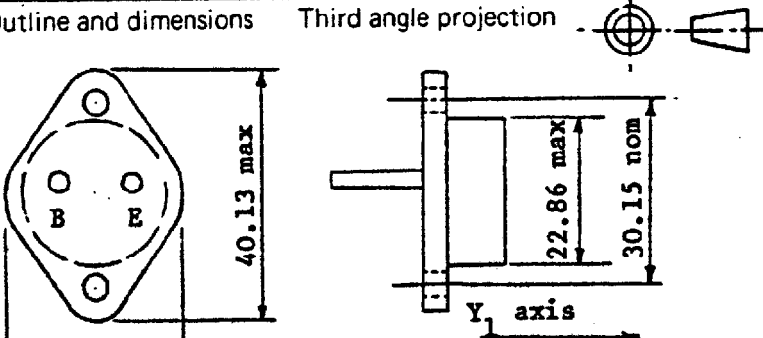


BRITISH STANDARDS INSTITUTION 2, PARK STREET, LONDON, W1A 2BS	BS CECC 50 004-137 ISSUE 1 APRIL 1983
Specification available from:— CECC 00200 AND TEXAS INSTRUMENTS LIMITED, MANTON LANE, BEDFORD, MK41 7PA TELEPHONE : BEDFORD 67466 TELEX : 82178	 Page 1 of 15 Pages
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH BS CECC 50 000 : 1981	MANUFACTURER'S TYPE NUMBER BUX97, BUX97A, BUX97B
1. Outline and dimensions Third angle projection  Outline BS 3934 SO-127A IEC 191-2 C14A B18. Dimensions in millimetres. Marking information - See Clause 6	SEE PD 9002 AND CECC 00200 For ordering information see Clause 7 2. CASE RATED BIPOLAR POWER TRANSISTORS FOR HIGH VOLTAGE SWITCHING APPLICATIONS. NPN TRIPLE DIFFUSED SILICON PLANAR TRANSISTOR IN HERMETICALLY SEALED METAL CASE. 3. ASSESSMENT LEVEL F + ADDITIONAL TESTS

4. LIMITING VALUES (absolute maximum system)

These apply over the operating temperature range unless otherwise stated.

4.1.	T_{case}	Case operating temperature range	-65 °C to +200 °C
4.2.	T_{stg}	Storage temperature range	-65 °C to +200 °C

Voltage Ratings ($T_{case} = -65\text{ °C to }+125\text{ °C}$. See Fig. 1)

			<u>BUX97</u>	<u>BUX97A</u>	<u>BUX97B</u>
4.3.	V_{CBO}	Collector-base continuous (direct) voltage. $I_B = 0$	750V	800V	800V
4.4.	V_{CEX}	Collector-emitter continuous (direct) voltage. $V_{BE} = -2.5V$	750V	800V	800V
4.4.	V_{CEO}	Collector-emitter continuous (direct) voltage. $I_B = 0$	350V	400V	450V
4.4.	V_{CER}	Collector-emitter continuous (direct) voltage. $R_{BE} = 10\Omega$	500V	500V	500V
4.5.	V_{EBO}	Emitter-base continuous (direct) voltage.	7V	7V	7V

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

4.6. Current Ratings

	I_C	Continuous collector current	6	A
	I_{CM}	Peak collector current (Note 1)	8	A
4.7.	I_B	Continuous base current	3	A

4.9. Power Ratings

4.9.1.	P_{tot}	Total power dissipation at $T_{case} = 25^\circ C$ (See Figs. 3 and 4)	70	W
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5. CHARACTERISTICS at $T_{case} = 25^\circ C$ unless otherwise specified. (Not for inspection purposes)

	$V_{CE(SUS)}$	Collector-emitter sustaining voltage (Note 2) $I_C = 100mA$		
		BUX97	350	V min.
		BUX97A	400	V min.
		BUX97B	450	V min.
5.1.	h_{21E}	Forward current transfer ratio $V_{CE} = 5V, I_C = 1A$	10 min.	70 max.
5.2.	$V_{CE(SAT)} (1)$	$I_C = 4A, I_B = 1.25A$	3.0	V max.
5.3.	$V_{CE(SAT)} (2)$	Collector-emitter saturation voltage* $I_C = 1A, I_B = 0.2A$	1.0	V max.
5.4.	$V_{BE(SAT)} (1)$	Base-emitter saturation voltage* $I_C = 4A, I_B = 1.25A$	1.8	V max.
	$V_{BE(SAT)} (2)$	Base-emitter saturation voltage* $I_C = 1.0A, I_B = 0.2A$	1.3	V max.
5.5.	$I_{CES(1)}$	Collector-emitter cut-off current $V_{CE} = 750V$ BUX97	1.0	mA max.
		$V_{CE} = 800V$ BUX97A, BUX97B	1.0	mA max.

NOTE 1: Pulse test: Pulse width = 2ms

NOTE 2: Inductive loop switching measurement

* Pulse test: Pulse width = 300µs, Duty Cycle = 2%

† Parameter is verified in Groups A or C

5. CHARACTERISTICS (Cont'd)

5.6.	$\dagger I_{CES(2)}$	Collector-emitter cut-off current	
		$V_{CE} = 750V$	BUX97 3.0 mA max.
		$V_{CE} = 800V$	BUX97A, BUX97B 3.0 mA max.
		$T_{case} = 150^{\circ}C$	
	$R_{th(j-c)}$	Thermal Resistance Junction-Case	1.67 C/W max.

5.7. Switching Characteristics at 25°C (unless otherwise stated)

5.7.1.	t_{on}	Turn-on time	
		$I_C = 4A, V_{CC} = 100V$	0.6 μS max.
	t_s	Storage time	
		$I_{BON} = I_{BOFF} = 1A$	2.0 μS max.
	t_f	Fall time	0.5 μS max.

$\dagger$ Parameter is verified in Groups A or C

6.0 MARKING

6.1. Each device shall bear the following markings:-

- (a) Terminal identification
- (b) Type Number
- (c) Date Code
- (d) Manufacturer's trade mark or factory identification code.

6.2. Each package containing one or more of these transistors shall bear the above markings b, c and d, and in addition, this detail specification number BS CECC 50 004-137.

7.0 ORDERING INFORMATION

The following minimum information is necessary to order a specific device, unless otherwise specified.

- precise type number
- CECC reference of detail specification with issue number and/or date when relevant.
- level of quality assessment as defined in Appendix IIA of CECC 50 000, and, if required, screening sequence as defined in Appendix VI of CECC 50 000.
- any other particulars

Example:- Type number-Detail specification number-Issue number-Level

RELATED DOCUMENTS

BS 2011/IEC 68	Methods for the environmental testing of electronic components and electronic equipment.
BS 3934/IEC 191	Dimensions of semiconductor devices.
BS E9000/ CECC 00 100 to 00 113	General requirements for electronic components of assessed quality.
BS E9007/CECC 00 007	Sampling plans and procedures for inspection by attributes.
BS/CECC 50 000	Harmonised generic specification for discrete semiconductor devices.
IEC 147-2	General principles of measuring methods.
PD 9002/CECC 00 200	Component selection guide.

8. INSPECTION REQUIREMENTS

ALL GROUP A TESTS ARE NON-DESTRUCTIVE							
GROUP A							
Lot by Lot							
EXAMINATION OR TEST	BS CECC 50000 REF	CONDITIONS at $T_{amb} = 25^{\circ}C$ unless otherwise stated	INSPECTION REQUIREMENTS				
			LIMITS			LEVEL OF ASSMT F	
			MIN	MAX	UNIT	IL	AQL
<u>SUBGROUP A1</u> Visual Inspection	4.2.1					I	0.65%
<u>SUBGROUP A2a</u> Non-operatives Open Circuit Short Circuit	4.3.4 (1)	Device considered to be open circuit if H_{21E} Device considered to be short circuit if $I_{CES(1)}$	2.0	100.0	mA	II	0.15%
<u>SUBGROUP A2b</u> Collector- emitter cut-off current $I_{CES(1)}$ Collector- emitter saturation voltage $V_{CE(SAT)}(1)$	4.3.4 T.009 4.3.4 T.003	$V_{CE} = 750V$ BUX97 $V_{CE} = 800V$ BUX97A/97B $I_C = 4.0A$ $I_B = 1.25A$		1.0 1.0 3.0	mA mA V	II	0.65%
<u>SUBGROUP A3</u> Forward current transfer ratio h_{21E}	4.3.4 T.006	$V_{CC} = 5V,$ $I_C = 1.0A$	10.0	70.0		I	2.5%