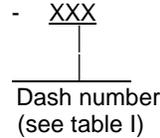
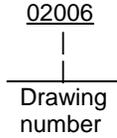


1. SCOPE

1.1 Scope. This drawing and MIL-PRF-55365 describes the requirements for tantalum chip capacitors.

1.2 Part or Identifying Number (PIN). The complete PIN shall be as follows:



2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

- MIL-PRF-55365 - Capacitors, Fixed, Electrolytic (Tantalum), Chip, Nonestablished Reliability, Established Reliability, General Specification for.
- MIL-PRF-55365/4 - Capacitors, Chip, Fixed, Tantalum, Established Reliability, Styles CWR06 and CWR09.
- MIL-PRF-55365/8 - Capacitors, Chip, Fixed, Tantalum, Established Reliability, Styles CWR11.

STANDARDS

DEPARTMENT OF DEFENSE

- MIL-STD-1285 - Marking of Electrical and Electronic Parts.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Document Automation and Production Service, Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

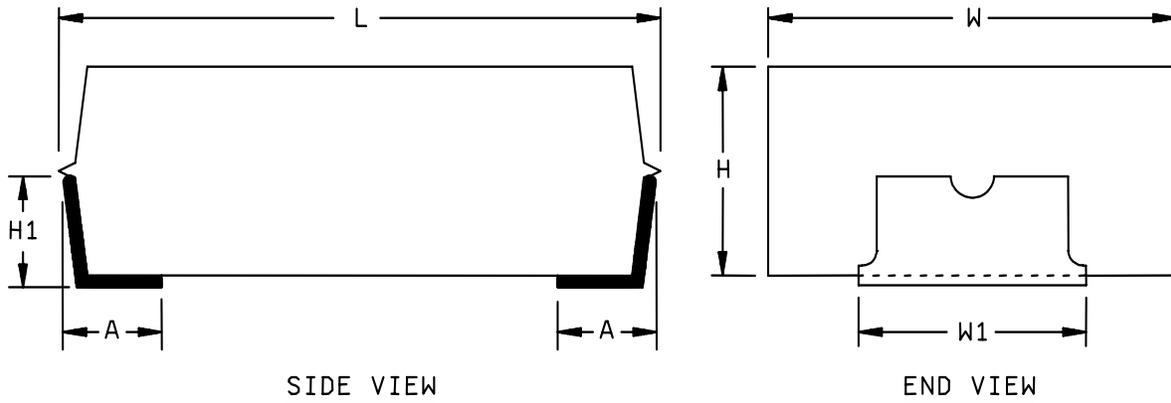
3.1 Interface and physical dimensions. The interface and physical dimensions shall be as specified herein (see figure 1).

3.1.1 Changes to product. The manufacturer shall notify the procuring activity of any changes to the product that may affect the form, fit, or function of the device. Such notification shall be given prior to shipment of any device incorporating the identified change.

3.1.2 Termination finish. Termination finish shall be either letter H or letter K in accordance with MIL-PRF-55365.

3.1.3 Nickel barrier. When a nickel barrier is used on device terminations, the thickness shall be 100 μ-inch minimum.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 2



Style	Case	L	W	H	H1 (min)	A	W1
NA <u>1/</u>	X	.258 - .285 (6.55 - 7.24)	.198 - .228 (5.03 - 5.79)	.093 - .123 (2.36 - 3.12)	.048 (1.22)	.042 - .057 (1.07 - 1.45)	.115 - .125 (2.92 - 3.18)
CWR09	F	.205 - .235 (5.21 - 5.97)	.120 - .150 (3.05 - 3.81)	.055 - .085 (1.40 - 2.16)	.040 (1.02)	.025 - .040 (0.64 - 1.02)	.125 - .135 (3.18 - 3.43)
CWR09	D	.135 - .165 (3.43 - 4.19)	.085 - .115 (2.16 - 2.92)	.035 - .065 (0.89 - 1.65)	.030 (0.76)	.025 - .040 (0.64 - 1.02)	.085 - .100 (2.16 - 2.54)
CWR09	E	.185 - .215 (4.70 - 5.46)	.085 - .115 (2.16 - 2.92)	.035 - .065 (0.89 - 1.65)	.030 (0.76)	.025 - .040 (0.64 - 1.02)	.085 - .100 (2.16 - 2.54)
CWR09	H	.270 - .300 (6.86 - 7.62)	.135 - .165 (3.43 - 4.19)	.095 - .125 (2.41 - 3.18)	.060 (1.52)	.045 - .060 (1.14 - 1.52)	.125 - .150 (3.18 - 3.81)
CWR11	D	.275 - .299 (6.99 - 7.59)	.157 - .181 (3.99 - 4.60)	.098 - .122 (2.49 - 3.10)	.039 (0.99)	.039 - .063 (0.99 - 1.60)	.090 - .125 (2.29 - 3.18)

1/ NOTE: Similar to CWR09

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given in parenthesis for general information only.
3. These capacitors are designed for mounting by dip soldering, vapor phase, reflow soldering, or other conventional means.
4. Lead thickness: .0048 - .0052. Strip on top of part (not shown) indicates anode terminal. Termination material in accordance with MIL-PRF-55365.

FIGURE 1. Case dimensions and configuration.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 3

3.2 Electrical characteristics.

3.2.1 Rated voltage. The rated voltage shall be as specified in table I.

3.2.2 Minimum capacitance. When measured in accordance with MIL-PRF-55365, except at a frequency of 100 kHz \pm 5 kHz, the minimum capacitance shall be as specified in table I.

3.2.3 Capacitance tolerance. Capacitance tolerance shall be \pm 10 percent.

3.2.4 Surge current. In accordance with MIL-PRF-55365/4, option A.

3.2.5 Equivalent series resistance (ESR). In accordance with MIL-PRF-55365, for each of the following conditions:

- a. 100 kHz and +25°C, and
- b. 100 kHz and low test temperature when specified in table I (either -23°C or -40°C), and
- c. 120 Hz and low test temperature when specified in table I (either -23°C or -40°C).

3.3 Marking. Marking shall be in accordance with MIL-STD-1285, except the PIN shall be as specified in 1.2 with the manufacturer's name or CAGE code and date code marked on the unit packaging. It is not a requirement to mark the individual parts.

3.4 Manufacturer eligibility. To be eligible for listing as a suggested source of supply, a manufacturer shall be listed on the MIL-PRF-55365 Qualified Products List for at least one part, or perform the group A and B inspections specified herein on a sample of parts agreed upon by the manufacturer and DSCC-VA.

3.5 Certificate of compliance. A certificate of compliance shall be required from manufacturers requesting to be a suggested source of supply.

3.6 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.7 Workmanship. The capacitor shall be uniform in quality and free from any defects that will affect life, serviceability, or appearance.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 4

TABLE 1. Electrical characteristics.

Style	PIN 02006-	Case Code	Cap. (nom.) 120Hz (μ F)	Cap. (min.) 100KHz (μ F)	Voltage (Vdc)	ESR max (Ohm)					DC leakage (max) μ A			Dissipation factor (max) 120 Hz %		
						100 kHz 25°C	120 Hz -23°C	100 kHz 23°C	120 Hz -40°C	100 kHz -40°C	25°C	85°C	125°C	25°C	85°C 125°C	-55°C
CWR09	001	X	150	50	10	0.065	0.35	0.1	---	---	15	225	375	10	12	15
CWR09	002	X	15	9.5	35	0.190	---	---	2.0	0.27	20	120	350	6	8	8
CWR09	003	X	22	12	25	0.160	---	---	1.4	0.22	11.6	174	289	6	8	8
CWR09	004	X	10	3.5	40	0.600	3.5	0.78	---	---	7.5	113	188	6	6	
CWR09	005	X	47	20	20	0.110	---	0.18	---	---	9.5	141	235	6	8	8
CWR09	006	X	33	15	25	0.130	---	0.2	---	---	12.4	186	310	6	8	8
CWR09	007	X	220	70	6	0.080	---	0.2	---	---	13.5	198	330	10	12	15
CWR09	008	F	47	---	10	0.400	---	---	---	---	5.0	50	60	6	8	10
CWR09	009	D	4.7	2.5	15	1.0	5.5	2.0	---	---	1.0	10	12	6	8	8
CWR09	010	E	4.7	2.5	15	0.600	5.5	1.8	---	---	1.0	10	12	6	8	8
CWR09	011	F	22	12.1	15	0.400	2	0.7	---	---	3.0	30	36	6	8	8
CWR09	012	H	33	---	15	2.0	---	-	---	---	5.0	50	60	6	8	8
CWR09	013	H	47	---	20	0.110	---	-	---	---	9.5	95	114	6	8	8
CWR09	014	F	2.2	1.2	50	2.0	12	3.5	---	---	2.0	20	24	6	8	8
CWR09	015	F	3.3	1.5	35	1.5	---	2.3	---	---	2.0	20	24	4	6	8
CWR09	016	H	6.8	4.76	35	0.800	4.4	1.1	---	---	2.5	25	30	6	8	8

DEFENSE SUPPLY CENTER COLUMBUS		SIZE A	CODE IDENT NO 037Z3	DWG NO. 02006
COLUMBUS, OHIO				
REV				
PAGE		5		

4. VERIFICATION

4.1 Qualification inspection. Qualification inspection is not required.

4.2 Conformance inspection.

4.2.1 Inspection of product for delivery. Inspection of product for delivery shall consist of the inspections, inspection conditions, sample sizes, and acceptance criteria for group A (Weibull distribution) and group C inspections (for ER capacitors) of MIL-PRF-55365, as modified herein.

4.2.2 Process monitors. The process monitors of MIL-PRF-55365 group A subgroup 2 shall be optional.

4.2.3 Group A inspection. Group A inspection of MIL-PRF-55365 with the additions of table II shall be performed.

4.2.4 Group C testing. Group C inspection shall be performed per MIL-PRF-55365 with the following exceptions:

- a. Testing on a quarterly basis is not applicable. When a purchase order is accepted, Group C test samples shall be taken from the first available products that pass Group A testing and is planned for delivery.
- b. The successful completion of Group C shall certify acceptable product quality for a one year period from the oldest lot date code test.
- c. All dash numbers shall receive separate Group C testing. Exceptions shall be listed below in paragraph 4.2.4.1 herein.
- d. The sample size for Group C testing shall be one-half the number listed in MIL-PRF-55365. The accept number shall remain the same.
- e. Exponential life testing is not applicable.

4.2.4.1 Generic Group C test data requirements. Generic Group C data is allowed provided that the voltage is the same or higher and the capacitance to volume ratio (power density) is similar or higher in the generic test data. No generic data on date codes older than one year from the date code on order will be allowed. The one year period does not apply when the design, material, construction or processing of the part is significantly changed or if there are any quality problems.

The manufacturer shall submit a cover letter with the group C data which explains the similarities and differences in the generic product and the customer part number. Customer acceptance of generic Group C data does not relieve the manufacturer from meeting the requirements of Group C in case of dispute.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 6

The following generic part number substitutions have been reviewed and found acceptable. Other generic substitutions may be allowed without specific documentation herein, provided that the above rational is followed.

Specification Part Number	Acceptable Generic Part Number	Rational
02006-003	02006-006	same voltage, same density
02006-009	02006-011	same voltage, same density
02006-010	02006-011	same voltage, same density
02006-015	CWR11MB335*B	same voltage, higher density
02006-016	CWR09MB685*B	same voltage, same density

TABLE II. Group A inspection additions.

Inspection	Requirement paragraph	Sampling size
<u>Subgroup 1</u> Surge current	3.2.4	100%
<u>Subgroup 6</u> ^{1/} Capacitance ESR	3.2.2 3.2.5	10 samples 0 failures

^{1/} Tests only required when a value is specified in table I herein.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. Tantalum chip capacitors are intended to be used in thin or thick film hybrid circuits or surface mount applications where microcircuitry is indicated.

6.2 Ordering data. The contract or purchase order should specify the following:

- a. Complete PIN (see 1.2).
- b. Requirements for delivery of one copy of the conformance inspection data or certificate of compliance that parts have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Requirements for packaging and packing.

6.3 Users of record. Coordination of this document for future revisions are coordinated only with the suggested sources of supply and the users of record of this document. Requests to be added as a recorded user of this drawing should be in writing to: Defense Supply Center, Columbus, ATTN: DSCC/VAT, Post Office Box 3990, Columbus, OH 43216-5000 or by telephone (614) 692-0563 or DSN 850-0563.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 7

6.4 Suggested sources of supply. Suggested source of supply is listed herein. Additional sources will be added as they become available. For assistance in the use of this drawing, contact Defense Supply Center, Columbus, ATTN: DSCC-VAT, Post Office Box 3990, Columbus, OH 43216-5000 or by telephone (614) 692-0561 or DSN 850-0561.

<u>1/</u> PIN	Vendor's similar designation or type	Vendor CAGE	Vendor's name and address
02006-001	TAZX157K010ZRLB0814	17554	AVX Tantalum Corporation 401 Hill Street, Biddeford, ME 04005
02006-002	TAZX156K035XRLB0814	17554	
02006-003	TAZX226K025XRLB0814	17554	
02006-004	TAZX106K040XRLB0814	17554	
02006-005	TAZX476K020XRLB0814	17554	
02006-006	TAZX336K025XRLB0814	17554	
02006-007	TAZX227K006XRLB0814	17554	
02006-008	TAZF476K010ZRLB0814	17554	
02006-009	TAZD475K015XRLB0814	17554	
02006-010	TAZE475K015XRLB0814	17554	
02006-011	TAZF226K015XRLB0814	17554	
02006-012	TAZH336K015CRLB0814	17554	
02006-013	TAZH476K020XRLB0814	17554	
02006-014	TAZF225K050CRLB0814	17554	
02006-015	TAZF335K035CRLB0814	17554	
02006-016	TAZH685K035CRLB0814	17554	

1/ Parts must be purchased to this DSCC PIN to assure that all performance requirements and tests are met.

DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 037Z3	DWG NO. 02006
		REV	PAGE 8