

N-P-N SILICON PLANAR EPITAXIAL TRANSISTORS

T-27-09

N-P-N silicon planar epitaxial transistors in a plastic TO-92 envelope.
P-N-P complementary types are BCX78 and BCX79.

QUICK REFERENCE DATA

			BCX58	BCX59
Collector-emitter voltage (open base)	V_{CEO}	max.	32	45 V
Collector-emitter voltage (emitter to base)	V_{CES}	max.	32	45 V
Emitter-base voltage (open collector)	V_{EBO}	max.	7	V
Collector current (peak)	I_{CM}	max.	200	mA
Total power dissipation up to $T_{amb} = 25\text{ }^{\circ}\text{C}$	P_{tot}	max.	450	mW
Junction temperature	T_j	max.	150	$^{\circ}\text{C}$
Transition frequency	f_T	>	125	MHz

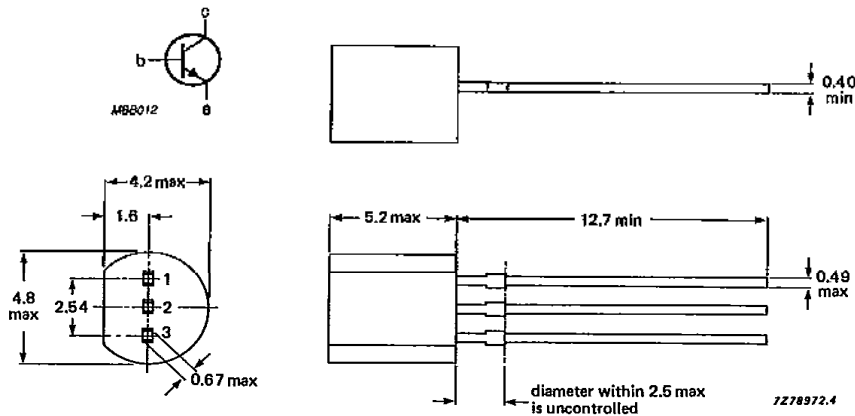
MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-92.

Pinning

- 1 = emitter
- 2 = base
- 3 = collector



BCX58
BCX59

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RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BCX58	BCX59
Collector-emitter voltage (open base)	V_{CEO}	max.	32	45 V
Collector-emitter voltage (emitter to base)	V_{CES}	max.	32	45 V
Emitter-base voltage	V_{EBO}	max.	7	V
Collector current (d.c.)	I_C	max.	100	mA
Collector current (peak value)	I_{CM}	max.	200	mA
Base current (d.c.)	I_B	max.	50	mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	450	mW
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150 $^\circ\text{C}$	

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	280	K/W
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CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

			BCX58	BCX59
Collector-emitter current				
$V_{CE} = 32\text{ V}$	I_{CES}	<	10	nA
$V_{CE} = 32\text{ V}; T_j = 125\text{ }^\circ\text{C}$	I_{CES}	<	2,5	μA
$V_{CE} = 32\text{ V}; V_{BE} = 0,2\text{ V}; T_j = 100\text{ }^\circ\text{C}$	I_{CEX}	<	20	μA
Collector-emitter current				
$V_{CE} = 45\text{ V}$	I_{CES}	<		10 nA
$V_{CE} = T_j = 125\text{ }^\circ\text{C}$	I_{CES}	<		2,5 μA
$V_{CE} = 45\text{ }^\circ\text{C}; V_{BE} = 0,2\text{ V}; T_j = 100\text{ }^\circ\text{C}$	I_{CEX}	<		20 μA
Emitter-base current				
$V_{EBO} = 5\text{ V}$	I_{EBO}	<	20	20 nA
Collector-emitter breakdown voltage				
$I_C = 10\text{ mA}$	$V_{(BR)CEO}$	>	32	45 V
Emitter-base breakdown voltage				
$I_{EBO} = 1\text{ }^\mu\text{A}$	$V_{(BR)EBO}$	>	7	V
Collector-emitter saturation voltage				
$I_C = 100\text{ mA}; I_B = 2,5\text{ mA}$	V_{CEsat}	<	0,5	V
$I_C = 100\text{ mA}; I_B = 2,5\text{ mA}$	V_{BEsat}	<	1,0	V
Collector-base capacitance at 1 MHz				
$V_{CBO} = 10\text{ V}$	C_{cb}	<	4,5	pF

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BCX58 | BCX59

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Emitter-base capacitance at 1 MHz

$V_{EBO} = 0,5 \text{ V}$

$C_{eb} > 15 \text{ pF}$

Transition frequency at $f = 100 \text{ MHz}$

$I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$

$f_T < 125 \text{ MHz}$

Noise figure at $f = 1 \text{ kHz}$

$I_C = 0,2 \text{ mA}; V_{CE} = 5 \text{ V}; R_S = 2 \text{ k}\Omega$

$F < 6 \text{ dB}$
 $\text{typ. } 2 \text{ dB}$

type		BCX58, BCX59				BCX58
hFE	group	7	8	9	10	BCX59
VCE (V)	IC (mA)	hFE	hFE	hFE	hFE	VBE (V)
5	0,01	78	145 (>20)	220 (>40)	300 (>100)	0,5
5	2	170 (120 - 220)	250 (180 - 310)	350 (250 - 460)	500 (380 - 630)	0,62 (0,55 - 0,7)
1	10	190 (>80)	260 (120 - 400)	380 (160 - 630)	550 (240 - 1000)	0,7
1	100	>40	>45	>60	>60	0,83