

BRITISH STANDARDS INSTITUTION  
389 CHISWICK HIGH ROAD, LONDON W4 4AL



Specification available from:  
as shown in CECC 00 200 and  
AVX Limited, Long Road, Paignton, Devon TQ4 7ER.

CECC 30201-048

Issue 1

Date January 1996

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ELECTRONIC COMPONENTS OF ASSESSED QUALITY  
DETAIL SPECIFICATION IN ACCORDANCE WITH:  
EN 130 000 : 1993  
EN 130 200 : 1993

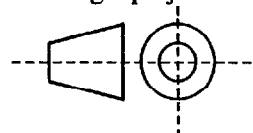
MANUFACTURER'S TYPE  
NUMBERS

TAH  
See CECC 00 200

For ordering information see Clause 1.6

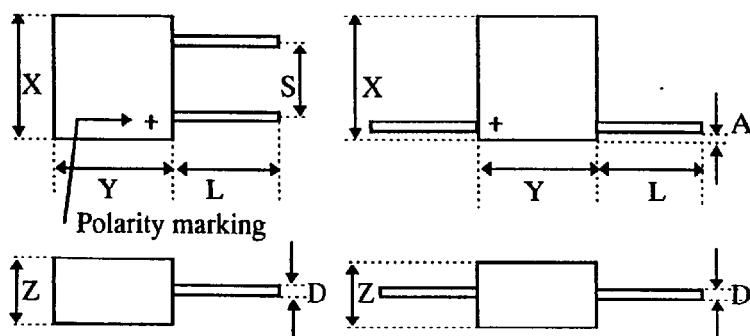
Outline and dimensions

First angle projection



RADIAL OUTLINE

AXIAL OUTLINE



All dimensions are in millimeters (See Table 1)

DETAIL SPECIFICATION FOR  
FIXED TANTALUM  
ELECTROLYTIC  
CAPACITORS WITH SOLID  
ELECTROLYTE, POROUS ANODE  
(SUB FAMILY 3)

TYPICAL CONSTRUCTION

TANTALUM ELECTROLYTIC  
SOLID ELECTROLYTE POLAR  
POROUS ANODE  
RECTANGULAR NON-METALLIC  
CASE  
RADIAL WIRE TERMINATIONS  
AXIAL WIRE TERMINATIONS

ASSESSMENT LEVEL: E

#### QUICK REFERENCE DATA:

|                       |                                     |
|-----------------------|-------------------------------------|
| Capacitance range     | 0,1 $\mu$ F to 150 $\mu$ F          |
| Capacitance tolerance | $\pm 5\%$ , $\pm 10\%$ , $\pm 20\%$ |
| Voltage range         | 6,3 V to 35 V d.c.                  |
| Climatic category     | 55/125/21                           |
| Performance grade     | General purpose                     |

This specification is technically equivalent to and is intended to replace the obsolete BS 9073 F006 and F007. It has been prepared in conformance with EN 130 201 and the test requirements of the European harmonised specification for axial cylindrical metal cased tantalum capacitors.

## 1 General data

### 1.1 Methods of mounting for vibration and bump or shock tests

For normal use the capacitors shall be mounted by the terminations. In extreme conditions of shock and vibration clamping of the body is recommended.

For shock and vibration testing the capacitors shall be fastened to a rigid test fixture by the body and the terminations.

### 1.2 Dimensions

Table 1

| Pattern Reference | Y max. | X max. | Z max. | D                  | Radial     |        | Axial  |        | Typical mass (g) |
|-------------------|--------|--------|--------|--------------------|------------|--------|--------|--------|------------------|
|                   |        |        |        |                    | S          | L min. | A max. | L min. |                  |
| G                 | 4,2    | 3,2    | 1,9    | 0,25 +0,03 / -0,05 | 2,5 ± 0,5  | 4      | 1,0    | 25     | 0,09             |
| H                 | 5,8    | 4,8    | 2,0    | 0,25 +0,03 / -0,05 | 3,8 ± 0,5  | 4      | 1,0    | 25     | 0,18             |
| J                 | 7,4    | 5,7    | 2,9    | 0,40 +0,04 / -0,05 | 4,6 ± 0,65 | 4      | 1,5    | 25     | 0,40             |
| K                 | 7,9    | 5,9    | 3,4    | 0,40 +0,04 / -0,05 | 5,0 ± 0,65 | 4      | 1,5    | 25     | 0,57             |
| L                 | 12,1   | 9,6    | 3,9    | 0,40 +0,04 / -0,05 | 7,6 ± 0,65 | 4      | 2,0    | 25     | 1,32             |

### 1.3 Ratings and characteristics

|                                     |                                          |
|-------------------------------------|------------------------------------------|
| Capacitance range (E6 series)       | See Table 2A                             |
| Tolerance on rated capacitance      | ±5%, ±10%, ±20%                          |
| Rated voltage                       | See Table 2A                             |
| Category voltage                    | See Table 2A                             |
| Surge voltage                       | 1,3 U <sub>R</sub> or 1,3 U <sub>C</sub> |
| Climatic category                   | 55/125/21                                |
| Rated temperature                   | 85°C                                     |
| Capacitance change with temperature | See Table 2B                             |
| Tangent of loss angle (tan δ)       | See Table 2B                             |
| Leakage current in µA               | See Table 2B                             |
| Impedance                           | See Table 2C                             |

Table 2A

Capacitance and voltage related to case size

| U <sub>R</sub> (V)  | 6,3                         | 10  | 16 | 20 | 25 | 35 |
|---------------------|-----------------------------|-----|----|----|----|----|
| U <sub>C</sub> (V)  | 4                           | 6,3 | 10 | 13 | 16 | 23 |
| C <sub>R</sub> (μF) | Case size (See Notes 1 & 2) |     |    |    |    |    |
| 0,10                | ←                           |     |    |    |    | G  |
| 0,15                | ←                           |     |    |    |    | G  |
| 0,22                | ←                           |     |    |    |    | G  |
| 0,33                | ←                           |     |    |    |    | G  |
| 0,47                | ←                           |     |    |    |    | G  |
| 0,68                | ←                           |     |    |    | G  | H  |
| 1,0                 | ←                           |     |    | G  | ←  | H  |
| 1,5                 | ←                           |     | G  | ←  |    | H  |
| 2,2                 | ←                           | G   | ←  |    | H  | J  |
| 3,3                 | G                           | ←   |    | H  | ←  | J  |
| 4,7                 | ←                           |     | H  | ←  |    | J  |
| 6,8                 | ←                           | H   | ←  |    | J  | K  |
| 10                  | H                           | ←   |    | J  | K  | L  |
| 15                  | ←                           |     | J  | K  | ←  | L  |
| 22                  | ←                           | J   | K  | ←  |    | L  |
| 33                  | J                           | K   | ←  |    | L  |    |
| 47                  | K                           | ←   |    | L  |    |    |
| 68                  | ←                           |     | L  |    |    |    |
| 100                 | ←                           | L   |    |    |    |    |
| 150                 | L                           |     |    |    |    |    |

Note 1: Letters indicate pattern reference (case size), see Table 1.

Note 2: The capacitors may be used for any lower voltage rating. Where necessary this is indicated by arrows.

Table 2B

Characteristics at high and low temperatures

| U <sub>R</sub><br>(V) | C <sub>R</sub><br>(μF) | Capacitance change (%) |        |        | Maximum values        |      |      |       |                      |      |          |
|-----------------------|------------------------|------------------------|--------|--------|-----------------------|------|------|-------|----------------------|------|----------|
|                       |                        | -55°C                  | 85°C   | 125°C  | Tangent of loss angle |      |      |       | Leakage current (μA) |      |          |
|                       |                        |                        |        |        | -55°C                 | 20°C | 85°C | 125°C | 20°C                 | 85°C | 125°C(1) |
| 6,3                   | 3,3                    | ( ≤ 0                  | ( ≥ 0  | ( ≥ 0  | 0,10                  | 0,06 | 0,08 | 0,10  | 0,5                  | 5    | 6,25     |
|                       | 10                     | ( ≥ -12                | ( ≤ 12 | ( ≤ 15 |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 33                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 47                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 150                    |                        |        |        | 0,13                  | 0,10 | 0,12 | 0,13  | 9,0                  | 90   | 112,5    |
| 10                    | 2,2                    |                        |        |        | 0,10                  | 0,06 | 0,08 | 0,10  | 0,5                  | 5    | 6,25     |
|                       | 6,8                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 22                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 33                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 100                    |                        |        |        | 0,11                  | 0,08 | 0,10 | 0,11  | 9,0                  | 90   | 112,5    |
| 16                    | 1,5                    |                        |        |        | 0,10                  | 0,06 | 0,08 | 0,10  | 0,5                  | 5    | 6,25     |
|                       | 4,7                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 15                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 22                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 68                     |                        |        |        | 0,11                  | 0,08 | 0,10 | 0,11  | 9,0                  | 90   | 112,5    |
| 20                    | 1,0                    |                        |        |        | 0,10                  | 0,06 | 0,08 | 0,10  | 0,5                  | 5    | 6,25     |
|                       | 3,3                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 10                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 15                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 47                     |                        |        |        |                       |      |      |       | 9,0                  | 90   | 112,5    |
| 25                    | 0,68                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 2,2                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 6,8                    |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 10                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 33                     |                        |        |        |                       |      |      |       | 9,0                  | 90   | 112,5    |
| 35                    | 0,10                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 0,15                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 0,22                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 0,33                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 0,47                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 0,68                   |                        |        |        |                       |      |      |       | 0,5                  | 5    | 6,25     |
|                       | 1,0                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 1,5                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 2,2                    |                        |        |        |                       |      |      |       | 1,0                  | 10   | 12,5     |
|                       | 3,3                    |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 4,7                    |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 6,8                    |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 10                     |                        |        |        |                       |      |      |       | 3,0                  | 30   | 37,5     |
|                       | 15                     |                        |        |        |                       |      |      |       | 9,0                  | 90   | 112,5    |
|                       | 22                     |                        |        |        |                       |      |      |       | 9,0                  | 90   | 112,5    |

(1) Leakage current at 125°C is measured with category voltage.

(5)

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Table 2C

Maximum values of impedance in ohms at 100 kHz and 20°C ( $\geq 0,68\mu\text{F}$  only).

| $U_R$ (V)               | 6,3 | 10  | 16 | 20 | 25 | 35 |
|-------------------------|-----|-----|----|----|----|----|
| $U_C$ (V)               | 4   | 6,3 | 10 | 13 | 16 | 23 |
| $C_R$ ( $\mu\text{F}$ ) |     |     |    |    |    |    |
| 0,10                    |     |     |    |    |    | NA |
| 0,15                    |     |     |    |    |    | NA |
| 0,22                    |     |     |    |    |    | NA |
| 0,33                    |     |     |    |    |    | NA |
| 0,47                    |     |     |    |    |    | NA |
| 0,68                    |     |     |    |    | 15 | 10 |
| 1,0                     |     |     |    | 15 |    | 10 |
| 1,5                     |     |     | 15 |    |    | 10 |
| 2,2                     |     | 15  |    |    | 10 | 5  |
| 3,3                     | 15  |     |    | 10 |    | 5  |
| 4,7                     |     |     | 10 |    |    | 5  |
| 6,8                     |     | 10  |    |    | 5  | 5  |
| 10                      | 10  |     |    | 5  | 5  | 2  |
| 15                      |     |     | 5  | 5  |    | 2  |
| 22                      |     | 5   | 5  |    |    | 2  |
| 33                      | 5   | 5   |    |    | 2  |    |
| 47                      | 5   |     |    | 2  |    |    |
| 68                      |     |     | 2  |    |    |    |
| 100                     |     | 2   |    |    |    |    |
| 150                     | 2   |     |    |    |    |    |

NA : Not applicable