

INCH-POUND

MIL-C-18312/3C
27 August 2001
SUPERSEDING
MIL-C-18312/3B
8 January 1970

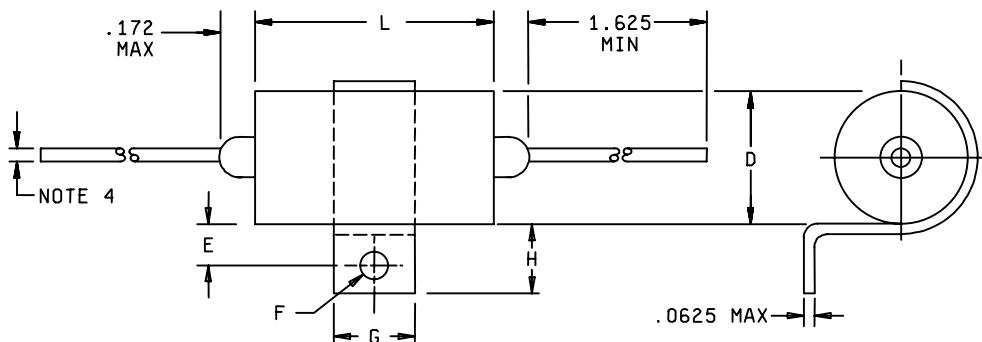
MILITARY SPECIFICATION SHEET

CAPACITORS, FIXED, METALLIZED (PAPER-PLASTIC, OR PLASTIC FILM) DIELECTRIC, DIRECT CURRENT (HERMETICALLY SEALED IN METAL CASES), STYLE CH12

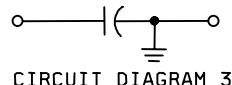
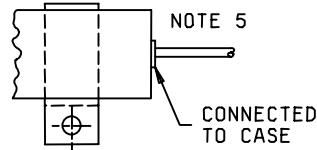
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-C-18312.

INACTIVE FOR NEW DESIGN, AFTER
8 JANUARY 1970. USE MIL-PRF-39022/8



CIRCUIT DIAGRAM 1



	Inches	mm
.0625	.157	
.172	4.37	
1.625	41.28	

NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only.
- See table I for additional dimensions.
- Number 22 AWG wire for case diameters of .312 inch (7.92 mm) and under. Number 20 AWG wire for case diameters over .312 inch (7.92 mm).
- Bracket wraparound is approximately 135° for case diameter of .400 inch (10.16 mm) and smaller, and 225° for case diameters greater than .400 inch (10.16 mm).

REQUIREMENTS:

Dimensions: See figure and table I.

TABLE I. Characteristics.

Part or Identifying Number (PIN) 1/	DC rated voltage (volts)	Capacitance value (μ F)	Circuit diagram	Dimensions, nominal (inches) 2/						Superseded MIL-C-18312/3A dash numbers	
				L $\pm .062$	D $\pm .031$	H $\pm .062$	G $\pm .062$	E $\pm .031$	F $\pm .005$	Capacitance tolerance $\pm 10\%$	Capacitance tolerance $\pm 20\%$
CH12A1NC104-	200	0.10	1	0.844	0.312	0.312	0.250	0.188	0.144	0201	0202
CH12A3NC104-	200	0.10	3	0.781	0.312	0.312	0.250	0.188	0.144	0203	0204
CH12A1NC224-	200	0.22	1	1.125	0.312	0.312	0.250	0.188	0.144	0205	0206
CH12A3NC224-	200	0.22	3	1.062	0.312	0.312	0.250	0.188	0.144	0207	0208
CH12A1NC474-	200	0.47	1	1.125	0.400	0.312	0.250	0.188	0.144	0209	0210
CH12A3NC474-	200	0.47	3	1.062	0.400	0.312	0.250	0.188	0.144	0211	0212
CH12A1NC105-	200	1.0	1	1.125	0.562	0.438	0.500	0.250	0.156	0213	0214
CH12A3NC105-	200	1.0	3	1.062	0.562	0.438	0.500	0.250	0.156	0215	0216
CH12A1NC155-	200	1.5	1	1.844	0.562	0.438	0.500	0.250	0.156	0217	0218
CH12A3NC155-	200	1.5	3	1.781	0.562	0.438	0.500	0.250	0.156	0219	0220
CH12A1NC225-	200	2.2	1	1.844	0.562	0.438	0.500	0.250	0.156	0221	0222
CH12A3NC225-	200	2.2	3	1.781	0.562	0.438	0.500	0.250	0.156	0223	0224
CH12A1NC335-	200	3.3	1	1.875	0.670	0.438	0.500	0.250	0.156	0225	0226
CH12A3NC335-	200	3.3	3	1.812	0.670	0.438	0.500	0.250	0.156	0227	0228
CH12A1NC475-	200	4.7	1	1.875	1.000	0.438	0.500	0.250	0.156	0229	0230
CH12A3NC475-	200	4.7	3	1.812	1.000	0.438	0.500	0.250	0.156	0231	0232
CH12A1NC685-	200	6.8	1	1.875	1.000	0.438	0.500	0.250	0.156	0233	0234
CH12A3NC685-	200	6.8	3	1.812	1.000	0.438	0.500	0.250	0.156	0235	0236
CH12A1NC106-	200	10.0	1	2.375	1.000	0.438	0.500	0.250	0.156	0237	0238
CH12A3NC106-	200	10.0	3	2.312	1.000	0.438	0.500	0.250	0.156	0239	0240
CH12A1NC126-	200	12.0	1	2.625	1.000	0.438	0.500	0.250	0.156	0241	0242
CH12A3NC126-	200	12.0	3	2.562	1.000	0.438	0.500	0.250	0.156	0243	0244
CH12A1NE473-	400	0.047	1	1.125	0.312	0.312	0.250	0.188	0.144	0245	0246
CH12A3NE473-	400	0.047	3	1.062	0.312	0.312	0.250	0.188	0.144	0247	0248
CH12A1NE104-	400	0.10	1	1.125	0.400	0.312	0.250	0.188	0.144	0249	0250
CH12A3NE104-	400	0.10	3	1.062	0.400	0.312	0.250	0.188	0.144	0251	0252
CH12A1NE224-	400	0.22	1	1.125	0.562	0.438	0.500	0.250	0.156	0253	02654
CH12A3NE224-	400	0.22	3	1.062	0.562	0.438	0.500	0.250	0.156	0255	0256
CH12A1NE474-	400	0.47	1	1.625	0.562	0.438	0.500	0.250	0.156	0257	0258
CH12A3NE474-	400	0.47	3	1.562	0.562	0.438	0.500	0.250	0.156	0259	0260
CH12A1NE105-	400	1.0	1	1.875	0.750	0.438	0.500	0.250	0.156	0261	0262
CH12A3NE105-	400	1.0	3	1.812	0.750	0.438	0.500	0.250	0.156	0263	0264
CH12A1NE225-	400	2.2	1	2.125	1.000	0.438	0.500	0.250	0.156	0265	0266
CH12A3NE225-	400	2.2	3	2.062	1.000	0.438	0.500	0.250	0.156	0267	0268
CH12A1NE335-	400	3.3	1	2.625	1.000	0.438	0.500	0.250	0.156	0269	0270
CH12A3NE335-	400	3.3	3	2.562	1.000	0.438	0.500	0.250	0.156	0271	0272
CH12A1NF103-	600	0.01	1	0.812	0.312	0.312	0.250	0.188	0.144	0273	0274
CH12A3NF103-	600	0.01	3	0.750	0.312	0.312	0.250	0.188	0.144	0275	0276
CH12A1NF223-	600	0.022	1	0.812	0.312	0.312	0.250	0.188	0.144	0277	0278
CH12A3NF223-	600	0.022	3	0.750	0.312	0.312	0.250	0.188	0.144	0279	0280
CH12A1NF473-	600	0.047	1	1.125	0.400	0.312	0.250	0.188	0.144	0281	0282
CH12A3NF473-	600	0.047	3	1.062	0.400	0.312	0.250	0.188	0.144	0283	0284

See footnotes at end of table.

TABLE I. Characteristics - Continued.

PIN <u>1/</u>	DC rated voltage (volts)	Capacitance value (μF)	Circuit diagram	Dimensions, nominal (inches) <u>2/</u>						Superseded MIL-C-18312/3A dash numbers	
				L $\pm .062$	D $\pm .031$	H $\pm .062$	G $\pm .062$	E $\pm .031$	F $\pm .005$	Capacitance tolerance	$\pm 10\%$
CH12A1NF104-	600	0.10	1	1.125	0.500	0.438	0.500	0.250	0.156	0285	0286
CH12A3NF104-	600	0.10	3	1.062	0.500	0.438	0.500	0.250	0.156	0287	0288
CH12A1NF224-	600	0.22	1	1.375	0.562	0.438	0.500	0.250	0.156	0289	0290
CH12A3NF224-	600	0.22	3	1.312	0.562	0.438	0.500	0.250	0.156	0291	0292
CH12A1NF474-	600	0.47	1	1.625	0.670	0.438	0.500	0.250	0.156	0293	0294
CH12A3NF474-	600	0.47	3	1.562	0.670	0.438	0.500	0.250	0.156	0295	0296
CH12A1NF105-	600	1.0	1	1.844	1.000	0.438	0.500	0.250	0.156	0297	0298
CH12A3NF105-	600	1.0	3	1.781	1.000	0.438	0.500	0.250	0.156	0299	0300
CH12A1NF155-	600	1.5	1	1.875	1.000	0.438	0.500	0.250	0.156	0301	0302
CH12A3NF155-	600	1.5	3	1.812	1.000	0.438	0.500	0.250	0.156	0303	0304
CH12A1NF225-	600	2.2	1	2.625	1.000	0.438	0.500	0.250	0.156	0305	0306
CH12A3NF225-	600	2.2	3	2.562	1.000	0.438	0.500	0.250	0.156	0307	0308

1/ Complete PIN will include an additional symbol for capacitance tolerance.2/ See table II for metric equivalents.

TABLE II. Millimeter equivalents of decimal inches.

Inches	mm	Inches	mm	Inches	mm	Inches	mm
.005	0.13	.438	11.13	1.062	26.97	1.875	47.63
.031	0.79	.500	12.70	1.125	28.58	2.062	52.37
.062	1.57	.562	14.27	1.312	33.32	2.125	53.98
.144	3.66	.670	17.02	1.375	34.93	2.312	58.72
.156	3.96	.750	19.05	1.562	39.67	2.375	60.33
.188	4.78	.781	19.84	1.625	41.28	2.562	65.07
.250	6.38	.812	20.62	1.781	45.24	2.625	66.68
.312	7.92	.844	21.44	1.812	46.02		
.400	10.16	1.000	25.40	1.844	46.84		

Case material: Nonmagnetic.

Capacitance value: See table I.

Capacitance tolerance: See table I.

DC rated voltage: See table I.

Seal: Method 112 of MIL-STD-202, condition A. Liquid-filled capacitors: One hour at applicable high ambient temperature $\pm 3^\circ\text{C}$ with no evidence of leakage.

Dielectric withstanding voltage: Method 301 of MIL-STD-202.

Terminal to terminal - 200 percent of rated dc voltage.

Terminal to case (where case not a terminal): 200 percent of rated dc voltage.

Capacitance: Method 305 of MIL-STD-202 (for value and tolerance see table I).

Dissipation factor:

At $\pm 25^{\circ}\text{C}$: 1.0 percent.

At high test temperature: 2.0 percent.

Insulation resistance:

Terminal to terminal: See table III.

Terminal to case (case not a terminal): 10,000 megohms.

Barometric pressure: Method 105 of MIL-STD-202. Test condition: 0.82 inches of mercury (80,000 ft).

Vibration, low frequency: Method 204 of MIL-STD-202, condition B.

Thermal shock: Method 107 of MIL-STD-202, condition A, except the high temperature shall be $+125^{\circ}\text{C}$.

Immersion: Method 104 of MIL-STD-202, condition C.

Insulation resistance:

Terminal to terminal: Not less than 1/3 the value specified in table III.

Terminal to case (case not a terminal): 5,000 megohms, minimum.

Dielectric withstanding voltage:

Terminal to terminal: 150 percent of rated dc voltage.

Terminal to case (case not a terminal): 200 percent of rated dc voltage.

Capacitance change: Not to exceed 10 percent of initial value.

Dissipation factor: Not to exceed 110 percent of initial requirement.

Solderability: Method 208 of MIL-STD-202.

Terminal strength: Method 211 of MIL-STD-202, conditions A and D.

Condition A: Applied force 4 1/2 pounds.

Condition D: 3 twists of 360 degrees.

Low temperature and capacitance change with temperature.

Conditions: 48 hours with rated voltage applied.

Capacitance change: See table III.

Life:

Qualification: Test voltage 140 percent of rated voltage, 1,000 hours at high ambient temperature.

Conformance - 250 hours at conditions specified for 1,000-hour test.

Dissipation factor:

At high ambient test temperature (any time 24 to 48 hours from start of test): Not greater than 2.0 percent.

At high ambient test temperature (any time during last 48 hours of test): Not greater than 2.5 percent.

At 25°C (after life test): Not greater than 1.25 percent.

Capacitance: At 25°C (after life test): Within 10 percent of initial value.

Insulation resistance: At 25°C (after life test).

Terminal to terminal: Not less than 1/3 of value specified in table III.

Terminal to case (case not a terminal): Not less than 5,000 megohms.

Supersession information: See table I.

TABLE III. Characteristic.

Operating temperature range	-55 to +125°C	
DC voltage rating (volts)	200	400, 600
High ambient test temperature	125°C	125°C
Low ambient test temperature	-55°C	-55°C
Megohms x microfarads:		
At 25°C	2,000 min	2,000 min
At high ambient test temperature	10 min	40 min
Insulation resistance (megohms):		
At 25°C ^{1/}	12,000	12,000
At high ambient test temperature ^{1/}	150	600
Capacitance change at low temperature	-15% max	-15% max
Life test voltage (% rated voltage)	140 %	140 %

^{1/} Need not exceed.

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5910-2126-02)

Review activities:

Army - AR
Navy - AS, MC, OS
Air Force - 19