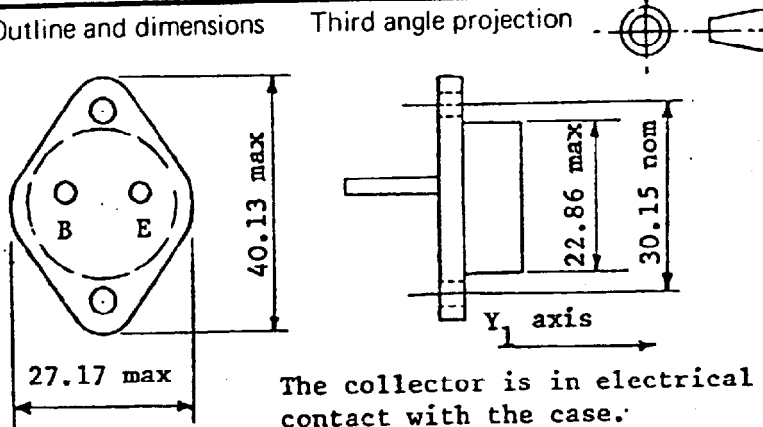


BRITISH STANDARDS INSTITUTION 2, PARK STREET, LONDON, W1A 2BS	BS CECC 50 004-131 ISSUE 1, FEBRUARY 1983
Specification available from:— CECC 00200 AND TEXAS INSTRUMENTS LIMITED, MANTON LANE, BEDFORD, MK41 7PA TELEPHONE : BEDFORD 67466 TELEX : 82178	 Page 1 of 21 Pages
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH BS CECC 50 000 : 1981	MANUFACTURER'S TYPE NUMBER BUX 80, BUX 81
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 TRANSISTORS 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 ($T_{case} = -65 °C$ to $+125 °C$. See Fig. 1)

		BUX 80	BUX 81
4.3.	V_{CBO} Collector-base continuous (direct) voltage. $I_E = 0$	800V	1000V
4.4.	V_{CES} Collector-emitter continuous (direct) voltage. $V_{BE} = 0$	800V	1000V
4.4.	V_{CEO} Collector-emitter continuous (direct) voltage. $I_B = 0$	400V	450V
4.4.	V_{CER} Collector-emitter continuous (direct) voltage. $R_{BE} = 10 \text{ Ohms}$	500V	500V
4.5.	V_{EBO} Emitter-base continuous (direct) voltage. $I_B = 0$	10V	10V

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

Current Ratings

4.6.	I_C	Continuous collector current	10	A
	I_{CM}	Peak collector current (note 1)	15	A
4.7.	I_B	Continuous base current	5	A

4.9. Power Ratings

4.9.1.	P_{tot}	Total power dissipation at $T_{case} = 25^\circ C$ (See Figs. 3 and 4)	100	W
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5. CHARACTERISTICS (not for inspection purposes) at $T_{case} = 25^\circ C$ unless otherwise stated.

$V_{CE(SUS)}$	Collector-emitter sustaining voltage (See Note 2)			
	$I_C = 100mA$	BUX 80	400	V min.
	$L = 25mH$	BUX 81	450	V min.
$V_{CER(SUS)}$	Collector-emitter sustaining voltage (See Note 3)			
	$I_C = 100mA$	BUX 80	500	V min.
	$R_{BE} = 50\Omega$	BYX 81	500	V min.
5.1. h_{21E}	Static forward transfer ratio			
	$V_{CE} = 5V$	$I_C = 500mA$	12	min.
5.2. $\dagger V_{CE(SAT)} (1)$	Collector-emitter saturation voltage			
	$I_C = 8A$	$I_B = 2.5A$	3.0	V max.
$\dagger V_{CE(SAT)} (3)$	Collector-emitter saturation voltage			
	$I_C = 5A$	$I_B = 1.0A$	1.0	V max.
5.3. $\dagger V_{CE(SAT)} (2)$	Collector-emitter saturation voltage			
	$I_C = 500mA$	$I_B = 50mA$	1.5	V max.
5.4. $\dagger V_{BE(SAT)} (1)$	Base-emitter saturation voltage			
	$I_C = 8A$	$I_B = 2.5A$	1.8	V max.
$\dagger V_{BE(SAT)} (2)$	Base-emitter saturation voltage			
	$I_C = 5A$	$I_B = 1.0A$	1.1	V max.

* These parameters are measured under pulsed conditions. Pulse width = 300 μ S,
Duty Cycle = 2%

$\dagger$ Measured in Groups A or C

Note 2: Inductive loop switching measurement

Note 1: Pulse test, pulse duration = 2mS

5.5.	$\dagger I_{CES(1)}$	Collector-emitter cut-off current				
		$(V_{BE} = 0)$				
		$V_{CE} = 800V$	BUX 80	1.0	mA	max.
		$V_{CE} = 1000V$	BUX 81	1.0	mA	max.
5.6.	$\dagger I_{CES(2)}$	Collector-emitter cut-off current				
		$(V_{BE} = 0) \quad T_{case} = 125^{\circ}C$				
		$V_{CE} = 800V$	BUX 80	3.0	mA	max.
		$V_{CE} = 1000V$	BUX 81	3.0	mA	max.
	I_{EBO}	Emitter-base cut-off current				
		$V_{EB} = 10V, \quad I_C = 0$		10.0	mA	max.
5.7.	<u>Switching Characteristics</u> (at $25^{\circ}C$ unless otherwise stated)					
5.7.1	$\dagger$ <u>Resistive Load</u> (see Figs 1 and 2)					
	t_{on}	Turn on Time		0.5	μS	max.
	t_s	Storage Time		3.50	μS	max.
	t_f	Fall Time		0.50	μS	max.
		$I_C = 5A, \quad V_{CC} = 250V, \quad I_{BON} = 1.0A$				
		$T_{case} = 25^{\circ}C \quad I_{BOFF} = 2.0A$				
5.9.	<u>Thermal Resistance</u>					
	R_{thj-c}	Thermal resistance junction-case		1.17	$^{\circ}C/W$	max.

$\dagger$ Measured 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 50 004-131.

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.	Device considered to be open circuit if $h_{21E} < 4$ Device considered to be short circuit if $I_{CES(1)} > 100 \text{ mA}$				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	$V_{BE} = 0$ $V_{CE} = 800V$ BUX 80 $V_{CE} = 1000V$ BUX 81 $I_C = 8.0 \text{ A}$ $I_B = 2.5 \text{ A}$	- - - -	1.0 1.0 3.0	mA mA V	II	0.65%
<u>SUBGROUP A3</u> Collector-emitter saturation voltage $V_{CE(SAT)}(3)$ Collector-emitter saturation voltage $V_{CE(SAT)}(2)$	4.3.4. T.003 4.3.4. T.003	$I_C = 5.0 \text{ A}$ $I_B = 1.0 \text{ A}$ $I_C = 500\text{mA}$ $I_B = 50\text{mA}$	- - -	1.0 1.5	V V	I	2.5%

ALL GROUP A TESTS ARE NON-DESTRUCTIVE

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AVA Documents
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GROUP B

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