



SILICON PLANAR EPITAXIAL TRANSISTORS

P-N-P transistors in a plastic TO-92 envelope, primarily intended for use in driver stages of audio amplifiers. N-P-N complements are BC635, BC637 and BC639.

QUICK REFERENCE DATA

		BC636	BC638	BC640
Collector-base voltage (open emitter)	$-V_{CBO}$ max.	45	60	100 V
Collector-emitter voltage (open base)	$-V_{CEO}$ max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	$-V_{CER}$ max.	45	60	100 V
Collector-current (peak value)	$-I_{CM}$ max.	1,5	1,5	1,5 A
Total power dissipation up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot} max.	1	1	1 W
Junction temperature	T_j max.	150	150	150 $^\circ\text{C}$
D.C. current gain	h_{FE}	> 40 < 250	40 250	40 250
Transition frequency	f_T typ.	50	50	50 MHz

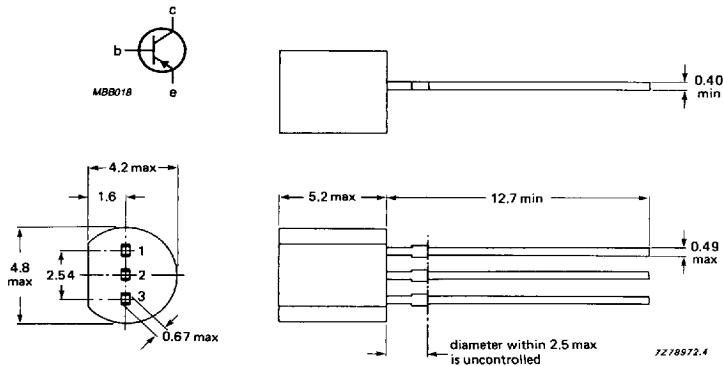
MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-92.

Pinning

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



Capability approved to CECC NECC-C-002

RATINGS

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

			BC636	BC638	BC640
Collector-base voltage (open emitter)	$-V_{CBO}$	max.	45	60	100 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	45	60	80 V
Collector-emitter voltage ($R_{BE} = 1 \text{ k}\Omega$)	$-V_{CER}$	max.	45	60	100 V
Collector-emitter voltage ($-V_{BE} = 0$)	$-V_{CES}$	max.	45	60	100 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5	5	5 V
Collector current (d.c.)	$-I_C$	max.		1	A
Collector current (peak value)	$-I_{CM}$	max.		1,5	A
Emitter current (peak value)	I_{EM}	max.		1,5	A
Base current (d.c.)	$-I_B$	max.		100	mA
Base current (peak value)	$-I_{BM}$	max.		200	mA
Total power dissipation at $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot}	max.		0,8	W
up to $T_{amb} = 25 \text{ }^\circ\text{C}$	P_{tot}	max.		1	W*
Storage temperature	T_{stg}		-65 to + 150		$^\circ\text{C}$
Junction temperature	T_j	max.		150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient in free air	R_{thj-a}	=		156	K/W
From junction to ambient	R_{thj-a}	=		125	K/W*
From junction to case	R_{thj-c}	=		60	K/W

* Transistor mounted on printed circuit board, max. lead length 4 mm, mounting pad for collector lead min. 10 mm x 10 mm.

CHARACTERISTICS

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

Collector cut-off current

$I_E = 0; -V_{CB} = 30\text{ V}$	$-I_{CBO}$	<	100 nA
$I_E = 0; -V_{CB} = 30\text{ V}; T_j = 150\text{ }^\circ\text{C}$	$-I_{CBO}$	<	10 μA

Emitter cut-off current

$I_C = 0; -V_{EB} = 5\text{ V}$	$-I_{EBO}$	<	10 μA
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Base-emitter voltage

$-I_C = 500\text{ mA}; -V_{CE} = 2\text{ V}$	$-V_{BE}$	<	1 V
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Saturation voltage

$-I_C = 500\text{ mA}; -I_B = 50\text{ mA}$	$-V_{CEsat}$	<	0,5 V
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D.C. current gain

$-I_C = 5\text{ mA}; -V_{CE} = 2\text{ V}$	h_{FE}	>	25
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$-I_C = 150\text{ mA}; -V_{CE} = 2\text{ V}^*$	h_{FE}	>	40
		<	250

$-I_C = 500\text{ mA}; -V_{CE} = 2\text{ V}$	h_{FE}	>	25
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Transition frequency at $f = 35\text{ MHz}$

$-I_C = 10\text{ mA}; -V_{CE} = 5\text{ V}$	f_T	typ.	50 MHz
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* BC636-10			
BC638-10	h_{FE}	>	63
BC640-10		<	160
BC636-16			
BC638-16	h_{FE}	>	100
BC640-16		<	250

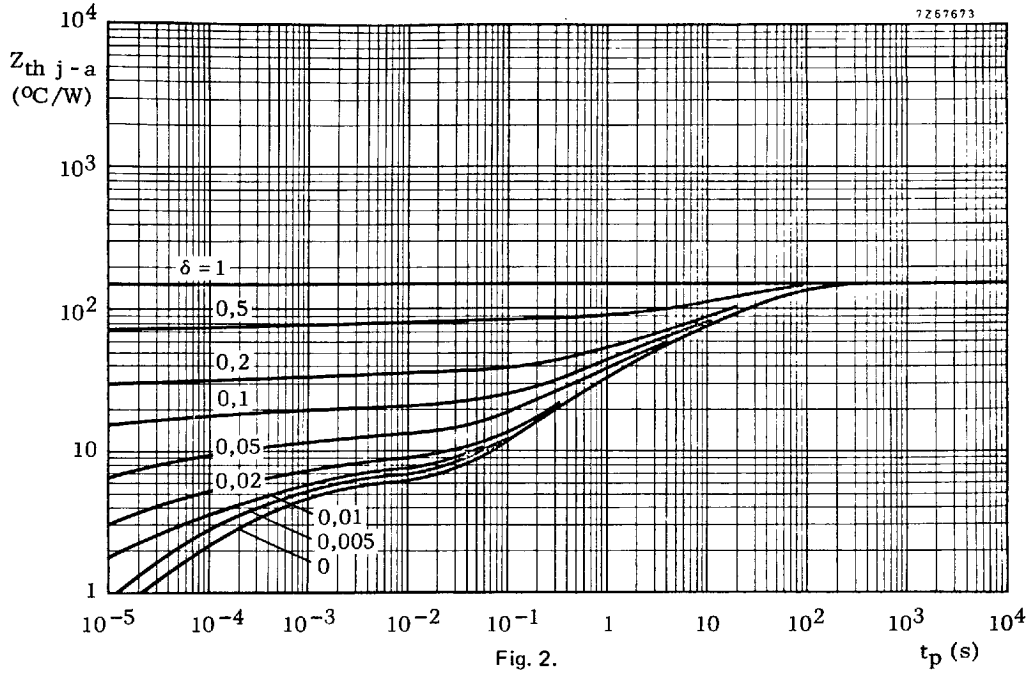


Fig. 2.

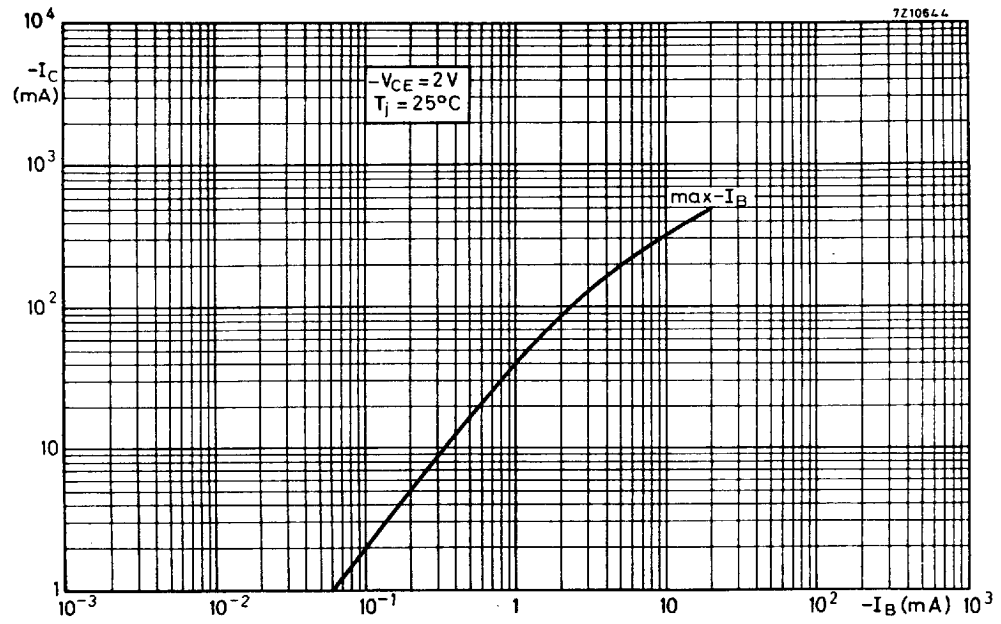


Fig. 3.

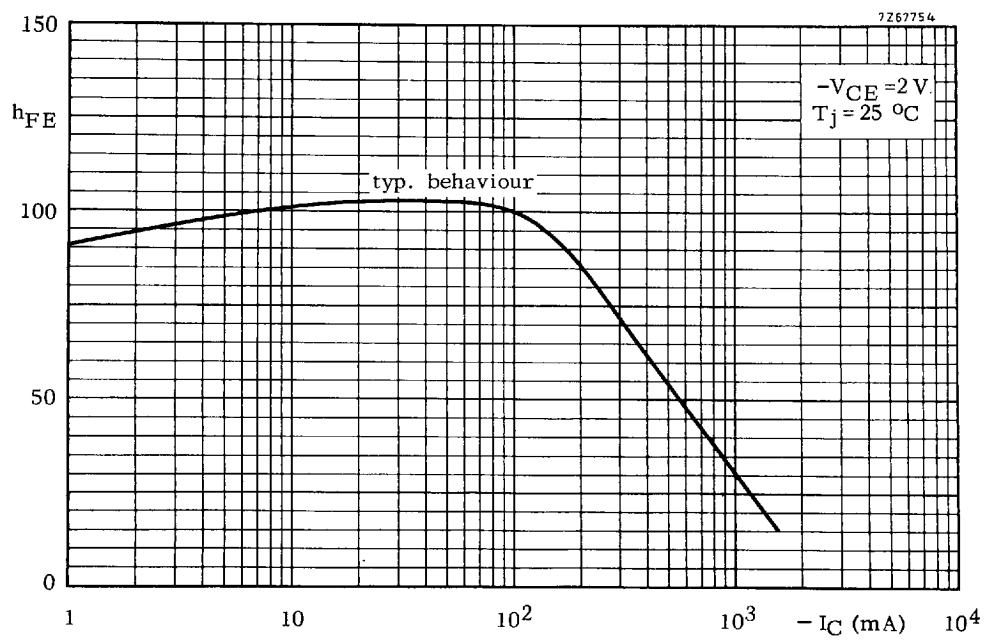


Fig. 4.

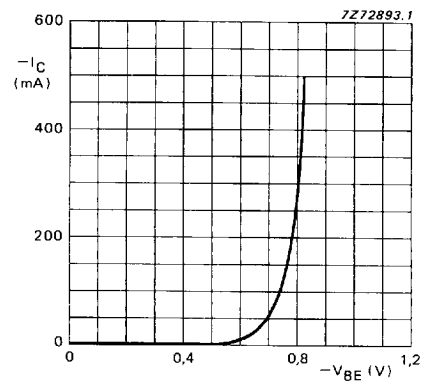


Fig. 5 $-V_{CE} = 2V$; $T_j = 25^\circ C$; typical values.

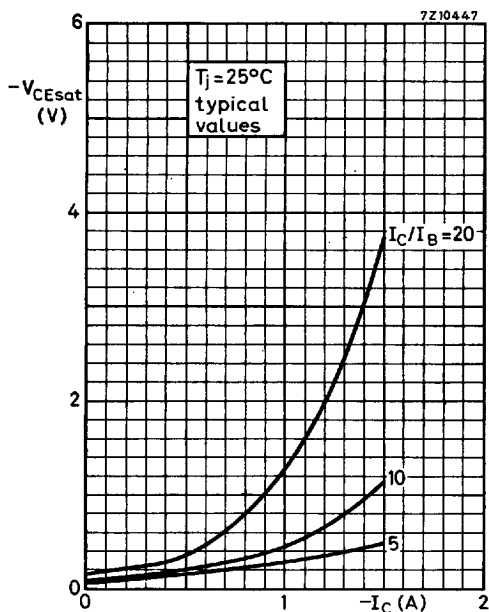


Fig. 6.

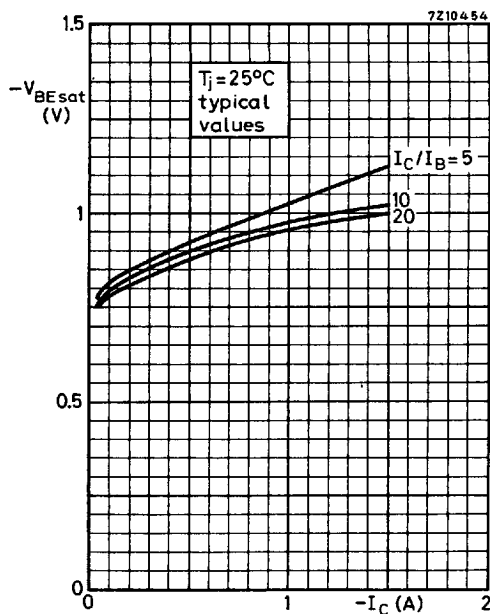


Fig. 7.

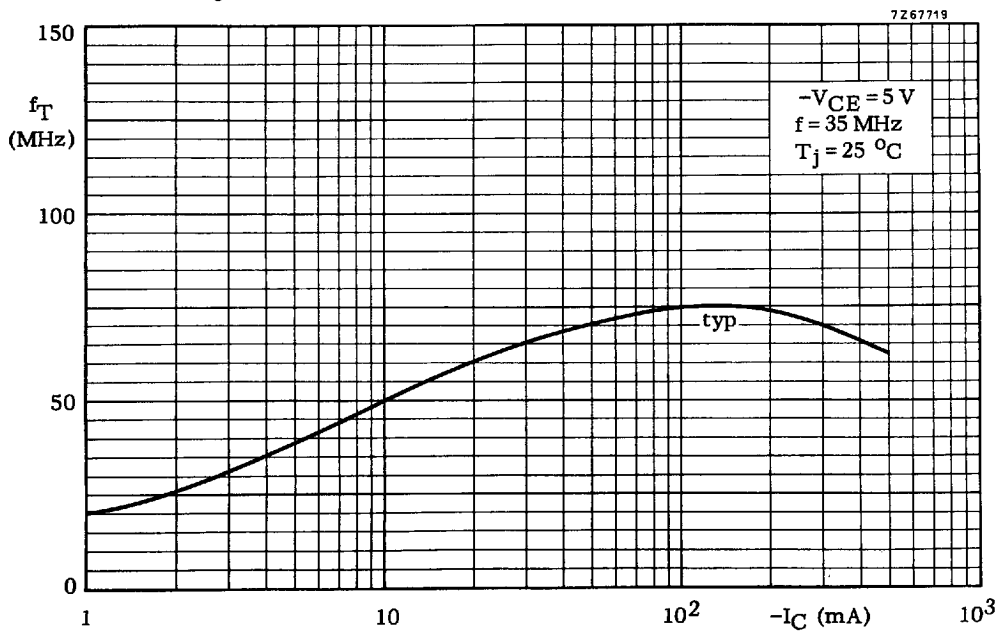


Fig. 8.