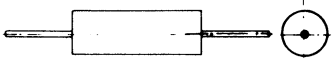
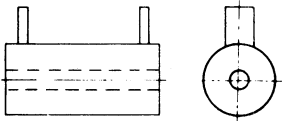
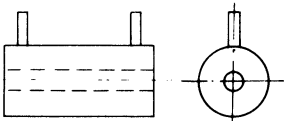
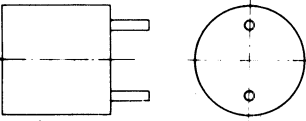


BRITISH STANDARDS INSTITUTION 2 PARK STREET LONDON W1A 2BS		BS CECC 40301 001 to 004 Issue 1 October 1977
SPECIFICATION AVAILABLE FROM BRITISH STANDARDS INSTITUTION 101 PENTONVILLE ROAD LONDON N1 9ND		
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH BS E9110 1974 AND BS E9113 1975 CECC 40 000 1973 AND CECC 40 300 1974		
BS CECC 40301-001	BS CECC 40301-002	FIXED WIREWOUND INSULATED PRECISION RESISTORS
		
See appendix A	See appendix A	TERMINATIONS
BS CECC 40301-003	BS CECC 40301-004	AXIAL: BS CECC 40301 001
		RADIAL TAG: BS CECC 40301 002
See appendix A	See appendix A	RADIAL WIRE: BS CECC 40301 003
		SINGLE-ENDED (PLUG-IN): BS CECC 40301 004
		FULL ASSESSMENT

NOTE. Resistors meeting BS CECC 40301 001 or BS CECC 40301 004 are suitable for printed wiring applications.

1. RATINGS AND CHARACTERISTICS

Resistance range (see note 1)	10 Ω minimum (see note 2)
Standard selection tolerances	0.010 %, $\pm$ 0.025 %, $\pm$ 0.05 %, $\pm$ 0.1 %, $\pm$ 0.25 %, $\pm$ 0.5 % and 1.0 % (see note 2)
Climatic category	55/125/56
Vibration severity	10 Hz to 500 Hz 0.75 mm or 98 m/s ²
Low air pressure	8.5 kPa (85 mbar*)
Limit of resistance change after 1000 h endurance test	$\pm$ (0.1 % + 0.01 Ω)

* 1 mbar = 10^2 N/m² = 100 Pa.

Temperature characteristic of
resistance
(+20 °C to +70 °C)

$\Delta R/R \leq + 0.025 \% (+ 5 \text{ p.p.m./}^{\circ}\text{C})$ for A
 $\Delta R/R \leq + 0.05 \% (+ 10 \text{ p.p.m./}^{\circ}\text{C})$ for B
 $\Delta R/R \leq + 0.075 \% (+ 15 \text{ p.p.m./}^{\circ}\text{C})$ for C
 $\Delta R/R \leq + 0.1 \% (+ 20 \text{ p.p.m./}^{\circ}\text{C})$ for D

Style
Rated dissipation
Limiting element voltage
Isolation voltage
Dimensions

See appendix A

NOTE 1. The preferred values are those of the E24 series of BS 2488: 1966 (IEC Publication 63). Where the use of intermediate values is essential they should be chosen from a series in that document.

NOTE 2. The range of values available in each style will be given in the Qualified Products List (PD 9002), as will the selection tolerances available.

1.1 Derating. Resistors covered by these specifications are derated linearly from 100 % of rated dissipation at 70 °C to zero dissipation at 125 °C. The dissipation below 70 °C is the rated dissipation.

2. MARKING OF THE COMPONENT AND PACKAGE

The marking of the component and package shall be in accordance with the requirements of 2.4 of BS E9110: 1974.

3. RELATED DOCUMENTS

IEC 68	Basic environmental testing procedures
BS 2488 (IEC 63)	Schedule of preferred numbers for the resistance of resistors and the capacitance of capacitors for telecommunication equipment
BS 6001 (IEC 410)	Sampling procedures and tables for inspection by attributes (BS 9001 has the same technical content)
BS 9000	General requirements for electronic components of assessed quality
PD 9002	Qualified products list for electronic components of assessed quality (including list of approved firms)

BS E9110 (CECC 40 000)	Harmonized system of quality assessment for electronic components. Generic specification for fixed resistors
BS E9113 (CECC 40 300)	Harmonized system of quality assessment for electronic components. Sectional specification for fixed precision resistors

4. ORDERING INFORMATION

Orders for resistors covered by these specifications shall contain the following information (as required by 1.1.15 of BS E9110: 1974).

- (a) Resistance value.
- (b) Selection tolerance.
- (c) BS number and issue of the detail specification and style (see appendix B) e.g. BS CECC 40301 001 Issue 1 style JA.

5. CERTIFIED TEST RESULTS (CTR)

5.1 Certified test records shall be prepared in accordance with 3.5 of BS E9110: 1974 and shall be presented in the layout given in appendix E to that document.

6. INSPECTION REQUIREMENTS

6.1 When drying is called for, procedure 1 of 4.2 of BS E9110: 1974 shall be used.

6.2 There shall be a satisfactory balance between high, low and critical resistance values in the samples taken (see 3.1 of BS E9113: 1975).

6.3 Throughout this schedule the unit of product shall be one resistor.

6.4 For the vibration test the vibration shall be applied as follows:

- | | |
|--------------------|--|
| BS CECC 40301 001: | In two mutually perpendicular directions one of which shall be the principal axis of symmetry. |
| BS CECC 40301 002: | } In three mutually perpendicular directions one of which shall be the principal axis of symmetry. |
| BS CECC 40301 003: | |
| BS CECC 40301 004: | |

6.5 Samples submitted to tests which are marked '(D)' shall not be accepted for release under BS 9000 (see 2.6.5 of BS 9000: Part 1).

6.6 Where a subgroup contains more than one test, they shall be carried out in the order given in the schedule.

Clause number and test (see note 1)	D or ND	Condition of test	IL (see note 2)	AQL	Performance requirements (see note 1)
GROUP A INSPECTION					
To be conducted on a sampling basis, lot-by-lot					
<u>Subgroup A1</u>	ND		S-4	1.0 %	
4.3.1 Visual examination					As in 4.3.1
4.3.2 Marking					As in 4.3.2
<u>Subgroup A2</u>	ND		S-4	1.0 %	
4.3.3 Dimensions (gauging)					As specified in appendix A
4.4 Resistance		See CECC 40 000 appendix D3.1			As in 4.4.2
GROUP B INSPECTION					
to be conducted on a sampling basis, lot-by-lot					
<u>Subgroup B1</u>	ND		S-3	1.0 %	
4.6 Voltage proof					As in 4.6.3
<u>Subgroup B2</u>	D		S-3	2.5 %	
4.15.1 Soldering Solderability		Solder bath method			As in 4.15.1

Clause number and test (see note 1)	D or ND	Condition of test		IL (see note 2)	AQL	Performance requirements (see note 1)
<u>Subgroup B2</u> continued 4.11 Overload						$\Delta R/R \leq + (0.05 \% + 0.01 \overline{\Omega})$
		Test duration	Rated dissipation			
		1 s 5 s 15 s	0.063 W 0.125 W to 0.75 W 1 W to 2 W			
		<u>Voltage.</u> The applied voltage shall be 2.5 times the rated voltage or twice the limiting element voltage, which- ever is the less				
<u>Subgroup B3</u> 4.7 Temperature characteristic of resistance	ND	One cycle of 20 °C to 70 °C to 20 °C only		S-3	2.5 %	$\Delta R/R \leq + 0.025 \% \text{ for A}$ $\Delta R/R \leq + 0.05 \% \text{ for B}$ $\Delta R/R \leq + 0.075 \% \text{ for C}$ $\Delta R/R \leq + 0.10 \% \text{ for D}$