

RATINGS

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

			BD135	BD137	BD139
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
Emitter-base voltage (open collector)	V_{EBO}	max.	5	5	5 V
Collector current (d.c.)	I_C	max.	1,5	1,5	1,5 A
Collector current (peak value)	I_{CM}	max.	2,0	2,0	2,0 A
Total power dissipation up to $T_{mb} = 70\text{ }^{\circ}\text{C}$	P_{tot}	max.		8	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	$R_{th\ j-a}$	100	K/W
From junction to mounting base	$R_{th\ j-mb}$	10	K/W

CHARACTERISTICS

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

Collector cut-off current

$I_E = 0; V_{CB} = 30\text{ V}$

$I_{CBO} < 100\text{ nA}$

$I_E = 0; V_{CB} = 30\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$

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

Emitter cut-off current

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

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

Base-emitter voltage

$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$

$V_{BE} < 1\text{ V}$

Saturation voltage

$I_C = 500\text{ mA}; I_B = 50\text{ mA}$

$V_{CEsat} < 0,5\text{ V}$

D.C. current gain

$I_C = 5\text{ mA}; V_{CE} = 2\text{ V}$

$h_{FE} > 25$

$I_C = 150\text{ mA}; V_{CE} = 2\text{ V}$

BDxxx

$h_{FE} 40\text{ to }250$

BDxxx-6

$h_{FE} 40\text{ to }100$

BDxxx-10

$h_{FE} 63\text{ to }160$

BDxxx-16

$h_{FE} 100\text{ to }250$

$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$

$h_{FE} > 25$

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

$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}$

f_T typ. 250 MHz

D.C. current gain ratio of matched pairs

BD135/BD136; BD137/BD138; BD139/BD140

$|I_C| = 150\text{ mA}; |V_{CE}| = 2\text{ V}$

h_{FE1}/h_{FE2} typ. 1,3
< 1,6

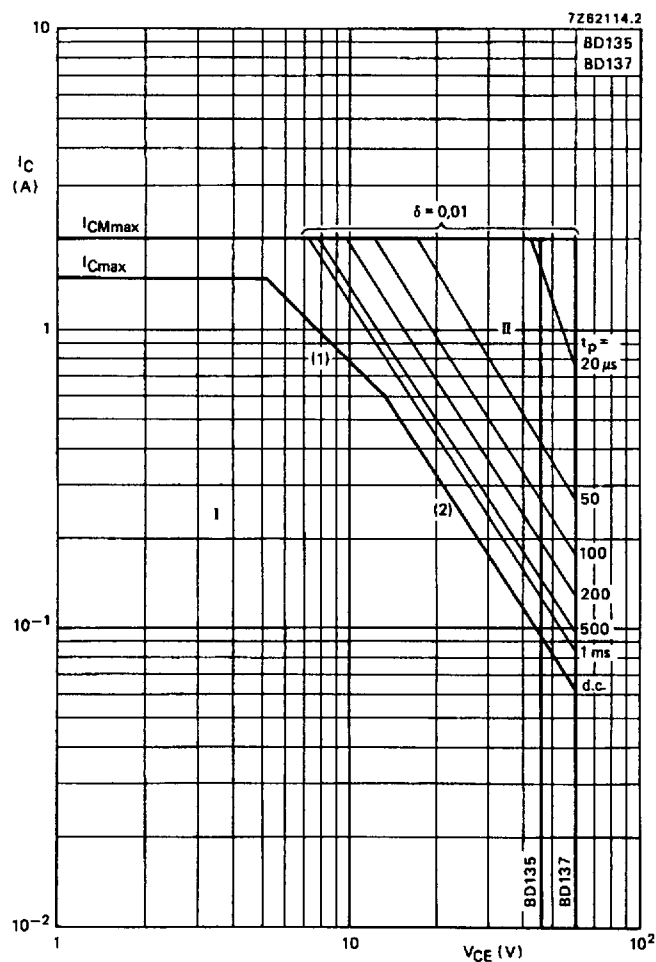


Fig. 2 Safe Operating Area with the transistor forward biased.

- I Region of permissible d.c. operation
- II Permissible extension for repetitive pulse operation
- (1) P_{tot} max line
- (2) Second breakdown limits.

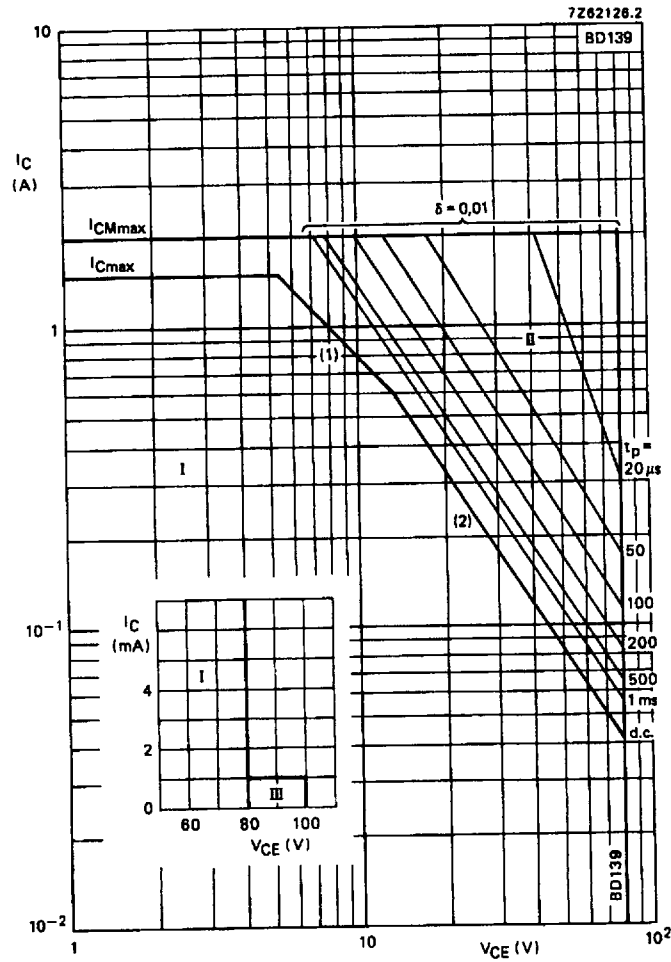


Fig. 3 Safe Operating Area with the transistor forward biased.

- I Region of permissible d.c. operation
- II Permissible extension for repetitive pulsed operation
- III Repetitive pulse operation in this region is allowable, provided $R_{BE} \leq 1 \text{ k}\Omega$
- (1) P_{tot} max line
- (2) Second breakdown limit

Fig. 4.

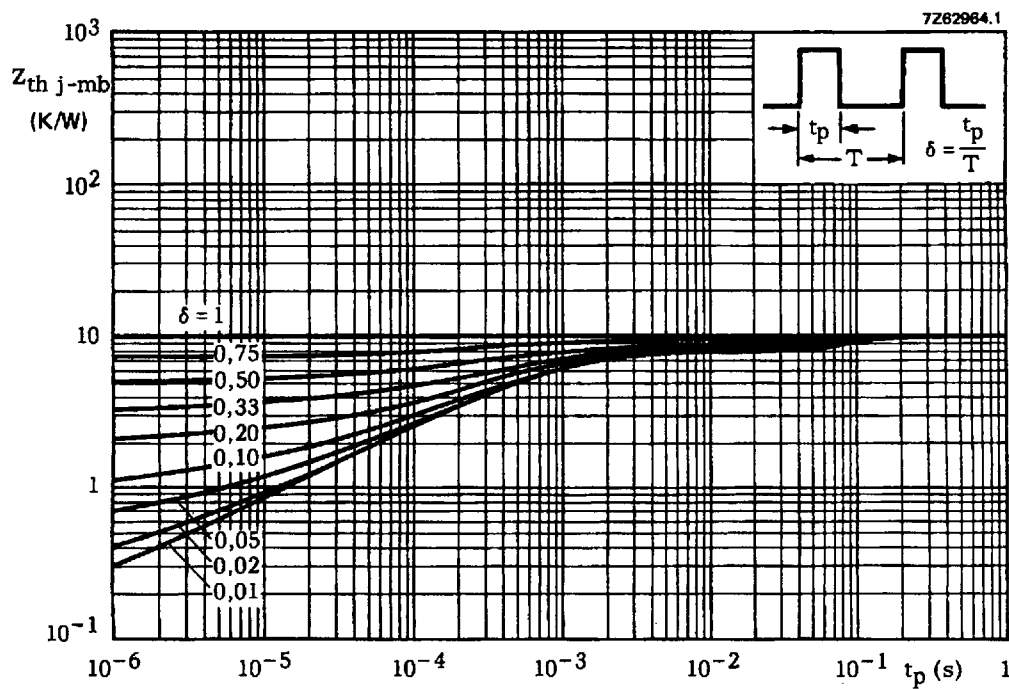
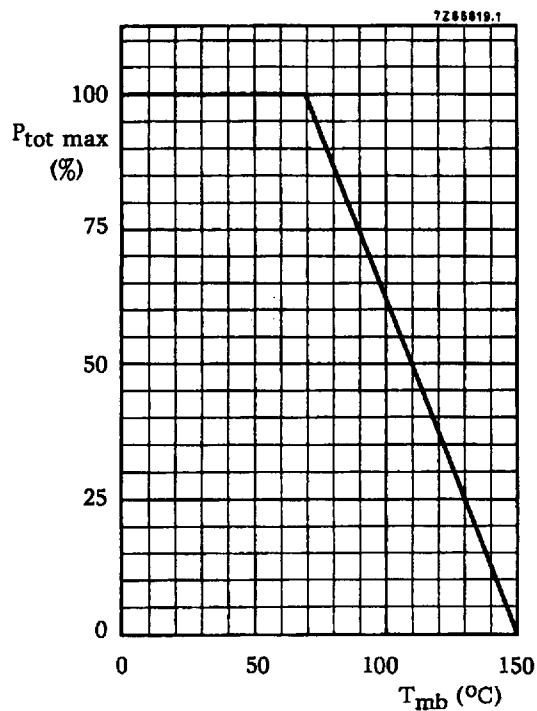


Fig. 5.

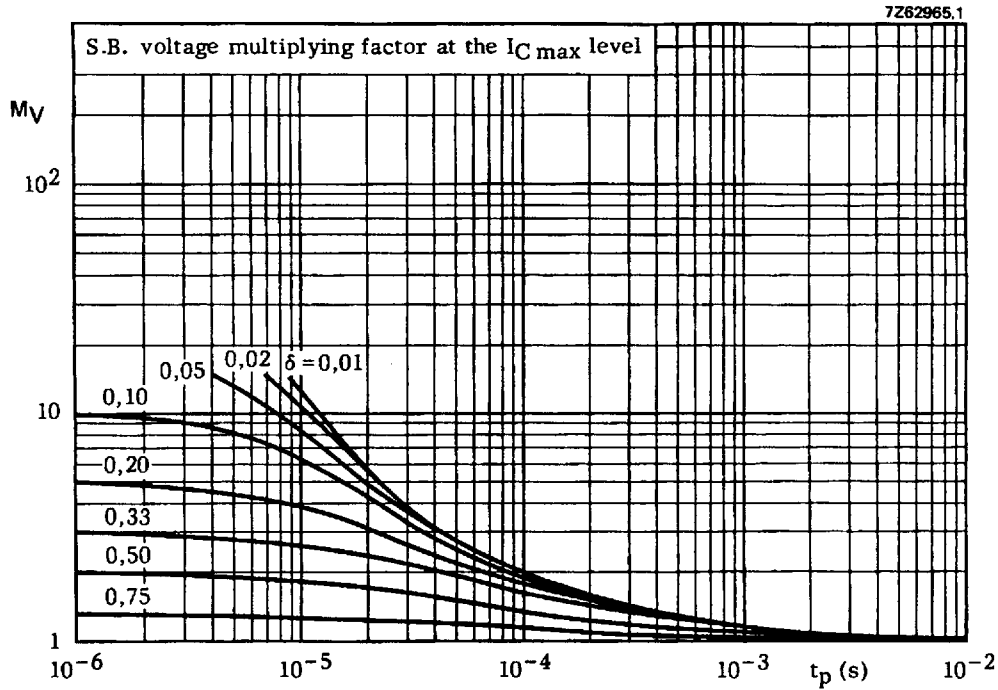


Fig. 6.

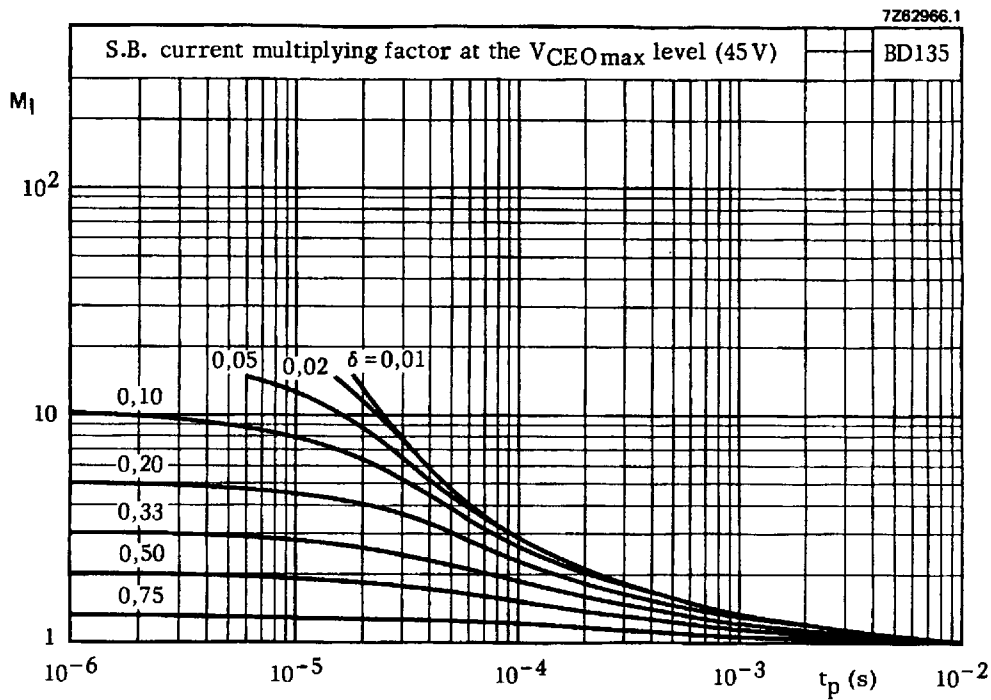


Fig. 7.

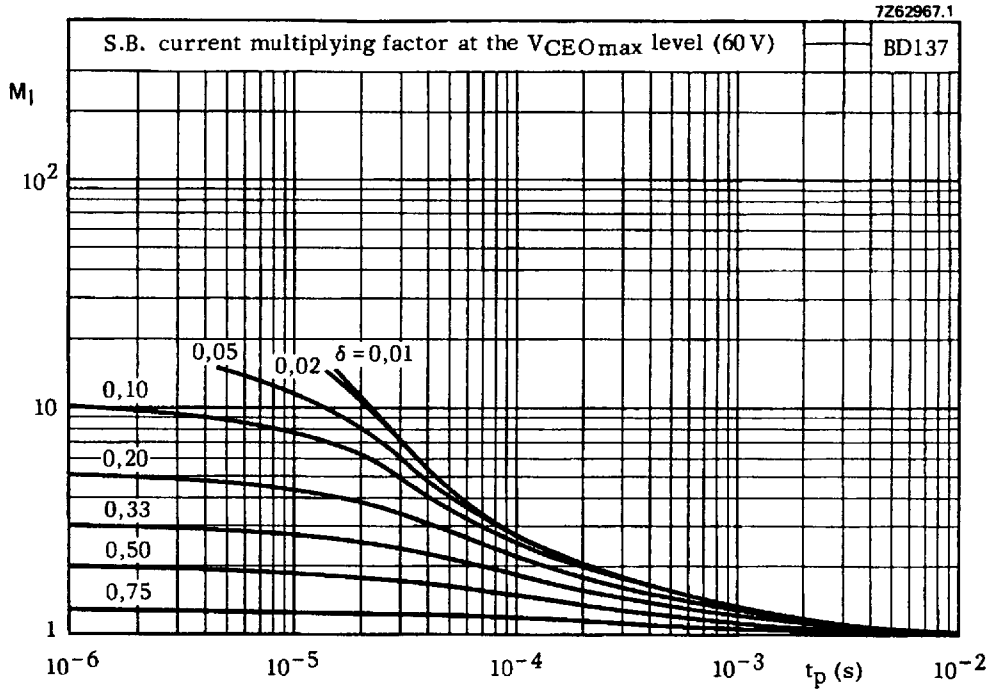


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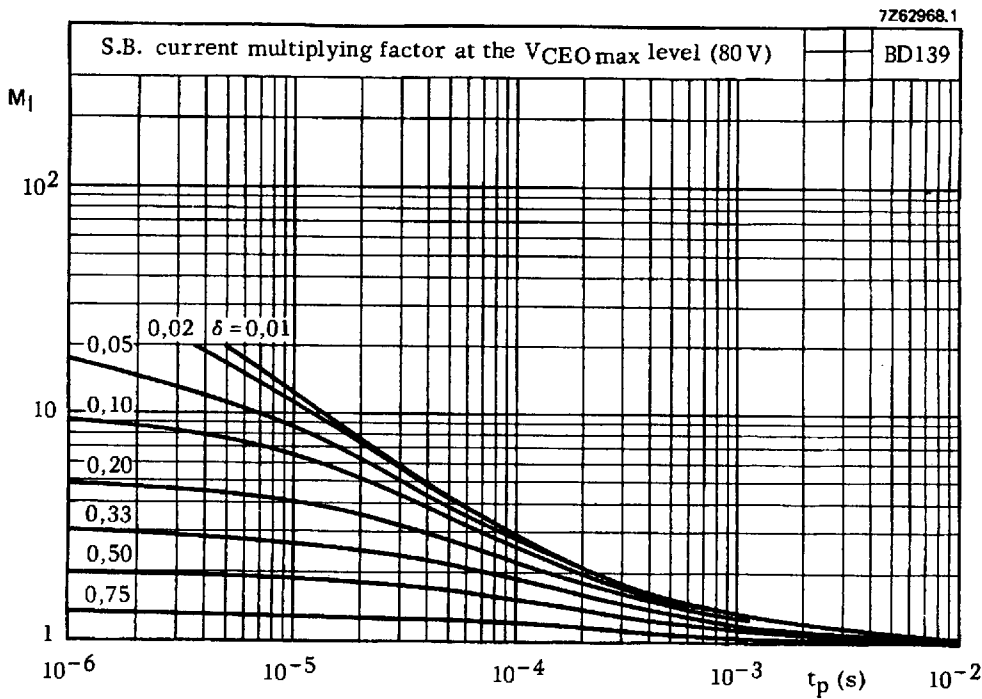


Fig. 9.

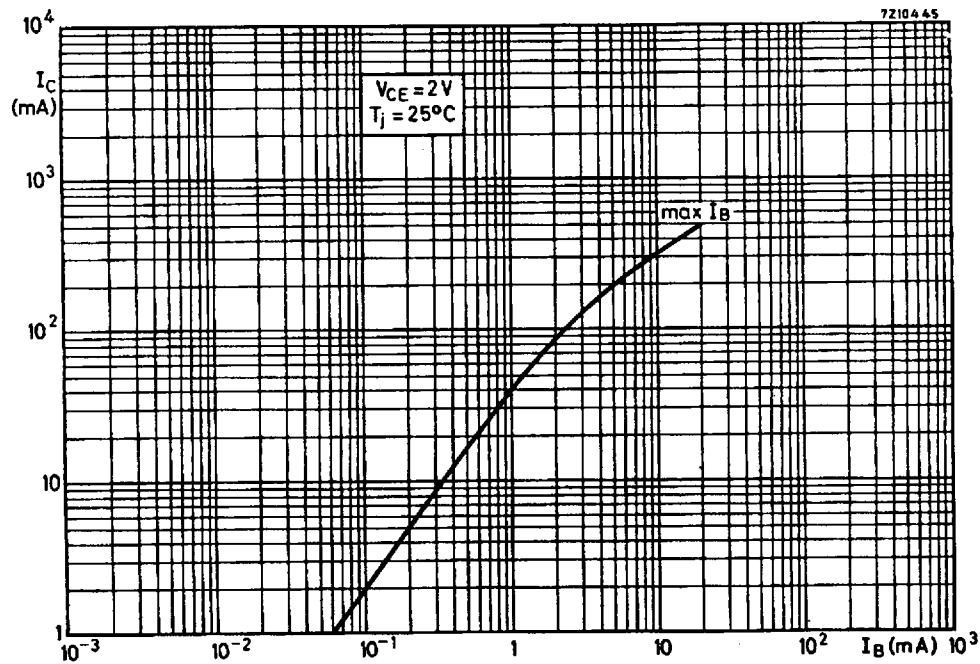


Fig. 10.

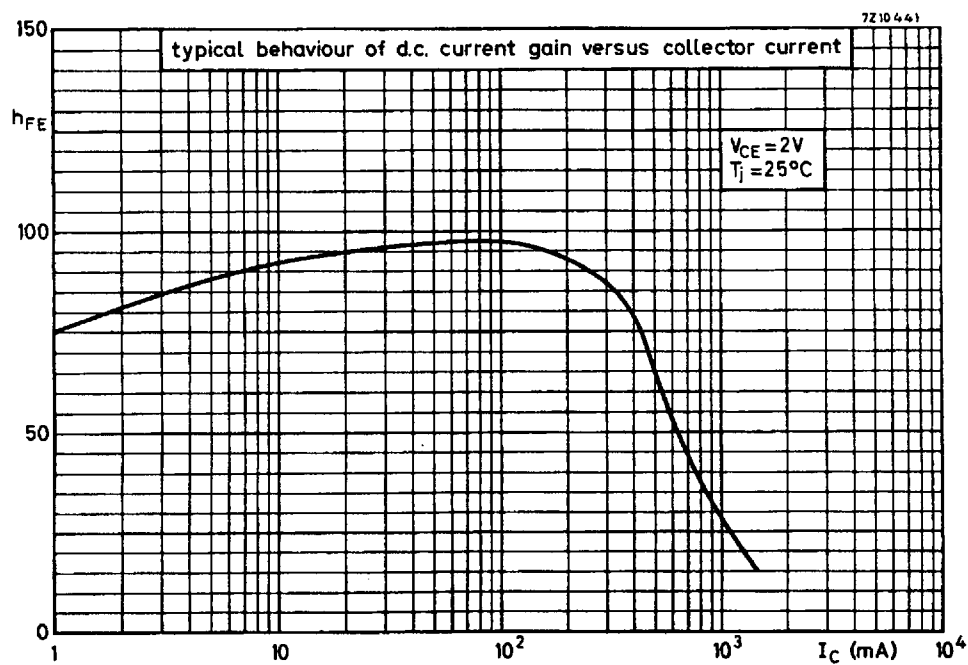


Fig. 11.

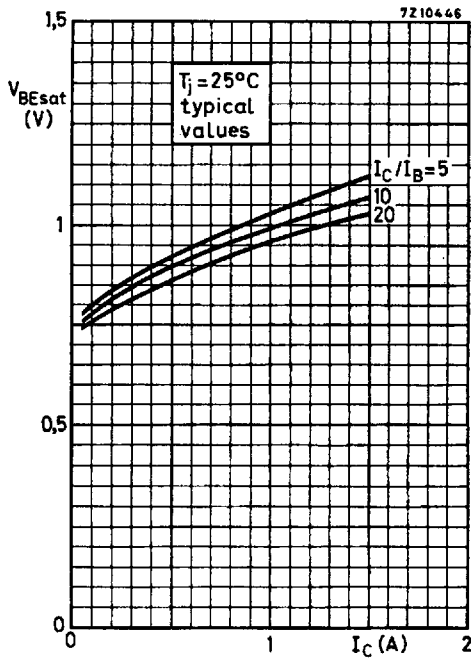


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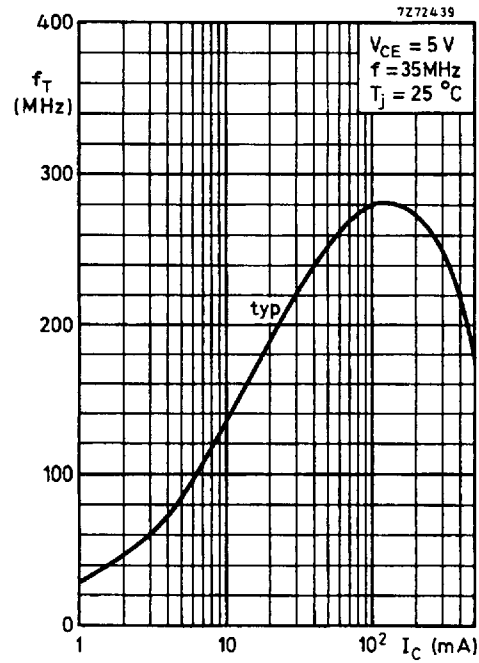


Fig. 13.

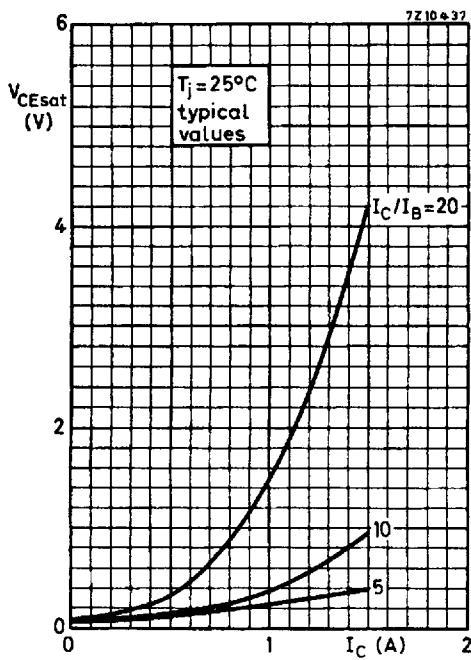


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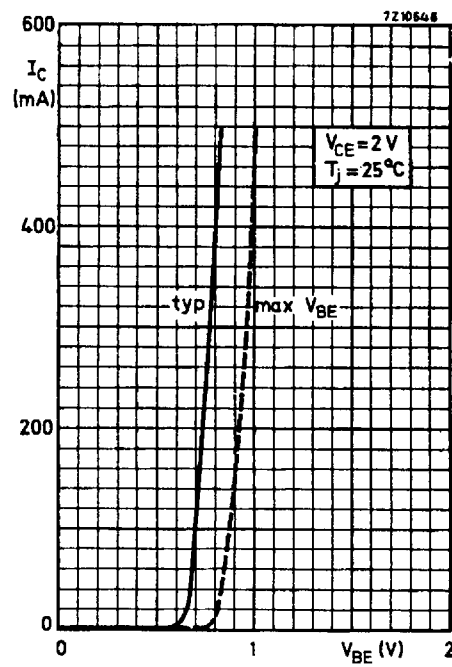


Fig. 15.