NextGen Components,Inc.

PART CODE: CA42A035M684BA

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	R0412- CA42A035M684BA	
DATE	Apr. 12, 2024	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	Dip Type Epoxy-Coated Solid Electrolytic Tantalum Capacitor CA42 Series, Case A, D4.4*H6.5mm, Lead Space 2.54mm Rated voltage 35 Vdc Capacitance 0.68μF, Tolerance ±20% Operating Temp. Range -55~+125℃ Package in Bulk, polybag and inner box REACH/RoHS/RoHS III compliant	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.	TAP/T350~T356/ND, NP/NDTM/S89/TB/ECSF/199D, 489D, ETPW, ETQW	
ORIGINAL MFG/PART NO.	XiangYi/ CA42-35V0.68	
PART CODE	CA42A035M684BA	

VENDOR APPROVE
Issued/Checked/Approved NextGen Components, Inc. Mandy Xu NextGen Components, Inc. Ruby Zhang NextGen Components, Inc. Jack Zhang
DATE: Apr.12, 2024

CUSTOMER APPROVE
DATE:

NextGen Components, Inc. sales@NextGenComponent.com www.NextGenComponent.com

DIP TANTALUM CAPACITORS CA42 SERIES

MAIN FEATURE

- REACH/RoHS/RoHS III compliant
- Wide Operating Temperature Range -55~+125℃
- Epoxy-coated And Radial- Lead
- Stable In Electrical & Storage Performances

APPLICATION

- For TV sets, PC, Mobile Telephone Sets Pickup Camera Radar Etc.
- Instruments, Meters And More Electronical Equipment.

ELECTRICAL CHARACTERISTICS

- See Page 5~ Page 11 For Different Part Code

HOW TO ORDER

- Please follow up Part Code Guide and indicate pat code when you order or RFQ For Custom Specification.

PART CODE GUIDE

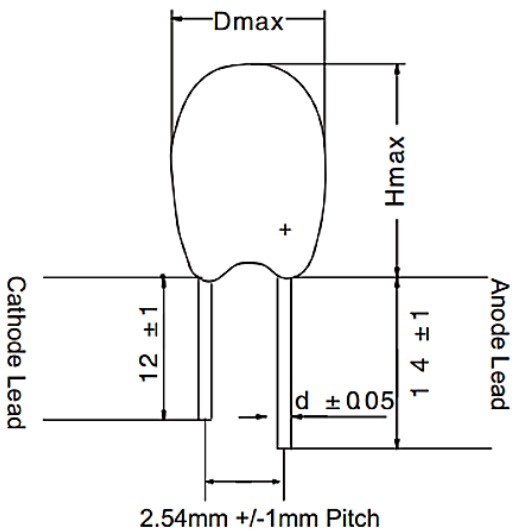
RFQ
Request For Quotation

CODE	NAME	KEY SPECIFICATION OPTION
CA42	Product Series Code	Dip Type Epoxy-Coated Solid Electrolytic Tantalum Capacitor
A	Case Code	Case A: D4.4*H6.5mm; Case B: D5.0*H7.5mm; Case C: D5.5*H9.0mm; Case D: D6.3*H10.5mm; Case E: D7.2*H12.0mm; Case V: D8.5*H13.0mm
035	Rated Voltage Code	004: 4V; 6R3: 6.3V; 010: 10V; 016: 16V; 020: 20V; 025: 25V; 035: 35V; 050: 50V
M	Capacitance Tolerance code	K: ±10%; M: ±20% (standard)
684	Capacitance Code	1st two digits represent Significant figures, 3rd Digit specifies number of Zeros 474: 0.47μF; 684:0.68μF; 105: 1.0μF; 155: 1.5μF; 225: 2.2μF; 335: 3.3μF; 475: 4.7μF; 685: 6.8μF; 106: 10μF; 156: 15μF; 226: 22μF; 336: 33μF; 476: 47μF; 686: 68μF; 107: 100μF; 157: 150μF; 227: 220μF; 337: 330μF; 477: 470μF; 687: 680μF; 108: 1000μF; 158: 1500μF; 228: 2200μF
B	Package Code	B: in Bulk Polybag; A: In Paper Tape AMMO
A	Internal control	Custom letter A~Z, a-z or digits (0-9) Eg. A: Lead Space 2.54mm; B: Lead Space 5.08mm
( )	Custom Specification Code	Custom letter A~Z, a-z or digits (0-9); Blank: N/A

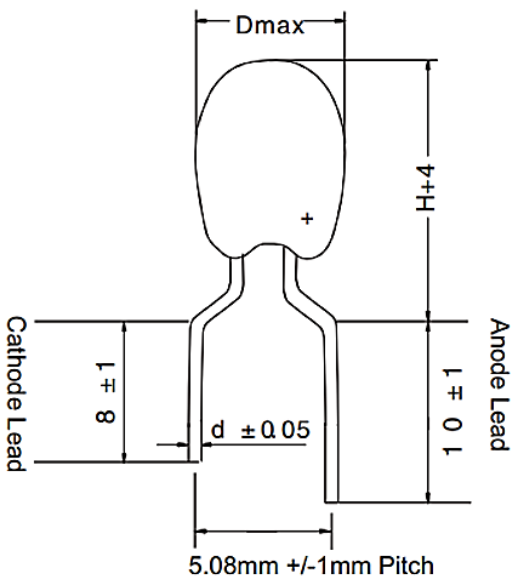
DIMENSION (Unit: mm)

Image for reference

Lead Space Type A



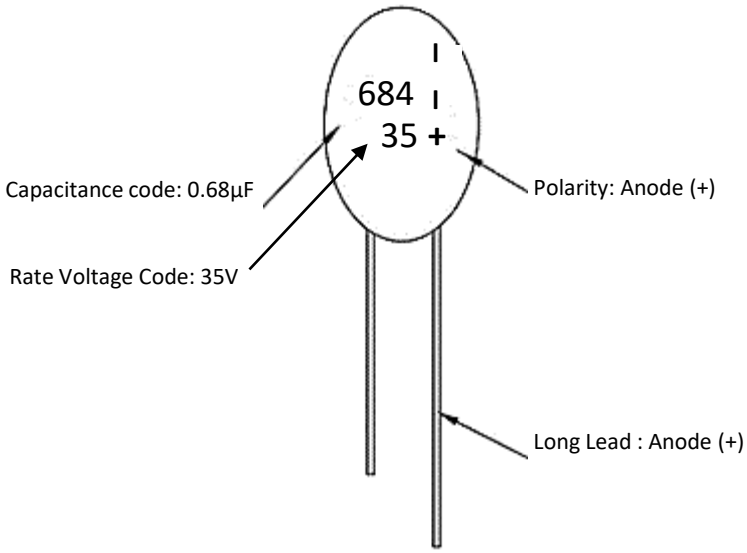
Lead Space Type B



ELECTRICAL CHARACTERISTICS, DIMENSIONS, PACKAGE

Rated Voltage (V)				6.3V	10V	16V	25V	35V	50V
Voltage Derating (V), if >85°C				4V	6.3V	10V	16V	20V	32V
Surge Voltage (V) +85°C				8V	13V	20V	32V	46V	65V
Dimensions (mm)		SPQ Bulk (pcs)	SPQ AMMO (pcs)	Nominal Capacitance (µF)					
D*H*d	S								
4.4*6.5*0.5 (Case A)	2.54	1000	2000	1.5	1	0.68	0.33	0.1	0.1
	5.08			2.2	1.5	1	0.47	0.15	0.15
				3.3	2.2	1.5	0.68	0.22	0.22
				4.7	3.3	2.2	1	0.33	0.33
				6.8	6.8	3.3	1.5	0.47	0.47
				10	10	4.7	2.2	0.68	
				15	15	6.8	3.3	1	
				22		10		1.5	
5*7.5*0.5 (Case B)	2.54	1000	2000	33	22	15	4.7	2.2	0.68
	5.08		1000	47		22	6.8	3.3	1
							10		
5.5*9.0*0.5 (Case C)	2.54	500	1000	68	33	33	15	4.7	1.5
	5.08			100	47	47	22	6.8	2.2
					68			10	3.3
					100				
6.3*10.5*0.5 (Case D)	2.54	500	1000	150	150	68	33	15	4.4
	5.08			220		100	47	22	6.8
7.2*12.0*0.5 (Case E)	5.08	500	n/a	330	220	150	68	33	10
				470	330	220	100	47	15
									22
8.5*13.0*0.5 (Case V)	5.08	100	n/a	680	470	330	150	68	33
				820	680	470			

MARKING



Voltage Code	4	6.3	10	16	20	25	35	50
Rate Voltage (V)	4	6.3	10	16	20	25	35	50

Capacitance Code	104	105	106	107	154	156	157
Capacitance (µF)	0.1	1	10	100	0.15	15	150

Capacitance Code	224	225	226	227	334	335	336
Capacitance (µF)	0.22	2.2	22	220	0.33	3.3	33

Capacitance Code	474	475	476	684	685	686	687
Capacitance (µF)	0.47	4.7	47	0.68	6.8	68	680

DIP TANTALUM CAPACITORS CA42 SERIES

STANDARD CHARACTERISTICS

PART CODE	CA42A035M684BA
Case Size Code	A
Case Dimension	D4.4*H6.5mm, Lead Space 2.54mm
Capacitance Tolerance	±20%
Rate Temperature Range	85 °C
Category Temperature Range	125 °C
Operating Temperature Range	-55~ + 125 °C
Leakage Current	Measured after 1 Minutes Application of rated voltage reading, I 0≤ 0.02 CRUR or 1.0μA Max. whichever is greater @25 ℃

TEMPERATURE CHARACTERISTICS

Nominal Capacitance C R (μF)	Max. D.F (%)				MAX D.C.L （μA)	
	-55 °C	25 °C	85 °C	125 °C	85 C°	125 °C
0.47~1.0	6	4	6	6	8 I 0	10 I 0
1.5~6.8	8	6	8	8	8 I 0	10 I 0
10~68	10	8	10	10	8 I 0	10 I 0
100~330	12	10	12	12	8 I 0	10 I 0
470~680	14	12	14	14	8 I 0	10 I 0
680 up	16	14	16	16	8 I 0	10 I 0

Note:

- Please do not use multimeter to test tantalum capacitors.
- Capacitance and DF measured at:100Hz , U _ =2.2°$_{-1.0}$V , U~=1.0°$_{-0.5}$V, Frequency = 100Hz. Test only applied to series equivalent circuit.
- Please refer to derating voltage or category voltage if temperature > 85 °C
- The DCL parameter should be read after 5 minutes when it connected to the circuit.

ELECTRONICAL CHARACTERISTICS FOR MAIN PARTS

Part Code	Rated Voltage	Capacitance Tolerance	Capacitance @25°C 100Hz	Max. Dissipation Factor (DF) @25°C, 100Hz	Lead Space
	V	%	μF	%	mm
CA42A6R3M227BA	6.3	±20	220	10	2.54
CA42A6R3M336BA	6.3	±20	33	8	2.54
CA42A6R3M476BA	6.3	±20	47	8	2.54
CA42A6R3M686BA	6.3	±20	68	8	2.54
CA42A010M106BA	10	±20	10	6	2.54
CA42A010M226BA	10	±20	22	8	2.54
CA42A010M476BA	10	±20	47	8	2.54
CA42A016M106BA	16	±20	10	8	2.54
CA42A016M107BA	16	±20	100	10	2.54
CA42A016M156BA	16	±20	15	8	2.54
CA42A016M157BA	16	±20	150	10	2.54
CA42A016M225BA	16	±20	2.2	6	2.54
CA42A016M226BA	16	±20	22	8	2.54
CA42A016M335BA	16	±20	3.3	6	2.54
CA42A016M336BA	16	±20	33	6	2.54
CA42A016M475BA	16	±20	4.7	6	2.54
CA42A016M476BA	16	±20	47	8	2.54
CA42A020M106BA	20	±20	10	8	2.54
CA42A025M105BA	25	±20	1	4	2.54
CA42A025M106BA	25	±20	10	8	2.54

ELECTRONICAL CHARACTERISTICS FOR MAIN PARTS

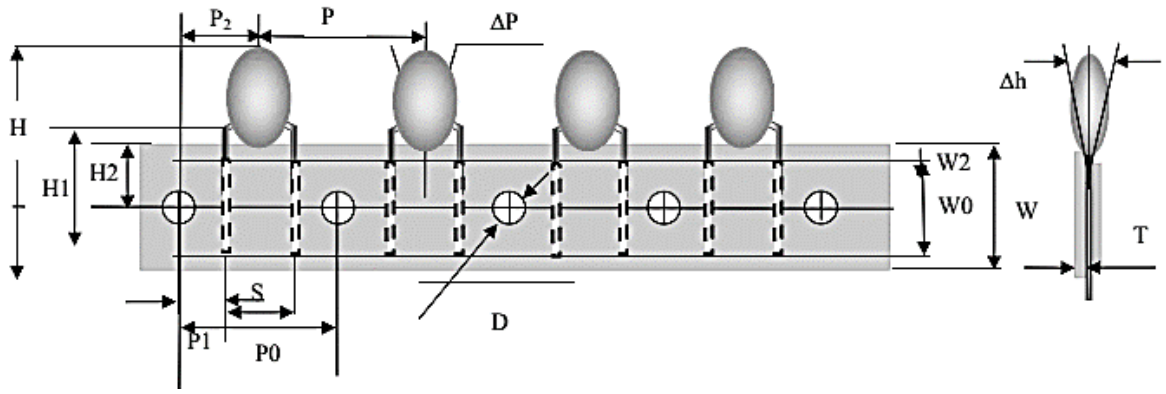
Part Code	Rated Voltage	Capacitance Tolerance	Capacitance @25°C 100Hz	Max. Dissipation Factor (DF) @25°C, 100Hz	Lead Space
	V	%	μF	%	mm
CA42A025M107BA	25	±20	100	10	2.54
CA42A025M156BA	25	±20	15	8	2.54
CA42A025M225BA	25	±20	2.2	6	2.54
CA42A025M226BA	25	±20	22	8	2.54
CA42A025M335BA	25	±20	3.3	6	2.54
CA42A025M336BA	25	±20	33	6	2.54
CA42A025M475BA	25	±20	4.7	6	2.54
CA42A025M476BA	25	±20	47	8	2.54
CA42A025M685BA	25	±20	6.8	6	2.54
CA42A025M686BA	25	±20	68	8	2.54
CA42A035M104BA	35	±20	0.1	4	2.54
CA42A035M105BA	35	±20	1	4	2.54
CA42A035M106BA	35	±20	10	8	2.54
CA42A035M154BA	35	±20	0.15	4	2.54
CA42A035M224BA	35	±20	0.22	4	2.54
CA42A035M225BA	35	±20	2.2	6	2.54
CA42A035M226BA	35	±20	22	8	2.54
CA42A035M334BA	35	±20	0.33	4	2.54
CA42A035M335BA	35	±20	3.3	6	2.54
CA42A035M336BA	35	±20	33	8	2.54

ELECTRONICAL CHARACTERISTICS FOR MAIN PARTS

Part Code	Rated Voltage	Capacitance Tolerance	Capacitance @25°C 100Hz	Max. Dissipation Factor (DF) @25°C, 100Hz	Lead Space
	V	%	μF	%	mm
CA42A035M474BA	35	±20	0.47	4	2.54
CA42A035M475BA	35	±20	4.7	6	2.54
CA42A035M684BA	35	±20	0.68	4	2.54
CA42A050M105BA	50	±20	1	4	2.54
CA42A050M334BA	50	±20	0.33	4	2.54
CA42A050M335BA	50	±20	3.3	6	2.54
CA42A050M684BA	50	±20	0.68	4	2.54
CA42A004M687BA	4	±20	680	10	2.54

PACKAGE

- Standard package is in Bulk Polybag, see page 5.
- Option package is In Paper Tape AMMO (complied IEC286-2 standard)



Symbol	Dimension	Symbol	Dimension	
P	12.7±1.0	D	4.0±0.2	
P0	12.7±0.3	T	0.5±0.2	
W	18 (+1,-0.5)	Δh	0±2.0	
		H	16±0.5	
W0	13	S	2.54±0.5	5.08±0.7
H2	9 (+0.75,-0.5)	P1	5.10±0.5	3.85±0.7
W2	0 (+1,0)	P2	6.35±0.4	
H1	32.5 Max.	ΔP	±1.3 Max.	

APPLICATION NTOE

Storage Condition

1) Environmental temperature： 10°C～ +30°C

2) Relative humidity no more than 60%

3) Storing period: No more than one and half year since the date of stocking.

APPLICATION GUIDE

1) Ripple Current and Voltage

If the ripple current is applied to the capacitor, the Joule heat (power dissipated) will be generated in the capacitor, so it will affect the reliability of the capacitor.

(1) Power Dissipated

The actual power dissipated can be calculated using the following formula: $P=I^2 \times ESR$……Formula 1

P: Power dissipated (W); I: Ripple current (A); ESR: Equivalent series resistance (Ω)

Power Dissipation for Case E (EIA Code 7343-43): 125mW Max. @+25°C

(2) Ripple Current

Using the maximum power dissipation 125mW Max., the ripple current can be calculated using the following formula: $I=\sqrt{\frac{P}{ESR}} \times K \times F$……Formula 2

K: Temperature derating factor..... Table 1; F: Frequency derating factor..... Table 2

ESR: Refer to the ratings of each specific product

Table 1: Temperature Drop Factor K

Temperature	Temperature Derating Factor K
25 °C	1
85 °C	0.9
125 °C	0.4

Table 2: Frequency Derating Factor F

Frequency (KHz)	10	100	500	1000
MnO2	0.80	1.0	1.15	1.20

Using formula 3 to calculate corrugated voltage E: E=Z×I……. Formula 3

E: Ripple voltage; Z: Specific frequency impedance

(3) Ripple Voltage

The ripple voltage applied to the capacitor is limited by three criteria.

(a) The power dissipation in the ESR of capacitor must not exceed 125mW Max. @+25°C

(b) The positive peak AC voltage plus the DC bias voltage must not exceed the DC voltage rating of the capacitor.

(c) The negative peak AC voltage, in combination with the bias voltage, if any , must not exceed the permissible reverse voltage ratings presented .

2) Reverse Voltage

Solid tantalum capacitors are polarized devices , and applied reverse voltage can not be allowed . If the reverse voltage is unavoidable, a small degree of transient reverse voltage is permissible for short periods as follow.

25°C……. 10% of Max. rated voltage or 1V whichever is smaller

85°C……. 5% of Max. rated voltage or 0.5V whichever is smaller

125°C……1% of Max. rated voltage or 0.1V whichever is smaller

Even under these restrictions, capacitors can not be used continuously in reverse voltage mode.

3) Working Voltage

(1) For general applications, using 50% of rated voltage of capacitors or less.

(2) When used at the power circuit, low impedance circuit , coupling circuit or witching circuit which has leakage current problems, please design the circuit with voltage under 30% of the working voltage (max 50%) to avoid the adverse effect of the surge current.

(3) Derating voltage when temperature above 85°C.

When the chip tantalum capacitor is used at 85℃ or more temperatures, the reduced voltage (U_T) is calculated from the following expression, however, note that the ambient temperature is not more than 125℃.

$U_T = V_0 (U_R - U_C)(T-85)/40$

U_R: Rated voltage (V); U_C: Derating voltage at 125°C; T: Ambient temperature (°C)

4) Protective Resistance

In a circuit(switching circuit, charge / discharge circuit, etc.) that has an instantaneous current, series resistance is at least 3Ω/V, this can improve the reliability of tantalum capacitors. If the capacitor is in a low impedance circuit, the voltage applied to the capacitor should be half or one third of the rated voltage.

5) Redundancy

MnO_2 tantalum capacitors will heat, and may cause fire and burn in the short circuit . This is determined by the situation, time and other factors. When the circuit is designed, it is possible to provide the best possible space to keep the tantalum capacitor reliability.

6) Test Condition

Ambient Temperature 25°C; Relative Humidity 60 to 70%; Air Pressure 800 to 1060mbar. Test and experiment, in order to make the test results not problems, it is necessary to will test the product after fully discharge.

This product is a polar components, testing or when using it is strictly prohibited to will is negative pick back, in order to avoid performance failure

7) Soldering

The DIP tantalum capacitor can be used for reflow soldering, which is not suitable for wave soldering and manual welding. The reflow temperature are ≤250°C, ≤ 5 seconds. If you must use manual welding, should use the melted solder to contact lead, and the electric soldering iron power should be less than or equal to 25W, temperature should be less than 300℃, welding time should be less than 3 seconds, can not use electric iron contact the product lead directly, and in particular, can not contact the product ontology directly. Recommended profile conditions for convection and IR reflow reflect the profile conditions of the IPC/J-STD-020D standard for moisture sensitivity testing

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained can be obtained at Download Center.
2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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