

N-P-N SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N silicon planar epitaxial transistors in a plastic TO-92 package.

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 at $f = 100\text{ MHz}$ $I_C = 10\text{ mA}, V_{CE} = 5\text{ V}$	f_T	>	100	MHz

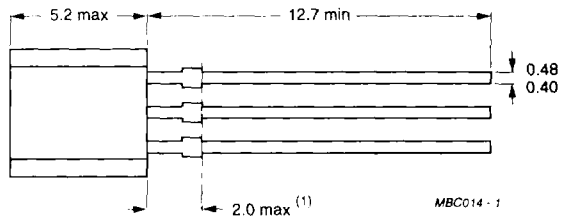
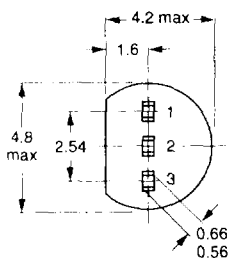
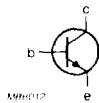
MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-92.

Pinning

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



Note (1) Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

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_c	<	4,5	pF

		BCX58	BCX59
Emitter-base capacitance at 1 MHz $V_{EBO} = 0,5 \text{ V}$		C_e	< 15 pF
Transition frequency at $f = 100 \text{ MHz}$ $I_C = 10 \text{ mA}; V_{CE} = 5 \text{ V}$		f_T	< 100 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 dB typ. 2 dB

type		BCX58, BCX59				BCX58 BCX59
hFE	group	7	8	9	10	
V_{CE} (V)	I_C (mA)	hFE	hFE	hFE	hFE	V_{BE} (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