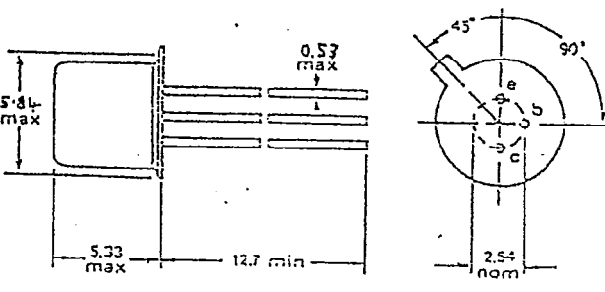


BRITISH STANDARDS INSTITUTION 2, PARK STREET, LONDON W1A 2 BS	BS CECC 50 002-007
SPECIFICATION AVAILABLE FROM : TEXAS INSTRUMENTS LIMITED, MANTON LANE, BEDFORD MK41 7 PA	ISSUE 1 MARCH 1977
ELECTRONIC COMPONENTS OF ASSESSED QUALITY: DETAIL SPECIFICATION IN ACCORDANCE WITH :- BS E9300 : 1975 CECC 50000 : 1974	
<u>OUTLINE DRAWING</u> For detail dimensions see BS 3934 SO-12A/SB3-6A Equivalent to:- IEC C7/B11  The collector is electrically connected to the envelope All dimensions are in millimetres	AMBIENT-RATED BIPOLAR TRANSISTORS FOR LOW FREQUENCY AMPLIFICATION
	MANUFACTURER'S TYPE NUMBER BCY 58, BCY 59
	CONSTRUCTION: NPN EPITAXIAL SILICON PLANAR TRANSISTOR IN METAL CAN, GLASS-METAL SEALED
	LEVEL F PLUS ADDITIONAL TESTS

1. LIMITING VALUES (absolute maximum ratings)

T_{amb}	Operating ambient temperature range	-55°C to 200°C	
T_{stg}	Storage temperature range	-55°C to 200°C	
		<u>BCY 58</u>	<u>BCY 59</u>
V_{CBO}	Collector-base voltage $I_E = 0$.	32 V	45 V
V_{CEO}	Collector-emitter voltage $I_B = 0$	32 V	45 V
V_{EBO}	Emitter-base voltage $I_C = 0$	7 V	
I_C	Continuous collector current	200 mA	
P_{tot}	Continuous power dissipation	360 mW	
$T_{amb} = 25^{\circ}\text{C}$ max (see Fig.1, Appendix A)			

2. CHARACTERISTICS

$T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated.

h_{21E}	Static forward current transfer ratio		
	$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	Group 1	90 min
		Group 2	130 min
	Pulsed Test	Group 3	180 min
		Group 4	260 min
f_T	Transition frequency		150 MHz min
	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$		
I_{CES}	Collector-emitter leakage current		10 nA max
	$V_{BE} = 0, V_{CE} = 32\text{ V}$		
I_{CBO}	Collector-base leakage current		10 μA max
	$I_E = 0, T_{amb} = 150^{\circ}\text{C}, V_{CB} = 32\text{ V}$		
I_{EBO}	Emitter-base leakage current		10 nA max
	$I_C = 0, V_{EB} = 5\text{ V}$		
V_{BE}	Base-emitter voltage		0.7 V max
	$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$		0.55 V min
	Pulsed Test		
h_{21e}	Small signal forward current transfer ratio		
	$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}, f = 1\text{ kHz}$	Group 1	125 min 250 max
		Group 2	175 min 350 max
		Group 3	250 min 500 max
		Group 4	350 min 700 max
F	Noise factor		6 dB max
	$V_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}$		
	$R_g = 2\text{ k}, f = 1\text{ kHz}, \text{Bandwidth} = 200\text{ Hz}$		
C_{22b}	Common-base output capacitance		6 pF max
	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		
$V_{CEsat(1)}$	Collector-emitter saturation voltage		0.25 V max
	$I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$		
	Pulsed Test		
$V_{CEsat(2)}$	Collector-emitter saturation voltage		0.6 V max
	$I_C = 100\text{ mA}, I_B = 5\text{ mA}$		
	Pulsed Test		

3. MARKING

3.1 All devices shall bear the following markings:-

- a) Manufacturers type number, e.g. BCY 59
- b) Factory identification code or manufacturers trade mark
- c) Date code

3.2 Each package containing one or more of these transistors shall bear all the above markings and in addition, this detail specification number BS CECC 50.002-007

4. 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 9000/
JENEL 1

'General requirements for electronic components of assessed quality'.

PD 9002

'BS 9000 component selection guide'.

BS E9300/
CECC 50,000

'Harmonised generic specification for discrete semiconductor devices of assessed quality'.

BS E9007/
CECC 00,007

'Sampling plans and procedures for inspection by attributes'.

IEC 147-2

'General principles of measuring methods'.

5. ORDERING INFORMATION

Orders for these devices should contain the following minimum information:-

- a) The device type number, h_{FE} group and this detail specification number, e.g. BCY 59 to BS CECC 50 002-007 Issue 1
- b) The quantity required.

<u>GROUP A</u> Lot by Lot D = Destructive ND = Non-destructive						
EXAMINATION OR TEST	D ND	BS E9300 REF	CONDITIONS at $T_{amb} = 25^{\circ}C$ unless otherwise stated	Inspection Requirements		
				LIMITS Min. Max.		LEVEL OF ASSMT F
						IL AQL
<u>SUBGROUP A1</u>						I 1.5%
Visual Inspection	ND	4.2.1				
<u>SUBGROUP A2</u>						II 0.65%
Collector-emitter leakage current I_{CES}	ND	4.3.4 T-009	$V_{CE} = 32 V$ $V_{BE} = 0$	- 10 nA		
Static forward current transfer ratio h_{21E}	ND	4.3.4 T-006	$V_{CE} = 5 V$ $I_C = 2 mA$ Pulsed Test Group 1 Group 2 Group 3 Group 4	90 - 130 - 180 - 260 -		
<u>SUBGROUP A3</u>						I 2.5%
Emitter-base leakage current I_{EBO}	ND	4.3.4 T-002	$V_{EB} = 5 V$ $I_C = 0$	- 10 nA		
Base-emitter voltage V_{BE}	ND	4.3.4 T-005	$V_{CE} = 5 V$ $I_C = 2 mA$ Pulsed Test	0.55 0.70 V		