

$I_C = 0,5 \text{ A}; V_{CE} = 10 \text{ V}$
 Collector-emitter saturation voltage
 $I_C = 5 \text{ A}; I_B = 0,5 \text{ A}$
 Turn-off time
 $I_{Con} = 5 \text{ A}; I_{Bon} = -I_{Boff} = 0,5 \text{ A}$

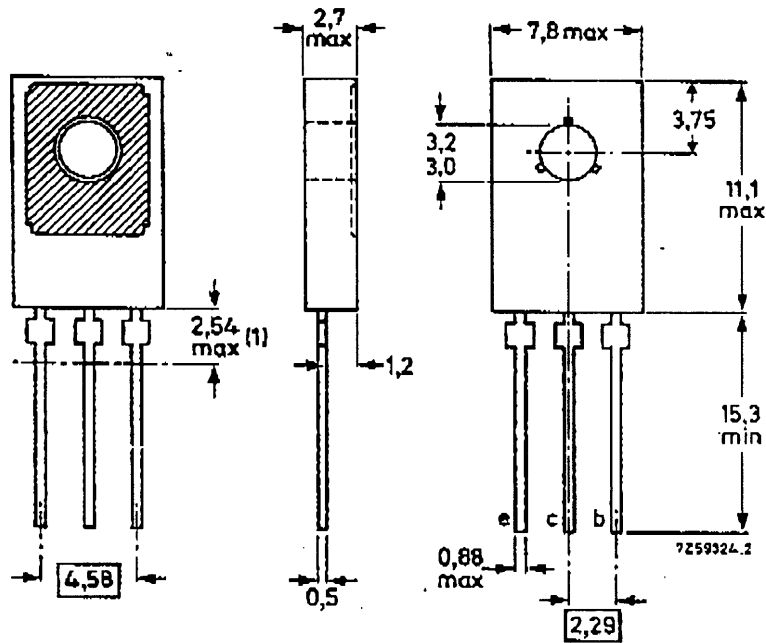
h_{FE}	>	45	45	45
V_{CEsat}	<	0,9	0,7	0,9 V
t_{off}	typ.	350	350	350 ns

MECHANICAL DATA

Dimensions in mm

Fig. 1 TO-126 (SOT-32)

Collector connected to the metal part of the mounting surface



Farnell Order Code 360-909



RATINGS

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

Voltages			BDX35	BDX36	BDX37
Collector-base voltage (open emitter)	V_{CBO}	max.	100	120	120 V
Collector-emitter voltage ($V_{BE} = 0$)	V_{CES}	max.	100	120	120 V
Collector-emitter voltage (open base)	V_{CEO}	max.	60	60	80 V
Emitter-base voltage (open collector)	V_{EBO}	max.		5	V
Collector current (d.c.)	I_C	max.		5	A
Collector current (peak value)	I_{CM}	max.		10	A
Base current (d.c.)	I_B	max.		1	A
Base current (peak value)	I_{BM}	max.		2	A
Reverse base current (peak value)	$-I_{BM}$	max.		2	A
Total power dissipation					
up to $T_{mb} = 75\text{ }^\circ\text{C}$	P_{tot}	max.		15	W
up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.		1,25	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 mounting base	$R_{th\ j-mb}$	=		5	K/W
From junction to ambient in free air	$R_{th\ j-a}$	=		100	K/W



CHARACTERISTICS

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

Collector cut-off current

$I_E = 0; V_{CB} = 80\text{ V}$

BDX35 $I_{CBO} < 10\text{ }\mu\text{A}$

$I_E = 0; V_{CB} = 80\text{ V}; T_j = 100\text{ }^\circ\text{C}$

BDX35 $I_{CBO} < 50\text{ }\mu\text{A}$

$I_E = 0; V_{CB} = 100\text{ V}$

BDX36/37 $I_{CBO} < 10\text{ }\mu\text{A}$

$I_E = 0; V_{CB} = 100\text{ V}; T_j = 100\text{ }^\circ\text{C}$

BDX36/37 $I_{CBO} < 50\text{ }\mu\text{A}$

Emitter cut-off current

$I_C = 0; V_{EB} = 4\text{ V}$

I_{EBO} typ. 5 nA

$I_{EBO} < 10\text{ }\mu\text{A}$

$I_C = 0; V_{EB} = 5\text{ V}$

$I_{EBO} < 1\text{ mA}$

D.C. current gain

$I_C = 0,5\text{ A}; V_{CE} = 10\text{ V}$

BDX35/36 $h_{FE} 45\text{ to }450$

BDX37 h_{FE} typ. 130

h_{FE} typ. 80

Collector-emitter saturation voltage

$I_C = 5\text{ A}; I_B = 0,5\text{ A}$

BDX35/37 $V_{CEsat} < 0,9\text{ V}$

BDX36 $V_{CEsat} < 0,7\text{ V}$

$I_C = 7\text{ A}; I_B = 0,7\text{ A}$

BDX35/37 $V_{CEsat} < 1,2\text{ V}$

$I_C = 10\text{ A}; I_B = 1\text{ A}$

BDX36 $V_{CEsat} < 1,5\text{ V}$

Base-emitter saturation voltage

$I_C = 5\text{ A}; I_B = 0,5\text{ A}$

$V_{BEsat} < 1,6\text{ V}$

$I_C = 7\text{ A}; I_B = 0,7\text{ A}$

BDX35/37 $V_{BEsat} < 1,8\text{ V}$

$I_C = 10\text{ A}; I_B = 1\text{ A}$

BDX36 $V_{BEsat} < 2,2\text{ V}$

Collector capacitance at $f = 1\text{ MHz}$

$I_E = I_e = 0; V_{CB} = 10\text{ V}$

C_c typ. 40 pF

$C_c < 60\text{ pF}$

Transition frequency at $f = 35\text{ MHz}$

$I_C = 0,5\text{ A}; V_{CE} = 5\text{ V}; T_{amb} = 25\text{ }^\circ\text{C}$

f_T typ. 100 MHz

Switching times

(between 10% and 90% levels)

$I_{Con} = 1\text{ A}; I_{Bon} = -I_{Boff} = 0,1\text{ A}$

turn-on time

t_{on} typ. $0,06\text{ }\mu\text{s}$

$t_{on} < 0,1\text{ }\mu\text{s}$

turn-off time

t_{off} typ. $0,6\text{ }\mu\text{s}$

$t_{off} < 0,8\text{ }\mu\text{s}$

$I_{Con} = 2\text{ A}; I_{Bon} = -I_{Boff} = 0,2\text{ A}$

turn-on time

$t_{on} < 80\text{ ns}$

turn-off time

t_{off} typ. $0,45\text{ }\mu\text{s}$

$t_{off} < 0,7\text{ }\mu\text{s}$

$I_{Con} = 5\text{ A}; I_{Bon} = -I_{Boff} = 0,5\text{ A}$

turn-on time

t_{on} typ. 180 ns

$t_{on} < 300\text{ ns}$

turn-off time

t_{off} typ. 320 ns

$t_{off} < 500\text{ ns}$

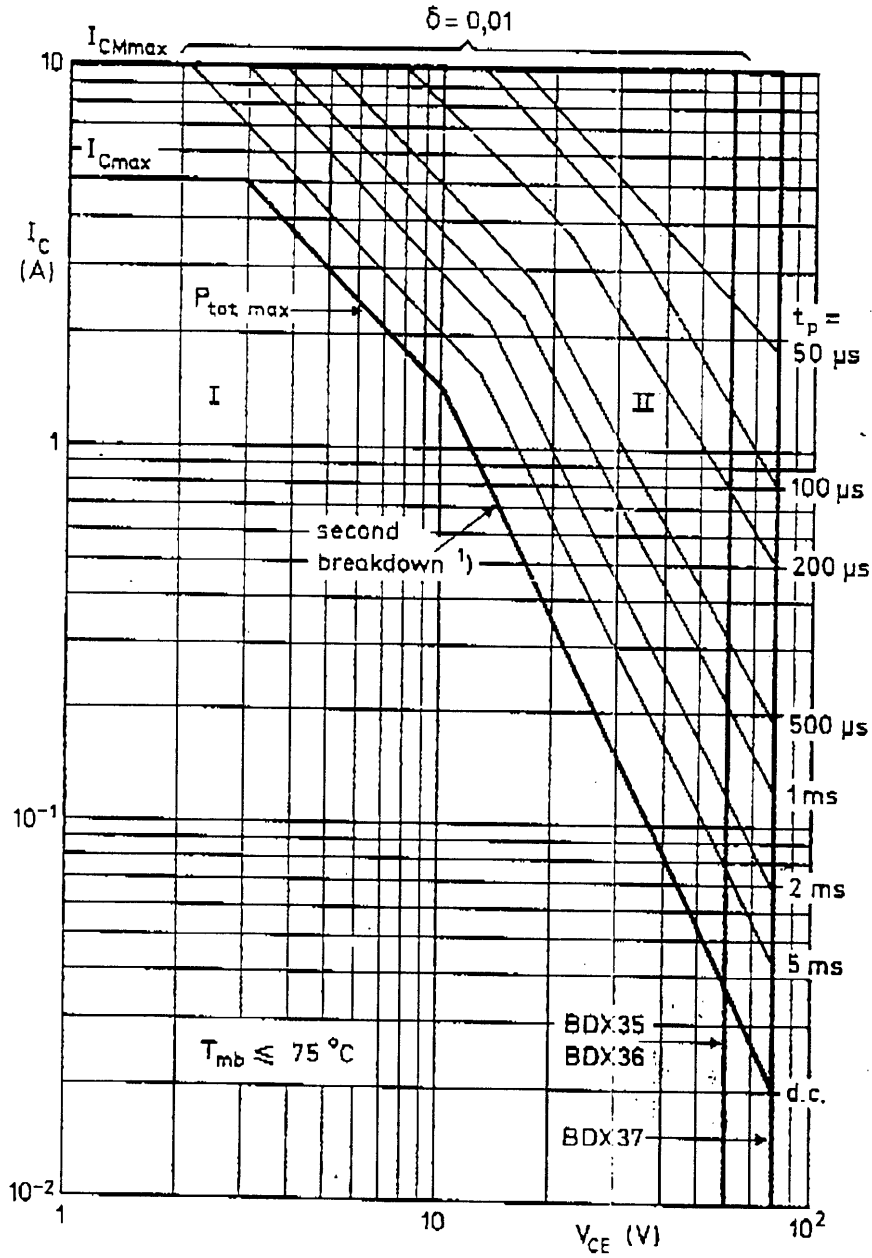


Fig. 2 Safe Operating Area with the transistor forward biased.

I Region of permissible d.c. operation

II Permissible extension for repetitive pulse operation.