P-N-P SILICON PLANAR EPITAXIAL TRANSISTORS

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

N-P-N complementary types are BCX58 and BCX59.

QUICK REFERENCE DATA

			BCX78	BCX79	
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.	5		V
Collector current (peak)	$-I_{CM}$	max.	200		mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	450		mW
Junction temperature	T_j	max.	150		°C
Transition frequency at f = 100 MHz I_C = 10 mA, V_{CE} = 5 V	f_T	>	200		MHz

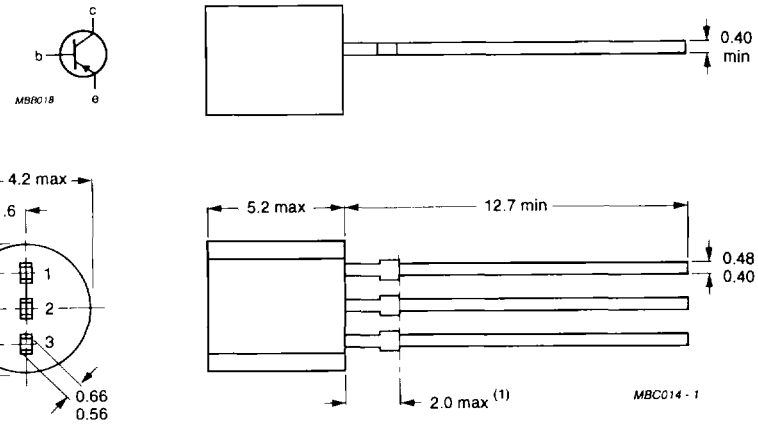
MECHANICAL DATA

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)

			BCX78	BCX79	
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.	5		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 °C	P_{tot}	max.	450		mW
Junction temperature	T_j	max.	150		°C
Storage temperature	T_{stg}		−55 to +150		°C

THERMAL RESISTANCE

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

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

			BCX78	BCX79	
Collector-emitter current					
$-V_{CE}$ = 32 V	$-I_{CES}$	<	10		nA
$-V_{CE}$ = 32 V; T_j = 125 °C	$-I_{CES}$	<	2,5		μA
$-V_{CE}$ = 32 V; $-V_{BE}$ = 0,2 V; T_j = 100 °C	$-I_{CEX}$	<	20		μA
Collector-emitter current					
$-V_{CE}$ = 45 V	$-I_{CES}$	<		10	nA
$-V_{CE}$ = T_j = 125 °C	$-I_{CES}$	<		2,5	μA
$-V_{CE}$ = 45 °C; $-V_{BE}$ = 0,2 V; T_j = 100 °C	$-I_{CEX}$	<		20	μA
Emitter-base current					
$-V_{EBO}$ = 4 V	$-I_{EBO}$	<	20	20	nA
Collector-emitter breakdown voltage					
$-I_C$ = 10 mA	$-V_{(BR)CEO}$	>	32	45	V
Emitter-base breakdown voltage					
$-I_{EBO}$ = 1 μA	$-V_{(BR)EBO}$	>	5		V
Collector-emitter saturation voltage					
$-I_C$ = 100 mA; $-I_B$ = 2,5 mA	$-V_{CEsat}$	<	0,6		V
$-I_C$ = 100 mA; $-I_B$ = 2,5 mA	$-V_{BEsat}$	<	1,0		V
Collector-base capacitance at 1 MHz					
$-V_{CBO}$ = 10 V	C_c	<	4,5		pF
Emitter-base capacitance at 1 MHz					
$-V_{EBO}$ = 0,5 V	C_e	<	15		pF

			BCX78	BCX79	
Transition frequency at f = 100 MHz					
$-I_C$ = 10 mA; $-V_{CE}$ = 5 V	f_T	>		200	MHz
Noise figure at f = 1 kHz					
$-I_C$ = 0,2 mA; $-V_{CE}$ = 5 V; R_S = 2 kΩ	F	<		6	dB
		typ.		2	dB

type		BCX78, BCX79				BCX78
h_{FE} group		7	8	9	10	BCX79
$-V_{CE}$ (V)	$-I_C$ (mA)	h_{FE}	h_{FE}	h_{FE}	h_{FE}	$-V_{BE}$ (V)
5	0,01	140	200 (>30)	270 (>40)	340 (>100)	0,55
5	2	170	250	350	500	0,65
		(120 – 220)	(180 – 310)	(250 – 460)	(380 – 630)	(0,6 – 0,7)
1	10	180	260	360	500	0,68
		(>80)	(120 – 400)	(160 – 630)	(240 – 1000)	
1	100	>40	>45	>60	>60	0,76 (<0,9)