: See [table I](#).

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

ESR: See [table I](#).

Step 2 (at -55°C):

Impedance: See [table I](#).

Δ Cap.: Within ± 30 percent of step 1 value.

Step 3 (at +25°C):

DCL: See [table I](#).

Δ Cap.: Within ± 5 percent of step 1 value.

ESR: See [table I](#).

Step 4 (at +125°C):

DCL: See [table I](#).

Δ Cap.: Within ± 25 percent of step 1 value.

ESR: See [table I](#).

Step 5 (at +25°C):

DCL: See [table I](#).

Δ Cap.: Within ± 5 percent of step 1 value.

ESR: See [table I](#).

Life: [Method 108 of MIL-STD-202](#).

For qualification: Condition F (2,000 hours) at +85°C.

DCL: See [table I](#).

Δ Cap.: Within ± 15 percent of initial measured value.

ESR: Not more than 130 percent of initial requirement.

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For quality conformance: Performance check, condition B (250 hours) at +85°C (non-ER).

DCL: See [table I](#).

Δ Cap.: Within ± 10 percent of initial measured value.

ESR: See [table I](#).

For quality conformance: Continuation test (1,750 hours) at +85°C (non-ER).

DCL: See [table I](#).

Δ Cap.: Within ± 15 percent of initial measured value.

ESR: Not more than 130 percent of initial requirement.

For quality conformance: 10,000 hours (ER) at +85°C.

DCL: At +25°C initial limit, at +85°C, 125 percent of initial limit.

Δ Cap.: Within ± 25 percent of initial measured value.

ESR: Not more than 200 percent of initial requirement.

Case insulation (CU13 and CUR13 only): In accordance with [MIL-PRF-39018](#).

Vibration:

* High frequency: In accordance with [MIL-PRF-39018](#).

Random (style CUR13 only) (when applicable): In accordance with [MIL-PRF-39018](#).

Thermal shock and immersion:

Thermal shock: [Method 107 of MIL-STD-202](#), condition A, except in step 3, units shall be tested at applicable high temperature.

Immersion: [Method 104 of MIL-STD-202](#), condition B (2 cycles, 30 minutes).

DCL: See [table I](#).

Δ Cap.: Within ± 5 percent of initial measured value.

ESR: See [table I](#).

Case insulation (CU13 and CUR13 only): Shall meet initial requirement.

Surge voltage:

DCL: See [table I](#).

Δ Cap.: Within ± 6 percent of initial measured value.

ESR: See [table I](#).

Moisture resistance: [Method 106 of MIL-STD-202](#).

DCL: See [table I](#).

Δ Cap: Within ± 6 percent of initial measured value.

ESR: See [table I](#).

Case Insulation (CU13 and CUR13 only): Shall meet initial requirement.

High temperature exposure (500 hours at +125°C):

DCL: Not more than 200 percent of initial requirement for units less than 150 volts and 300 percent for units 150 volts and greater.

Δ Cap.: Within ± 10 percent of initial measured value.

ESR: Not more than 115 percent of initial requirement.

Reverse voltage:

After 125 hours at 125°C with 1 +0 - .1 reverse volt applied to units rated at 7 V dc, and 3 +0 - .3 reverse volts applied to all others.

After additional 125 hours at 125°C with rated forward voltage applied:

DCL: Within 125 percent of initial requirement.

Δ Cap.: Within the following percentages of the initial measured value:

7 to 30 V dc inclusive: +10, -25 percent.

50 to 350 V dc inclusive: ± 10 percent.

ESR: See [table I](#).

Penetration of solvents: In accordance with [MIL-PRF-39018](#).

High temperature verification: In accordance with [MIL-PRF-39018](#) at +125°C with derated voltage applied:

DCL: See [table I](#).

Δ Cap: Within 10 percent of initial measured value.

ESR: Not more than 130 percent of initial requirement.

Reverse voltage aging: In accordance with [MIL-PRF-39018](#).

Marking: In accordance with [MIL-PRF-39018](#).

Part or Identifying Number (PIN): M39018/01- (Dash number from table I). For style CUR13, parts with random vibration, the letter R shall be used in place of the dash (i.e., M39018/01R1046M).

Substitutability data: [See table II](#).

MIL-PRF-39018/1H

TABLE II. Substitutability data.

Dash number in MIL-PRF-39018/1A, /1B, /1C, /1D, /1E 1/						Dash number MIL-PRF-39018/1					
Style CU12			Style CU13			Style CU12			Style CU13		
Capacitance tolerance			Capacitance tolerance			Capacitance tolerance			Capacitance tolerance		
-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75
0401	---	0501	0601	---	0701	0005	---	0006	0007	---	0008
0402	---	0502	0602	---	0702	0009	---	0010	0011	---	0012
0403	---	0503	0603	---	0703	0013	---	0014	0015	---	0016
0404	---	0504	0604	---	0704	0017	---	0018	0019	---	0020
0405	---	0505	0605	---	0705	0021	---	0022	0023	---	0024
0406	---	0506	0606	---	0706	0025	---	0026	0027	---	0028
---	---	---	---	---	---	0001	---	0002	0003	---	0004
0407	---	0507	0607	---	0707	0029	---	0030	0031	---	0032
0408	---	0508	0608	---	0708	0033	---	0034	0035	---	0036
0409	---	0509	0609	---	0709	0037	---	0038	0039	---	0040
0410	---	0510	0610	---	0710	0041	---	0042	0043	---	0044
0411	---	0511	0611	---	0711	0045	---	0046	0047	---	0048
0412	---	0512	0612	---	0712	0049	---	0050	0051	---	0052
0413	---	0513	0613	---	0713	0053	---	0054	0055	---	0056
0414	---	0514	0614	---	0714	0057	---	0058	0059	---	0060
0415	---	0515	0615	---	0715	0061	---	0062	0063	---	0064
0416	---	0516	0616	---	0716	0065	---	0066	0067	---	0068
0417	---	0517	0617	---	0717	0069	---	0070	0071	---	0072
0418	---	0518	0618	---	0718	0073	---	0074	0075	---	0076
0419	---	0519	0619	---	0719	0077	---	0078	0079	---	0080
0420	---	0520	0620	---	0720	0081	---	0082	0083	---	0084
0421	---	0521	0621	---	0721	0085	---	0086	0087	---	0088
0422	---	0522	0622	---	0722	0089	---	0090	0091	---	0092
0423	---	0523	0623	---	0723	0093	---	0094	0095	---	0096
0424	---	0524	0624	---	0724	0097	---	0098	0099	---	0100
0425	---	0525	0625	---	0725	0101	---	0102	0103	---	0104
0426	---	0526	0626	---	0726	0105	---	0106	0107	---	0108
0427	---	0527	0627	---	0727	0109	---	0110	0111	---	0112
0428	---	0528	0628	---	0728	0113	---	0114	0115	---	0116
0429	---	0529	0629	---	0729	0117	---	0118	0119	---	0120
0430	---	0530	0630	---	0730	0121	---	0122	0123	---	0124
0431	---	0531	0631	---	0731	0125	---	0126	0127	---	0128
0432	---	0532	0632	---	0732	0129	---	0130	0131	---	0132
0433	---	0533	0633	---	0733	0133	---	0134	0135	---	0136
0434	---	0534	0634	---	0734	0137	---	0138	0139	---	0140
0435	---	0535	0635	---	0735	0141	---	0142	0143	---	0144
0436	---	0536	0636	---	0736	0145	---	0146	0147	---	0148
0437	---	0537	0637	---	0737	0149	---	0150	0151	---	0152
0438	---	0538	0638	---	0738	0153	---	0154	0155	---	0156
0439	---	0539	0639	---	0739	0157	---	0158	0159	---	0160
0440	---	0540	0640	---	0740	0161	---	0162	0163	---	0164
0441	---	0541	0641	---	0741	0165	---	0166	0167	---	0168
0442	---	0542	0642	---	0742	0169	---	0170	0171	---	0172
0443	---	0543	0643	---	0743	0173	---	0174	0175	---	0176
0444	---	0544	0644	---	0744	0177	---	0178	0179	---	0180
0445	---	0545	0645	---	0745	0181	---	0182	0183	---	0184
0446	0546	---	0646	0746	---	0185	0186	---	0187	0188	---
0447	0547	---	0647	0747	---	0189	0190	---	0191	0192	---
0448	0548	---	0648	0748	---	0193	0194	---	0195	0196	---
0449	0549	---	0649	0749	---	0197	0198	---	0199	0200	---
0450	0550	---	0650	0750	---	0201	0202	---	0203	0204	---
0451	0551	---	0651	0751	---	0205	0206	---	0207	0208	---

See footnotes at end of table.

MIL-PRF-39018/1H

TABLE II. Substitutability data - Continued.

Dash number in MIL-PRF-39018/1A, /1B, /1C, /1D, /1E 1/						Dash number MIL-PRF-39018/1					
Style CU12			Style CU13			Style CU12			Style CU13		
Capacitance tolerance			Capacitance tolerance			Capacitance tolerance			Capacitance tolerance		
-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75	-10 +30	-10 +50	-10 +75
0452	0552	---	0652	0752	---	0209	0210	---	0211	0212	---
0453	0553	---	0653	0753	---	0213	0214	---	0215	0216	---
0454	0554	---	0654	0754	---	0217	0218	---	0219	0220	---
0455	0555	---	0655	0755	---	0221	0222	---	0223	0224	---
0456	0556	---	0656	0756	---	0225	0226	---	0227	0228	---
0457	0557	---	0657	0757	---	0229	0230	---	0231	0232	---
0458	0558	---	0658	0758	---	0233	0234	---	0235	0236	---
0459	0559	---	0659	0759	---	0237	0238	---	0239	0240	---
0460	0560	---	0660	0760	---	0241	0242	---	0243	0244	---
0461	0561	---	0661	0761	---	---	---	---	---	---	---
0462	0562	---	0662	0762	---	---	---	---	---	---	---
0463	0563	---	0663	0763	---	---	---	---	---	---	---
0464	0564	---	0664	0764	---	---	---	---	---	---	---
0465	0565	---	0665	0765	---	---	---	---	---	---	---
0466	0566	---	0666	0766	---	---	---	---	---	---	---
0467	0567	---	0667	0767	---	0245	0246	---	0247	0248	---
0468	0568	---	0668	0768	---	0249	0250	---	0251	0252	---
0469	0569	---	0669	0769	---	0253	0254	---	0255	0256	---
0470	0570	---	0670	0770	---	0257	0258	---	0259	0260	---
0471	0571	---	0671	0771	---	0261	0262	---	0263	0264	---
0472	0572	---	0672	0772	---	0265	0266	---	0267	0268	---
0473	0573	---	0673	0773	---	0269	0270	---	0271	0272	---
0474	0574	---	0674	0774	---	0273	0274	---	0275	0276	---

1/ The following dash numbers have been canceled with no replacement items recommended:

0477	0577	0677	0777
0482	0582	0682	0782

APPLICATION NOTE:

Ripple current: The maximum permissible ripple current for these capacitors can be determined from [table III](#). The appropriate multiplier from this table should be used where operation at other frequencies or temperatures is desired. Operation of these capacitors outside the limits of 60 to 100,000 Hz is not recommended.

TABLE III. Ripple current multipliers.

With temperature	+25°C	+45°C	+65°C	+85°C	+125°C
	1.4	1.4	1.2	1.0	0.3
With frequency		60 Hz	120 Hz	400 Hz	1 K through
	0- 60 volts	.85	1.0	1.1	1.15
	61-200	.83	1.0	1.15	1.2
	201-350	.80	1.0	1.3	1.4

NOTES:

Reference document. [MIL-PRF-39018.](#)
[MIL-STD-202.](#)

Changes from previous issue. The margins of this specification are marked with asterisks 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 5910-2009-020)

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 change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil/>.