

INCH-POUND

MIL-C-11015/24F
 14 May 2001
 SUPERSEDING
 MIL-C-11015/24E
 8 April 1974

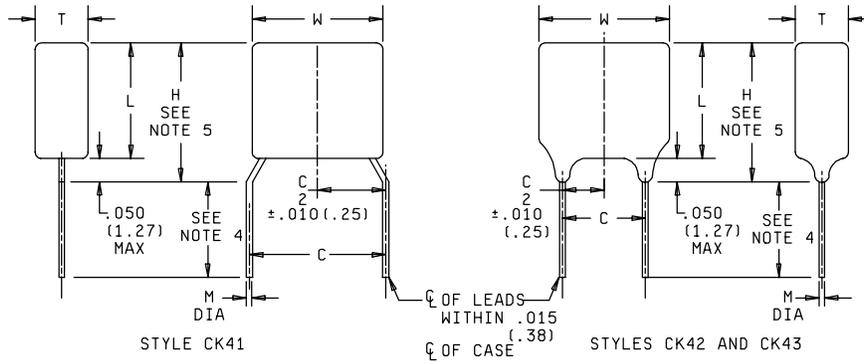
MILITARY SPECIFICATION SHEET

CAPACITORS, FIXED, CERAMIC DIELECTRIC (GENERAL PURPOSE),
 STYLE CK41, CK42, CK43, CK50, CK51, CK52, CK53, CK54, and CK55

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 and MIL-C-11015.

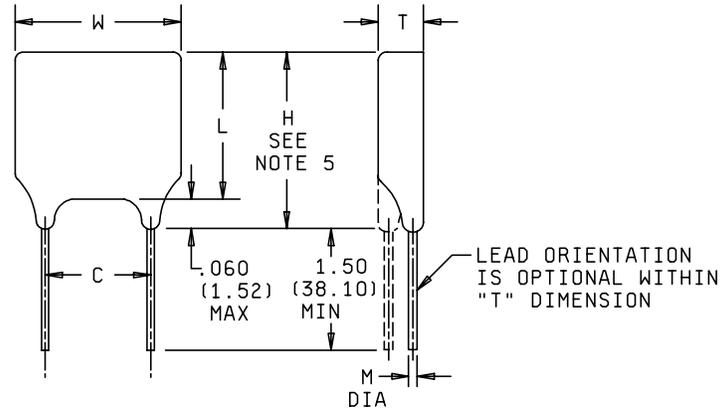
INACTIVE FOR NEW DESIGN.
 FOR REPLACEMENT PURPOSES ONLY



Dimensions						
Style	W ±.020 (.51)	L ±.020 (.51)	T ±.015 (.38)	C ±.010 (.25)	M +.004 (.10) -.001 (.03)	H (Ref)
CK41	.080 (2.03)	.090 (2.29)	.045 (1.14)	.100 (2.54)	.016 (.41)	.160 (4.06)
CK42	.130 (3.30)	.140 (3.56)	.045 (1.14)	.100 (2.54)	.016 (.41)	.210 (5.33)
CK43	.230 (5.84)	.230 (5.84)	.045 (1.14)	.200 (5.08)	.016 (.41)	.300 (7.62)

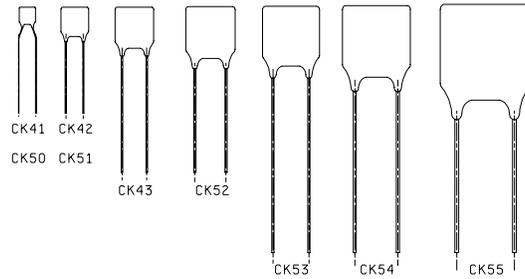
FIGURE 1. Styles CK41, CK42 and CK43

MIL-C-11015/24F



Dimensions						
Style	W ± .020 (.51)	L ±.020 (.51)	T +.025 (.64) -.050 (1.27)	C ±.020 (.51)	M +.006 (.15) -.001 (.03)	H (Ref)
CK50	.080 (2.03)	.080 (2.03)	.075 (1.91)	.100 (2.54)	.016 (.41)	.170 (4.32)
CK51	.130 (3.30)	.130 (3.30)	.075 (1.91)	.100 (2.54)	.016 (.41)	.200 (5.08)
CK52	.180 (4.57)	.180 (4.57)	.100 (2.54)	.100 (2.54)	.020 (.51)	.250 (6.35)
CK53	.280 (7.11)	.280 (7.11)	.125 (3.18)	.200 (5.08)	.020 (.51)	.350 (8.89)
CK54	.380 (9.65)	.380 (9.65)	.125 (3.18)	.200 (5.08)	.020 (.51)	.450 (11.43)
CK55	.480 (12.19)	.480 (12.19)	.175 (4.45)	.400 (10.16)	.025 (.64)	.550 (13.97)

FIGURE 2. Styles CK50, CK51, CK52, CK53, CK54, and CK55.



ACTUAL SIZE (APPROXIMATE)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are in parentheses.
3. Metric equivalents are given for general information only.
4. Lead length shall be .750 (19.05 mm) to 1.50 (38.10 mm) for styles CK41 and CK42 and 1.25 (31.75 mm) to 1.50 (38.10 mm) for style CK43.
5. H dimension is for reference purposes to indicate the maximum overall mounting height of the capacitor. Leads shall be solderable beyond this point.

MIL-C-11015/24F

TABLE I. Styles CK41, CK42, CK43, CK50, CK51, CK52, CK53, CK54 and CK55 characteristics.

PIN <u>1/</u>	Rated voltage	Rated temperature and voltage-temperature limits	Capacitance	Capacitance tolerance
	Volts, dc		pF	
CK41BX1R0D	100	BX	1.0	D
CK41BX1R5D	100	BX	1.5	D
CK41BX2R2D	100	BX	2.2	D
CK41BX3R3D	100	BX	3.3	D
CK41BX4R7D	100	BX	4.7	D
CK41BX5R6K	100	BX	5.6	K
CK41BX6R8K	100	BX	6.8	K
CK41BX8R2K	100	BX	8.2	K
CK41BX100-	100	BX	10	K, M
CK41BX120K	100	BX	12	K
CK41BX150-	100	BX	15	K, M
CK41BX180K	100	BX	18	K
CK41BX220-	100	BX	22	K, M
CK41BX270K	100	BX	27	K
CK41BX330-	100	BX	33	K, M
CK41BX390K	100	BX	39	K
CK41BX470-	100	BX	47	K, M
CK41BX560K	100	BX	56	K
CK41BX680-	100	BX	68	K, M
CK41BX820K	100	BX	82	K
CK41BX101-	100	BX	100	K, M
CK41BX121K	100	BX	120	K
CK41BX151-	100	BX	150	K, M
CK41BX181K	100	BX	180	K
CK41BX221-	100	BX	220	K, M
CK41BX271K	100	BX	270	K
CK41BX331-	100	BX	330	K, M
CK41BX391K	100	BX	390	K
CK41BX471-	100	BX	470	K, M
CK41BX561K	100	BX	560	K
CK41BX681-	100	BX	680	K, M
CK41BX821K	100	BX	820	K
CK41BX102-	100	BX	1,000	K, M
CK42BX122K	100	BX	1,200	K
CK42BX152-	100	BX	1,500	K, M
CK42BX182K	100	BX	1,800	K
CK43BX222-	100	BX	2,200	K, M
CK43BX272K	100	BX	2,700	K

See footnote at end of table.

MIL-C-11015/24F

TABLE I. Styles CK41, CK42, CK43, CK50, CK51, CK52, CK53, CK54, and CK55 characteristics – Continued.

PIN <u>1/</u>	Rated voltage	Rated temperature and voltage-temperature limits	Capacitance	Capacitance tolerance
	Volts, dc		pF	
CK50BX2R2D	200	BX	2.2	D
CK50BX2R7D	200	BX	2.7	D
CK50BX3R3D	200	BX	3.3	D
CK50BX3R9D	200	BX	3.9	D
CK50BX4R7D	200	BX	4.7	D
CK50BX5R6K	200	BX	5.6	K
CK50BX6R8K	200	BX	6.8	K
CK50BX8R2K	200	BX	8.2	K
CK50BX100-	200	BX	10	K, M
CK50BX120K	200	BX	12	K
CK50BX150-	200	BX	15	K, M
CK50BX180K	200	BX	18	K
CK50BX220-	200	BX	22	K, M
CK50BX270K	200	BX	27	K
CK50BX330-	200	BX	33	K, M
CK50BX390K	200	BX	39	K
CK50BX470-	200	BX	47	K, M
CK50BX560K	200	BX	56	K
CK50BX680-	200	BX	68	K, M
CK50BX820K	200	BX	82	K
CK50BX101-	200	BX	100	K, M
CK50BX121K	200	BX	120	K
CK50BX151-	200	BX	150	K, M
CK50BX181K	200	BX	180	K
CK50BX221-	200	BX	220	K, M
CK50BX271K	200	BX	270	K
CK50BX331-	200	BX	330	K, M
CK50BX391K	100	BX	390	K
CK50BX471-	100	BX	470	K, M
CK50BX561K	100	BX	560	K
CK50BX681-	100	BX	680	K, M
CK50BX821K	100	BX	820	K
CK50BX102-	100	BX	1,000	K, M
CK50BX122K	100	BX	1,200	K
CK50BX152-	100	BX	1,500	K, M
CK50BX182K	100	BX	1,800	K
CK50BX222-	50	BX	2,200	K, M
CK50BX272K	50	BX	2,700	K
CK50BX332-	50	BX	3,300	K, M
CK50BX339K-	50	BX	3,900	K
CK50BX472-	50	BX	4,700	K, M
CK50BX562K	50	BX	5,600	K
CK51BX391K	200	BX	390	K
CK51BX471-	200	BX	470	K, M
CK51BX561K	200	BX	560	K
CK51BX681-	200	BX	680	K, M
CK51BX821K	200	BX	820	K
CK51BX102-	200	BX	1,000	K, M
CK51BX122K	200	BX	1,200	K

See footnote at end of table.

MIL-C-11015/24F

TABLE I. Styles CK41, CK42, CK43, CK50, CK51, CK52, CK53, CK54, and CK55 characteristics – Continued.

PIN <u>1/</u>	Rated voltage	Rated temperature and voltage-temperature limits	Capacitance	Capacitance tolerance
	Volts, dc		pF	
CK51BX222-	100	BX	2,200	K, M
CK51BX272K	100	BX	2,700	K
CK51BX332-	100	BX	3,300	K, M
CK51BX392K	100	BX	3,900	K
CK51BX472-	100	BX	4,700	K, M
CK51BX562K	100	BX	5,600	K
CK51BX682-	50	BX	6,800	K, M
CK51BX822K	50	BX	8,200	K
CK51BX103-	50	BX	10,000	K, M
CK51BX123K	50	BX	12,000	K
CK51BX153-	50	BX	15,000	K, M
CK52BX152-	200	BX	1,500	K, M
CK52BX182K	200	BX	1,800	K
CK52BX222-	200	BX	2,200	K, M
CK52BX272K	200	BX	2,700	K
CK52BX332-	200	BX	3,300	K, M
CK52BX392K	200	BX	3,900	K
CK52BX472-	200	BX	4,700	K, M
CK52BX562K	200	BX	5,600	K
CK52BX682-	200	BX	6,800	K, M
CK52BX822K	200	BX	8,200	K
CK52BX103-	200	BX	10,000	K, M
CK52BX123K	100	BX	12,000	K
CK52BX153-	100	BX	15,000	K, M
CK52BX183K	100	BX	18,000	K
CK52BX223-	100	BX	22,000	K, M
CK52BX273K	100	BX	27,000	K
CK52BX333-	100	BX	33,000	K, M
CK52BX393K	50	BX	39,000	K
CK52BX473-	50	BX	47,000	K, M
CK52BX563K	50	BX	56,000	K
CK52BX683-	50	BX	68,000	K, M
CK52BX823K	50	BX	82,000	K
CK53BX123K	200	BX	12,000	K
CK53BX153-	200	BX	15,000	K, M
CK53BX183K	200	BX	18,000	K
CK53BX223-	200	BX	22,000	K, M
CK53BX273K	200	BX	27,000	K
CK53BX333-	200	BX	33,000	K, M
CK53BX393K	200	BX	39,000	K
CK53BX473-	200	BX	47,000	K, M
CK53BX563K	100	BX	56,000	K
CK53BX683-	100	BX	68,000	K, M
CK53BX823K	100	BX	82,000	K
CK53BX104-	100	BX	100,000	K, M
CK53BX124K	100	BX	120,000	K
CK53BX154-	100	BX	150,000	K, M
CK53BX184K	50	BX	180,000	K
CK53BX224-	50	BX	220,000	K, M
CK53BX274K	50	BX	270,000	K
CK53BX334-	50	BX	330,000	K, M

See footnote at end of table.

MIL-C-11015/24F

TABLE I. Styles CK41, CK42, CK43, CK50, CK51, CK52, CK53, CK54, and CK55 characteristics – Continued.

PIN ^{1/}	Rated voltage	Rated temperature and voltage-temperature limits	Capacitance	Capacitance tolerance
	Volts, dc		pF	
CK54BX563K	200	BX	56,000	K
CK54BX683-	200	BX	68,000	K, M
CK54BX823K	200	BX	82,000	K
CK54BX104-	200	BX	100,000	K, M
CK54BX184K	100	BX	180,000	K
CK54BX224-	100	BX	220,000	K, M
CK54BX274K	100	BX	270,000	K
CK54BX334-	100	BX	330,000	K, M
CK54BX394K	100	BX	390,000	K
CK54BX474-	100	BX	470,000	K, M
CK54BX564K	50	BX	560,000	K
CK54BX684-	50	BX	680,000	K, M
CK55BX124K	200	BX	120,000	K
CK55BX154-	200	BX	150,000	K, M
CK55BX184K	200	BX	180,000	K
CK55BX224-	200	BX	220,000	K, M
CK55BX564K	100	BX	560,000	K
CK55BX684-	100	BX	680,000	K, M
CK55BX824K	100	BX	820,000	K
CK55BX105-	100	BX	1,000,000	K, M
CK55BX125K	50	BX	1,200,000	K
CK55BX155-	50	BX	1,500,000	K, M
CK55BX185K	50	BX	1,800,000	K
CK55BX225-	50	BX	2,200,000	K, M

^{1/} When applicable, the complete PIN will include an additional symbol to indicate capacitance tolerance.

REQUIREMENTS

Design and construction:

Dimensions and configuration - See figures 1 and 2.

Case type - Dipped or molded.

Capacitance value - See table I.

Capacitance tolerance - ± 5 pF (D), ± 10 percent (K), or ± 20 percent (M) as shown in table I.

Rated temperature - -55°C to $+125^{\circ}\text{C}$.

Dielectric withstanding voltage (DWV): In accordance with MIL-C-11015.

Dielectric:

Test voltage - 250 percent of rated voltage.

Body insulation: In accordance with MIL-C-11015.

Test potential - 500 volts dc.

MIL-C-11015/24F

Barometric pressure (reduced): In accordance MIL-C-11015 and method 105 of MIL-STD-202, condition D (100,000 ft).

Test potential - 150 percent of rated voltage.

Insulation resistance (IR): In accordance with MIL-C-11015 and method 302 of MIL-STD-202 (measured with rated voltage applied), 100,000 megohms, minimum or 1,000 megohm-microfarads, minimum, which-ever is less.

Dissipation factor (DF): 2.5 percent, maximum.

Vibration, high frequency: In accordance with MIL-C-11015 and method 204 of MIL-STD-202, condition D (20 g's).

Thermal shock and immersion: In accordance with MIL-C-11015.

DWV - 250 percent of rated voltage.

IR - Not less than 50 percent of initial +25°C requirement.

Salt spray (corrosion): Not applicable.

Terminal strength: In accordance with MIL-C-11015 except for test condition A, the applied load shall be 3 pound for all styles except CK54 and CK55 which shall be 5 pounds.

Moisture resistance: In accordance with MIL-C-11015.

DWV - 250 percent of rated voltage.

IR - Not less than 50 percent of initial +25°C requirement for styles CK41, CK42 and CK43.

Not less than 10 percent of initial +25°C requirement for styles CK50, CK51, CK52, CK53, CK54 and CK55.

Cap. - Within ± 10 percent of initial measured value.

Solderability: In accordance with MIL-C-11015; 2 terminals.

Resistance to soldering heat: In accordance with MIL-C-11015.

IR - Not less than initial +25°C requirement.

Cap. - Within ± 5 percent of initial measured value.

DF - 3.0 percent, maximum.

Voltage-temperature limits: In accordance with MIL-C-11015.

MIL-C-11015/24F

Life (at elevated ambient temperature): In accordance with MIL-C-11015.

Test potential - 200 percent of rated voltage.

IR - At +125°C before life test - 10,000 megohms, minimum or 100 megohm-micro-farads, minimum, whichever is less.

At +25°C - Not less than 50 percent of initial +25°C requirement for styles CK41, CK42 and CK43.

Not less than 20 percent of initial +25°C requirement for styles CK50, CK51, CK52, CK53, CK54, and CK55.

At +125°C - Not less than 50 percent of +125°C requirement for styles CK41, CK42 and CK43.

Not less than 20 percent of +125°C requirement for styles CK50, CK51, CK52, CK53, CK54 and CK55.

DF - 2.5 percent, maximum.

Qualification inspection: Qualification inspection is not required.

Marking: Styles CK43, CK53, CK54, and CK55 shall be marked in accordance with MIL-C-11015. Styles CK42, CK51, and CK52 shall be marked in accordance with the following:

Face – The two-digits of style and letter symbol of capacitance tolerance.

Example: - 52D

Reverse – Three digits designating capacitance value.

Example: - 2R2

Styles CK41 and CK50 shall be marked with three color dots (two significant and one multiplier) in accordance with MIL-STD-1285 to specify capacitance in picofarads.

Supersession data:

Styles CK07 and CK08 formerly covered by this specification sheet have been deleted. Recommended substitute items are listed in table II.

TABLE II. Substitute items.

Superseded Item	Recommended substitute item	Superseded item	Recommended substitute item
CK07BX2R2D	CK41BX2R2D	CK07BX181K	CK41BX181K
CK07BX3R3D	CK41BX3R3D	CK07BX221-	CK41BX221-
CK07BX3R9D	CK41BX3R9D	CK07BX271K	CK41BX271K
CK07BX4R7D	CK41BX4R7D	CK07BX331-	CK41BX331-
CK07BX5R6D	CK41BX5R6D	CK07BX391K	CK41BX391K
CK07BX6R8K	CK41BX6R8K	CK07BX471-	CK41BX471-
CK07BX8R2K	CK41BX8R2K	CK07BX561K	CK41BX561K
CK07BX100-	CK41BX100-	CK07BX681-	CK41BX681-
CK07BX120K	CK41BX120K	CK07BX821K	CK41BX821K
CK07BX150-	CK41BX150-	CK07BX102-	CK41BX102-
CK07BX180K	CK41BX180K	CK08BX122K	CK52BX122K
CK07BX220-	CK41BX220-	CK08BX152-	CK52BX152-
CK07BX270K	CK41BX270K	CK08BX182K	CK52BX182K
CK07BX330-	CK41BX330-	CK08BX222-	CK52BX222-
CK07BX390K	CK41BX390K	CK08BX272K	CK52BX272K
CK07BX470-	CK41BX470-	CK08BX332-	CK52BX332-
CK07BX560K	CK41BX560K	CK08BX392K	CK52BX392K
CK07BX680-	CK41BX680-	CK08BX472-	CK52BX472-
CK07BX820K	CK41BX820K	CK08BX562K	CK52BX562K
CK07BX101-	CK41BX101-	CK08BX682-	CK52BX682-
CK07BX121K	CK41BX121K	CK08BX822K	CK52BX822K
CK07BX151-	CK41BX151-	CK08BX103-	CK52BX103-

Changes from previous issue: Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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

Preparing activity:
DLA - CC

Review activities:
Army - MI
Navy - AS, OS
Air Force - 19

(Project 5910-2069-11)