**BRITISH STANDARDS INSTITUTION**
2, PARK STREET, LONDON W1A 2BS

**BS-CECC 50002/203**
ISSUE 1, JULY 1982

Specification available from:- As shown in PD 9002 and/or CECC 00200 and

**FERRANTI ELECTRONICS LIMITED**
FIELDS NEW ROAD, CHADDERTON, OLDHAM OL9 8NP
TELEPHONE 061-624 0515, TELEX 668038

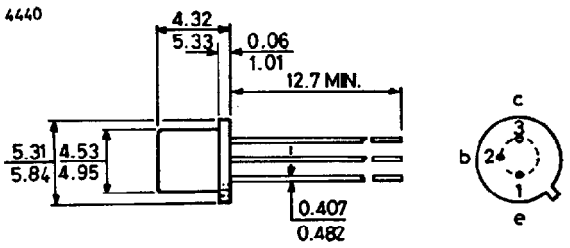
**ELECTRONIC COMPONENTS OF ASSESSED QUALITY**
DETAIL SPECIFICATION IN ACCORDANCE WITH
BS-CECC 50000: 1981

MANUFACTURER'S TYPE NUMBERS

ZT89 or CV7644

**For ordering information see clause 7**

Outline and dimensions Third angle projection




Dimensions in millimetres

OUTLINE: BS3934 SO-132A, IEC 191-2, C7, B11, JEDEC TO-18

**For marking information see clause 6**

NPN SILICON AMBIENT RATED LOW FREQUENCY AMPLIFICATION TRANSISTOR IN HERMETICALLY SEALED METAL ENCAPSULATION

ASSESSMENT LEVEL F PLUS ADDITIONAL TESTS

**4. Limiting values** (over the full temperature range unless otherwise stated).
Absolute maximum system

| | | Min. | Max. | Units |
|---|---|---|---|---|
| $T_{amb}$ | Ambient operating temperature range | −65.0 | +175.0 | °C |
| $T_{stg}$ | Storage temperature range | −65.0 | +175.0 | °C |
| $V_{CBO}$ | Collector-base continuous (direct) voltage | | 65.0 | V |
| $V_{CEO}$ | Collector-emitter continuous (direct) voltage with zero base current | | 65.0 | V |
| $V_{EBO}$ | Emitter-base continuous (direct) reverse voltage | | 5.0 | V |
| $I_C$ | Continuous (direct) collector current | | 500.0 | mA |
| $P_{tot}$ | Power dissipation at $T_{amb} = 25°C$* | | 300.0 | mW |

*See Fig. 1 – Derating curve.

Refer to Qualified Products List PD 9002 and/or CECC 00200 for details of manufacturers approved to this specification.



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**5. Characteristics** (not for inspection purposes) at $T_{amb} = 25°C$ unless otherwise stated.
⊕Indicates characteristics verified in groups A and C

| | | Min. | Max. | Unit |
|---|---|---|---|---|
| $V_{CEO(sus)}$ | Collector-emitter sustaining voltage at $I_C = 10mA$, $I_B = 0$ | 65.0 | | V |
| $⊕h_{21E(1)}$ | Static forward-current transfer ratio at $V_{CE} = 0.4V$, $I_C = 10mA$ | 50.0 | 200.0 | |
| $⊕h_{21E(3)}$ | Static forward-current transfer ratio at $V_{CE} = 0.4V$, $I_C = 1mA$ | 35.0 | | |
| $⊕h_{21E(4)}$ | Static forward-current transfer ratio at $V_{CE} = 0.4V$, $I_C = 30mA$ | 35.0 | | |
| $⊕h_{21E(5)}$ | Static forward-current transfer ratio at $V_{CE} = 0.75V$, $I_C = 75mA$ | 25.0 | | |
| $⊕I_{CBO(1)}$ | Collector-base cut off current at $V_{CB} = 65V$, $I_E = 0$ | | 0.5 | μA |
| $⊕I_{CBO(2)}$ | Collector-base cut-off current at $V_{CB} = 65V$, $T_{amb} = 100°C$ | | 5.0 | μA |
| $⊕I_{EBO}$ | Emitter-base cut-off current at $V_{EB} = 5V$, $I_C = 0$ | | 0.1 | μA |
| $⊕V_{BE(sat)(1)}$ | Base-emitter saturation voltage at $I_B = 1mA$, $I_C = 30mA$ | | 1.0 | V |
| $⊕V_{BE(sat)(2)}$ | Base-emitter saturation voltage at $I_B = 3mA$, $I_C = 75mA$ | | 1.2 | V |
| $⊕f_T$ | Transition frequency at $V_{CE} = 6V$, $I_C = 10mA$, $f = 100MHz$ | 150.0 | | MHz |
| $C_{22b}$ | Common-base output capacitance at $V_{CB} = 6V$, $I_E = 0$, $f = 1MHz$ | | 8.0 | pF |

**6. Marking**

(1) Each transistor shall bear the following marking :

a. Terminal identification (see page 1).

b. The manufacturer's type number.

c. The date code.

d. The factory identification code or manufacturer's trade mark.

(2) Each package containing one or more of these transistors shall bear all the above marking except 'a' and in addition:

e. The BS detail specification number i.e. BS-CECC 50002/203.

**Related documents**

BS 6001 'Sampling procedures and tables for inspection by attributes',

BS E9000 'General requirements for electronic components of assessed quality',

BS CECC 50000 'Harmonized system for quality assessment for electronic components: Generic specification for discrete semiconductor devices'.

**7. Ordering information**

Orders for components to this specification shall include the following minimum information:

1. Quantity
2. Type number
3. Specification number, issue number and date.
4. If required, screening sequence from appendix VI of CECC 50000



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