

Silicon NPN Power Transistor

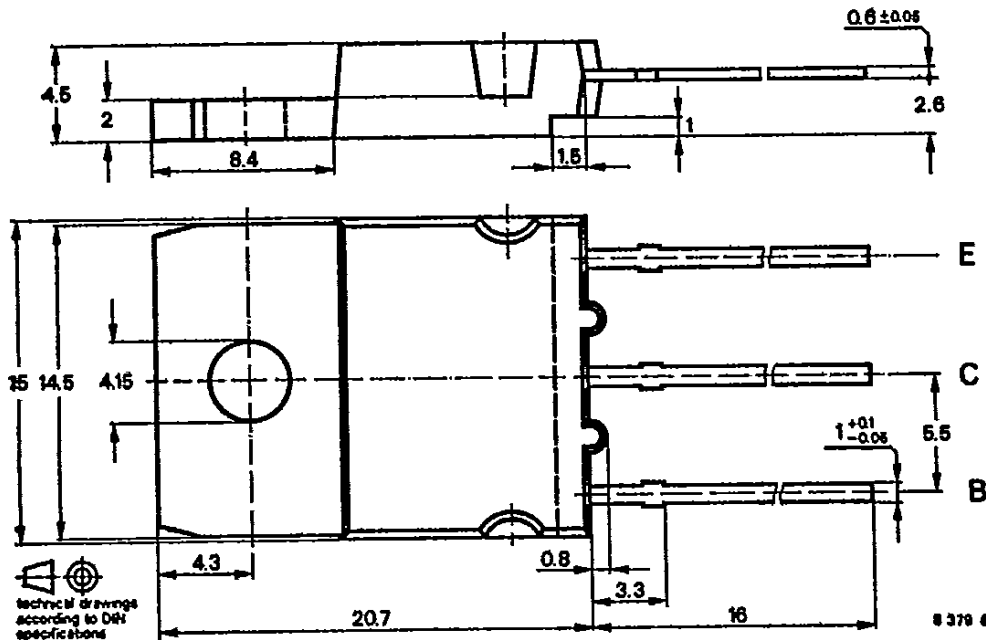
T-33-13

Application: Switching mode power supply

Features:

- In triple diffusion technique
- Glass passivation
- High reverse voltage
- Short switching time
- Power dissipation 125 W

Dimensions in mm



Collector connected
with metallic surface

Standard plastic case
15 A 3 DIN 41 869
TOP 3

Weight max. 5.5 g

Accessories

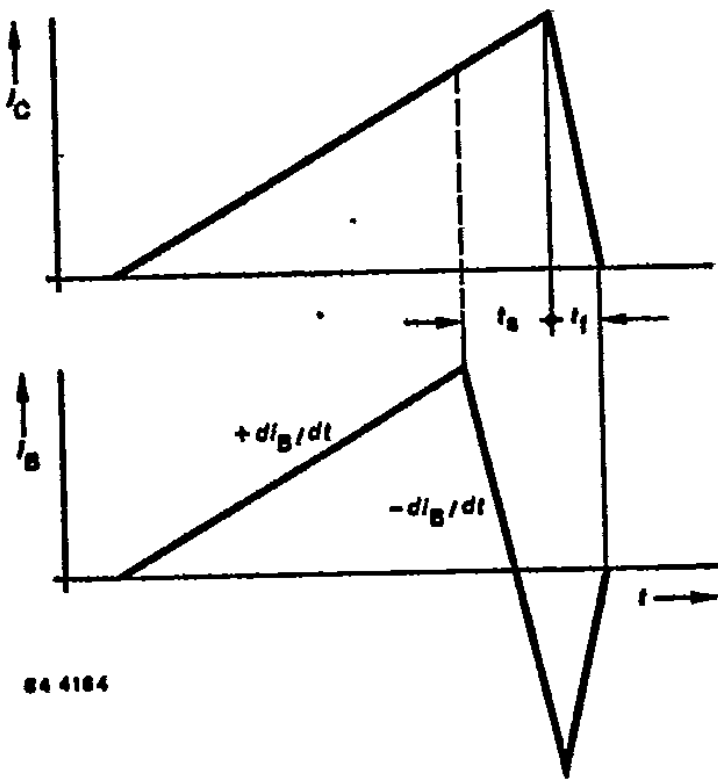
Isolating washer No. 191 131

Mounting Clip No. 191 940

Absolute maximum ratings

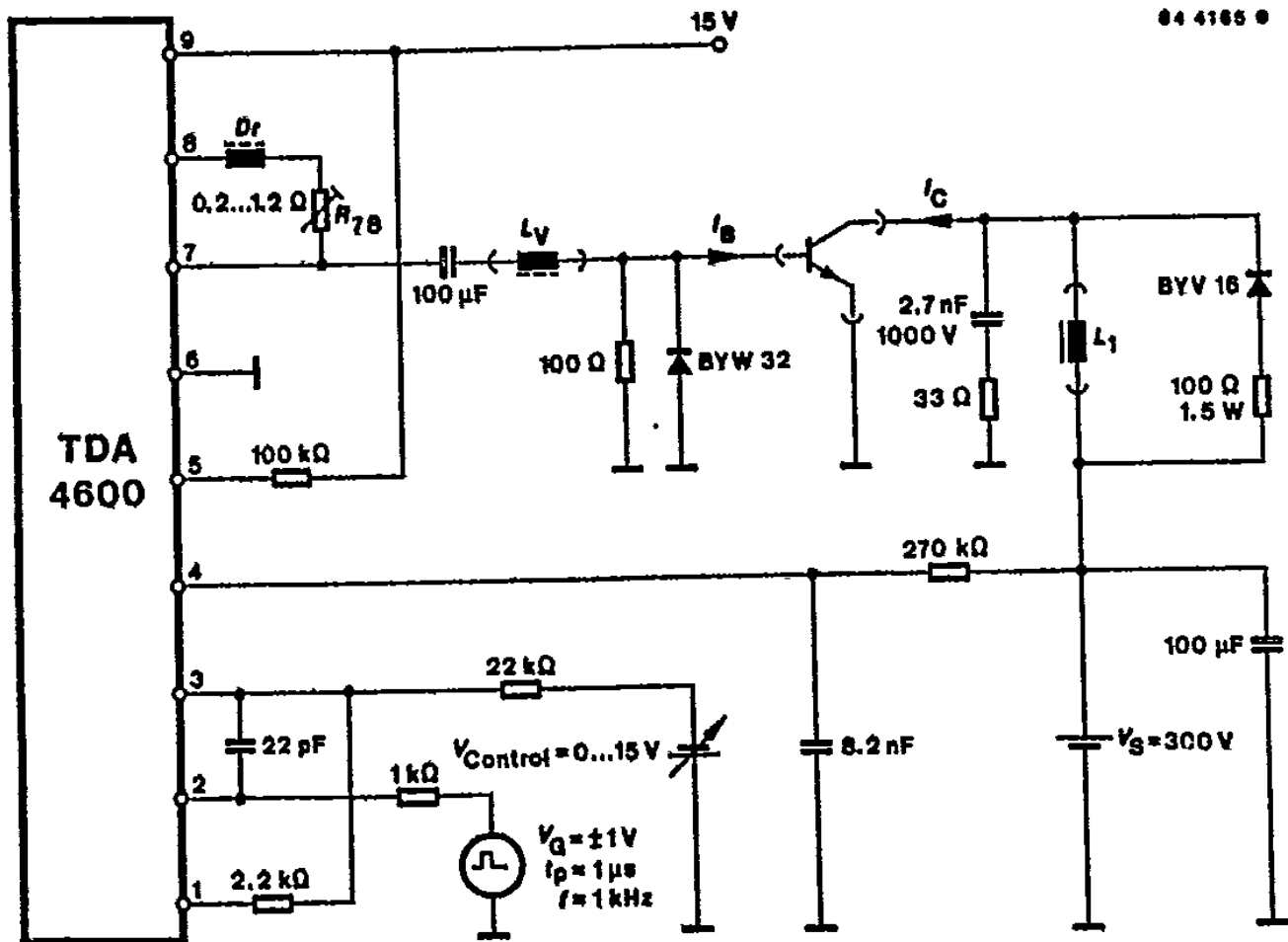
Collector emitter voltage	V_{CE0}	550	V
	V_{CES}	1300	V
Collector peak current	I_{CM}	8	A
Collector current	I_C	6	A
Base peak current	I_{BM}	4	A
	$-I_{BM}$	4	A
Base current	I_B	2	A

Total power dissipation				
$T_{\text{case}} \leq 25\text{ }^{\circ}\text{C}$	P_{tot}	125		W
Junction temperature	T_j	150		$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-65 ... +150		$^{\circ}\text{C}$
Maximum thermal resistances				
Junction case	R_{thJC}	1.0		K/W
Characteristics				
		Min.	Typ.	Max.
$T_{\text{case}} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified				
Collector cut-off current				
$V_{\text{CE}} = 1300\text{ V}$	I_{CES}			1 mA
$T_j = 125\text{ }^{\circ}\text{C}$, $V_{\text{CE}} = 1200\text{ V}$	I_{CES}			2 mA
Collector-emitter breakdown voltage				
$I_C = 100\text{ mA}$, $L_C = 125\text{ mH}$	$V_{(\text{BR})\text{CEO}}^{1)}$	550		V
Emitter-base breakdown voltage				
$I_E = 1\text{ mA}$	$V_{(\text{BR})\text{EBO}}$	6		V
Collector saturation voltage				
$I_C = 6\text{ A}$, $I_B = 2\text{ A}$	$V_{\text{CEsat}}^{1)}$			1.8 V
Base saturation voltage				
$I_C = 6\text{ A}$, $I_B = 2\text{ A}$	$V_{\text{BEsat}}^{1)}$			2 V
DC forward current transfer ratio				
$V_{\text{CE}} = 2\text{ V}$, $I_C = 3.2\text{ A}$	h_{FE}	6		-
$V_{\text{CE}} = 5\text{ V}$, $I_C = 1.5\text{ A}$	h_{FE}	8		
$V_{\text{CE}} = 5\text{ V}$, $I_C = 10\text{ mA}$	h_{FE}	6		
$V_{\text{CE}} = 3\text{ V}$, $I_C = 4\text{ A}$	h_{FE}	5.5		
Gain bandwidth product				
$V_{\text{CE}} = 10\text{ V}$, $I_C = 500\text{ mA}$, $f = 1\text{ MHz}$	f_T		10	MHz
Switching characteristics				
$I_{\text{Cend}} = 3.2\text{ A}$, $I_{\text{Bend}} = 0.7\text{ A}$, $T_{\text{case}} = 25\text{ }^{\circ}\text{C}$, see test circuit				
Fall time	t_f			0.5 μs



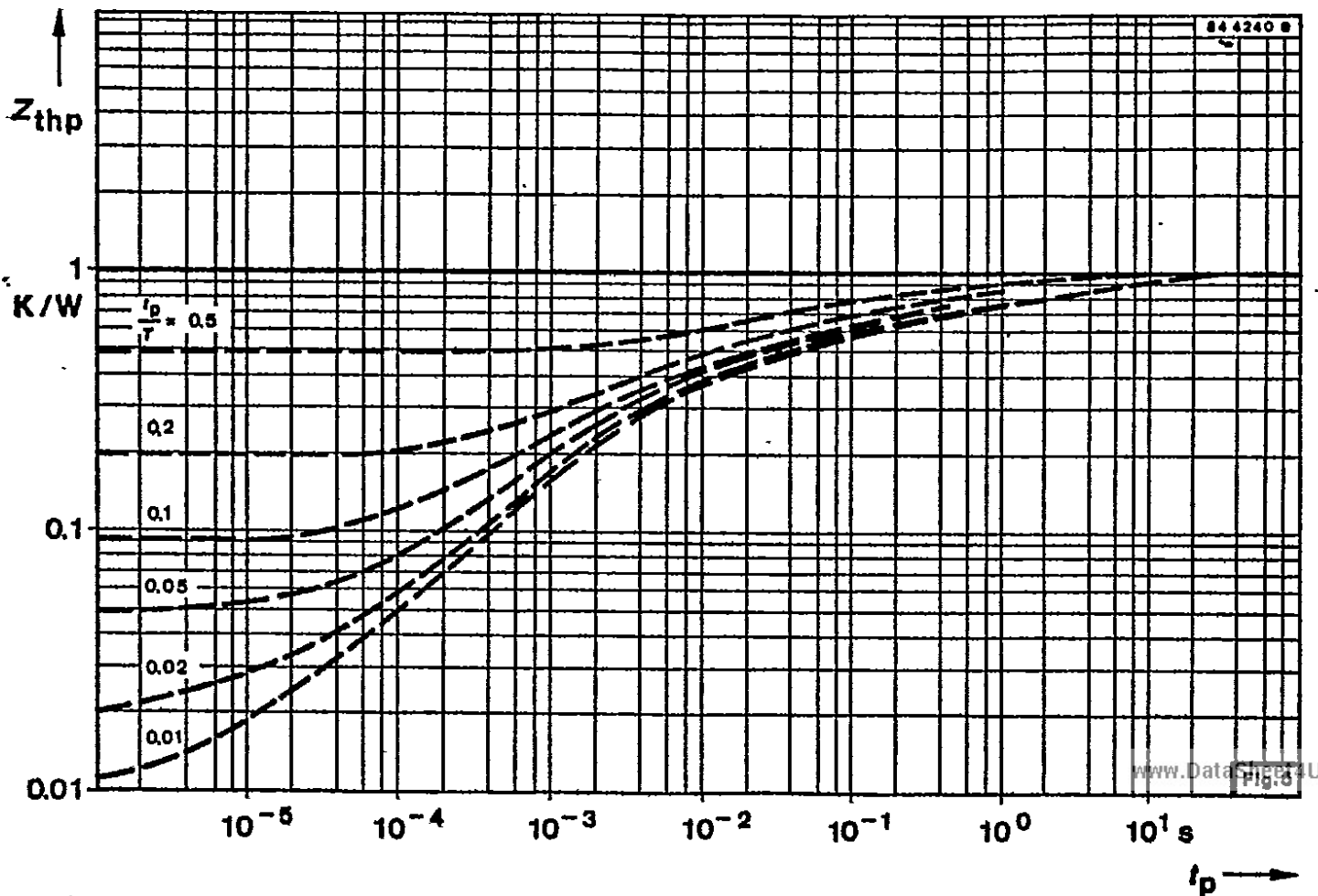
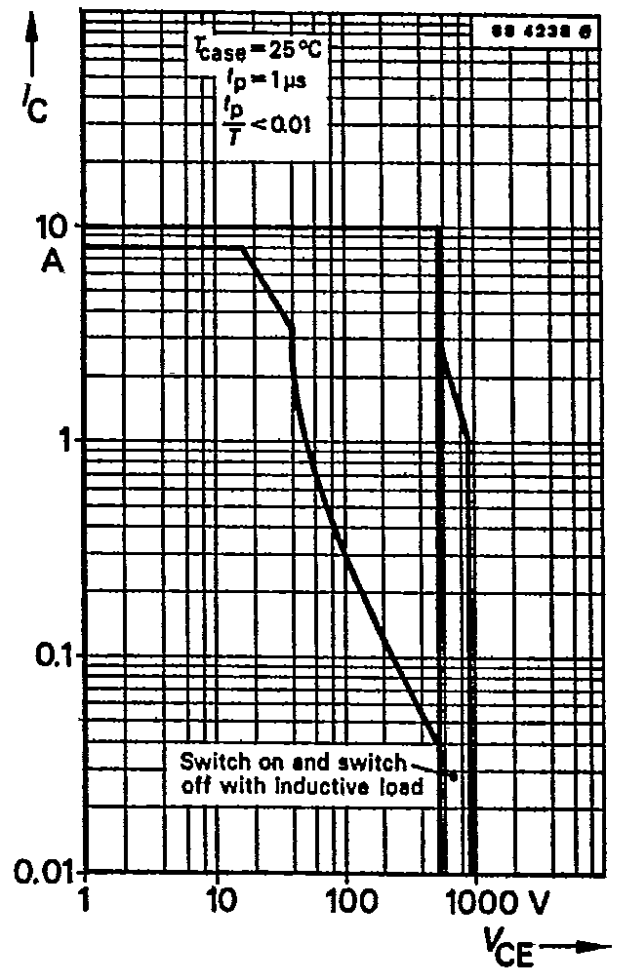
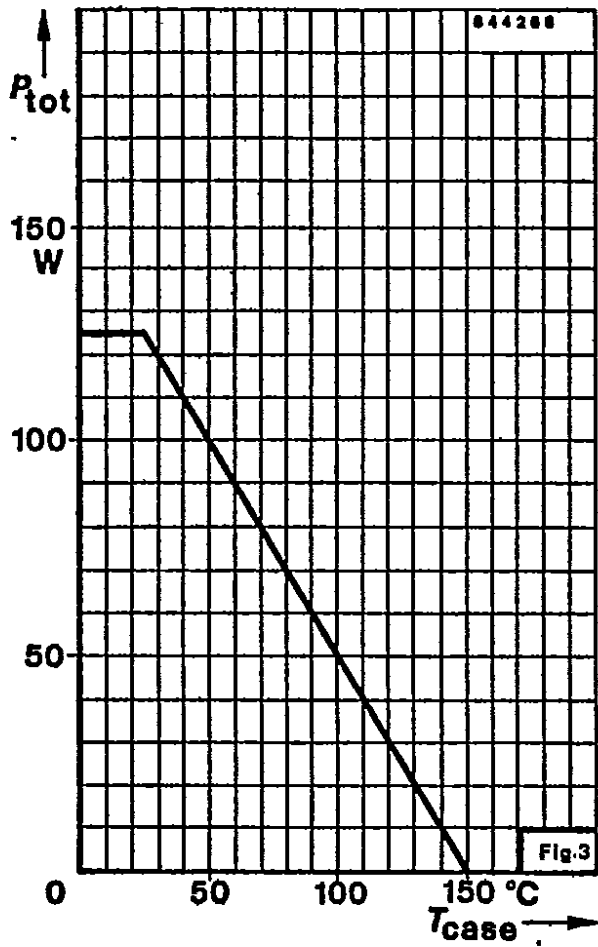
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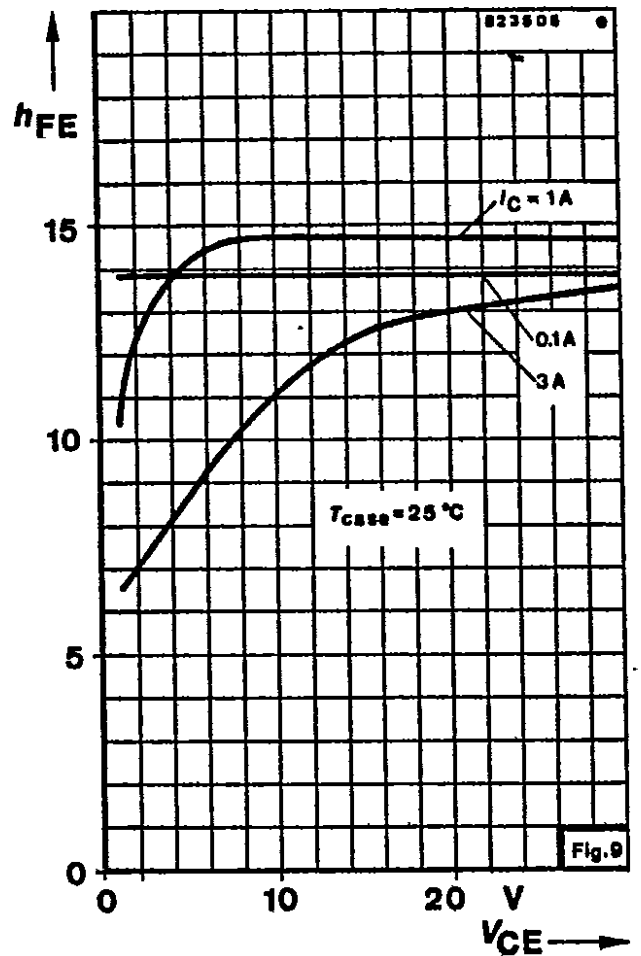
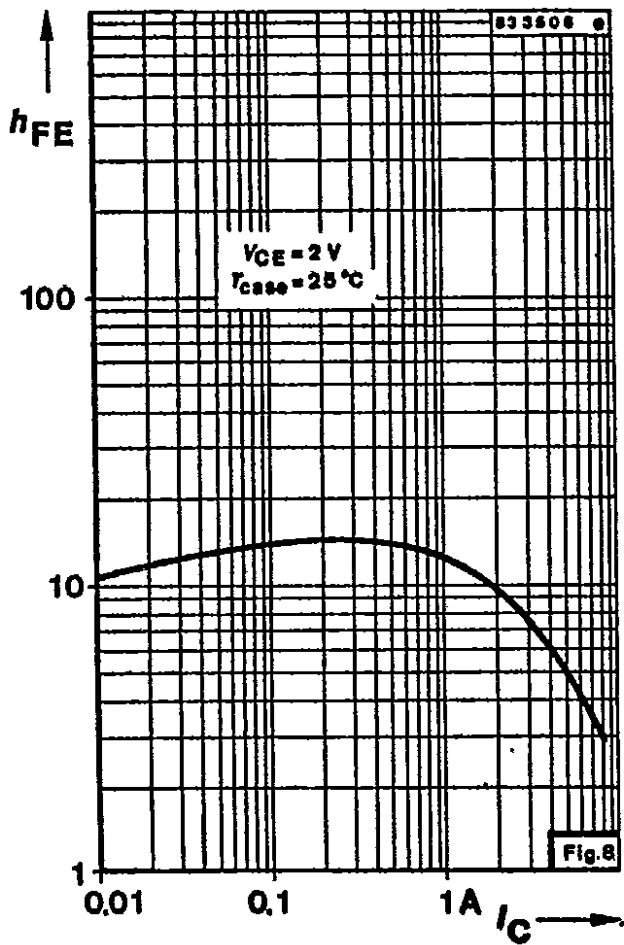
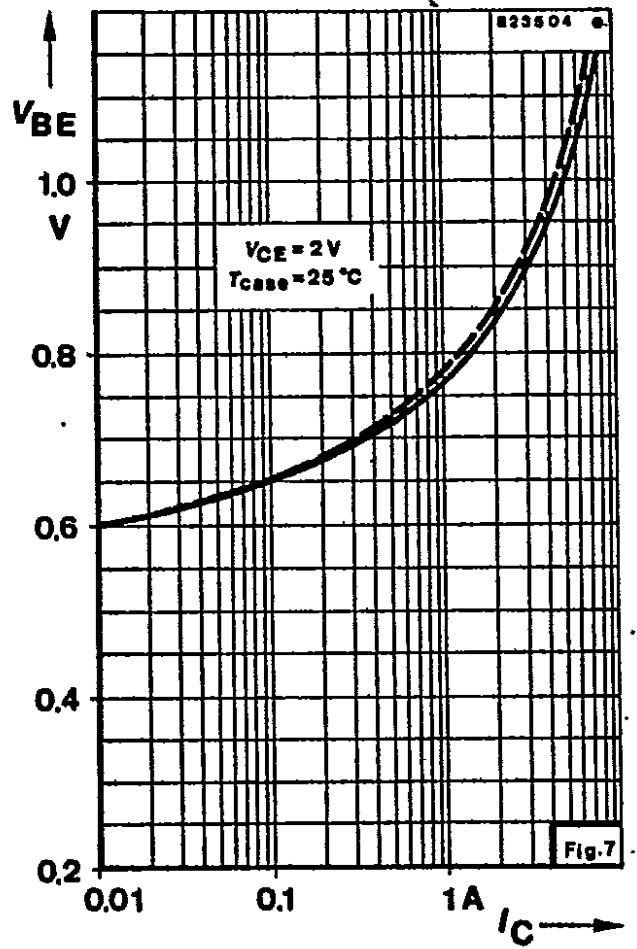
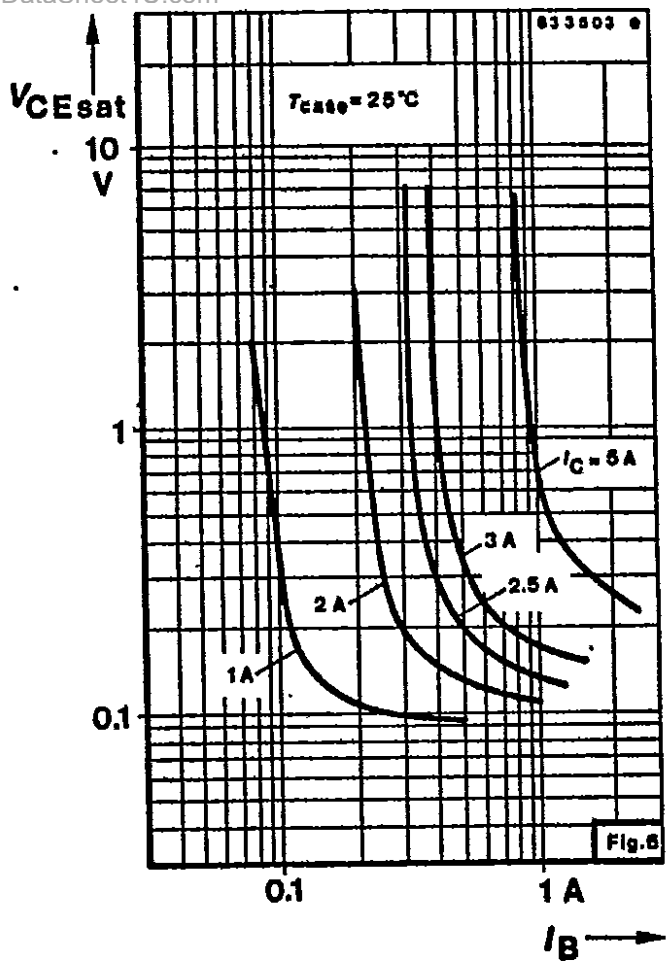
Fig. 1 Pulse diagram

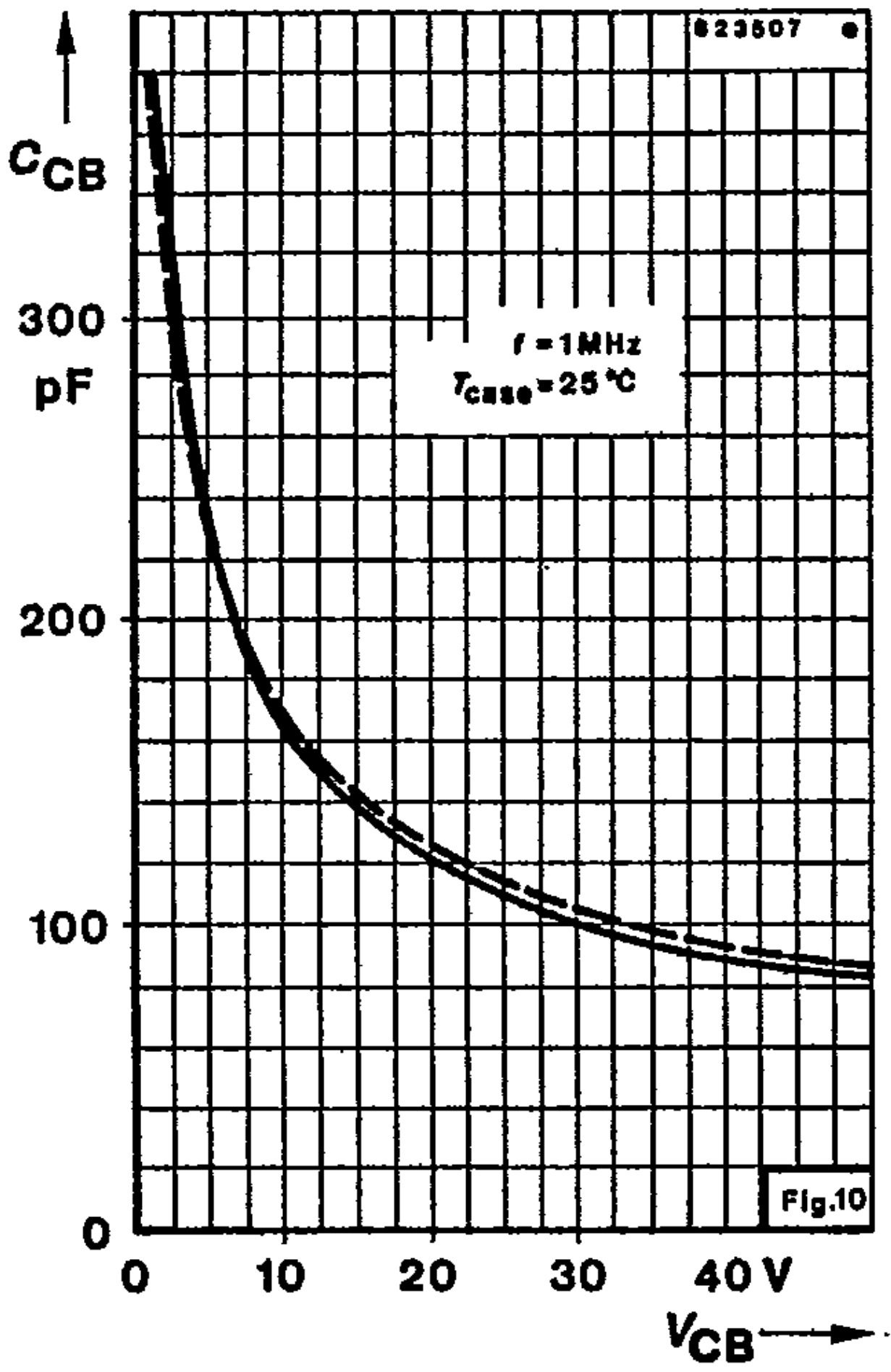


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Fig. 2 Test circuit for: t_f







● Family of curves

Besides the static (d. c.) and dynamic (a. c.) characteristics, family of curves are given for specified operating conditions. They show the typical interdependence of individual characteristics. Partly are given the scattering limits. They signify that at least 95% of the delivery lies inside these tolerances.

6.6. Additional informations

Preliminary specifications

This heading indicates that some information on the device concerned may be subject to slight changes.

Not for new developments

This heading indicates that the device concerned should not be used in equipment under development, it is, however, available for present production.

7. Taping and reeling

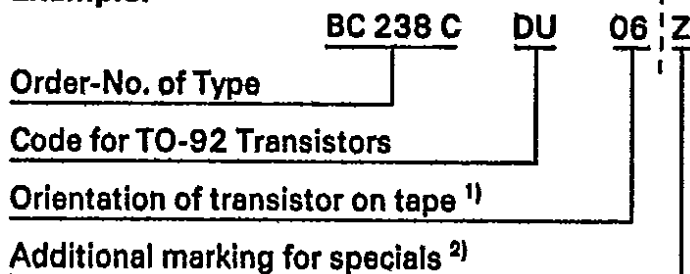
7.1. Taping of TO-92 transistors

Standard reeling: Taped on reel, reeled together with a paper film.

7.1.1. Order Numbers

Add the taping-code to the order number.

Example:



¹⁾ 06 = View on flat side of transistor, view on gummed tape

05 = View on round side of transistor, view on gummed tape

²⁾ Additional marking "0" :

Taping without paper film

Additional marking "Z":

Zigzag folded tape in special box. Marking for orientation of transistor not necessary, because box can be opened on top or bottom.

Example for order No.: BC 237 C DU Z

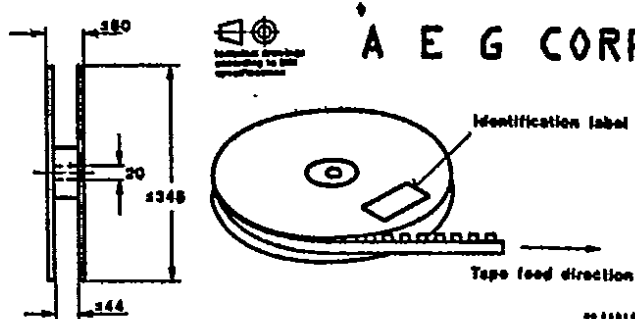


Fig. 7.1. Dimensions of reel in mm

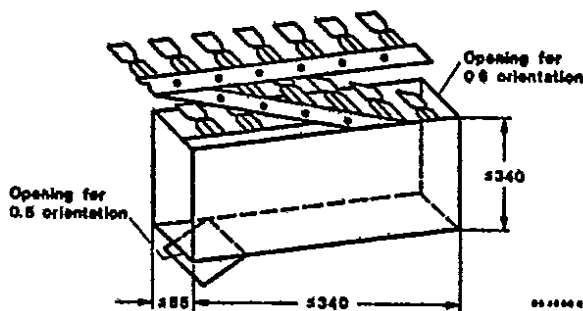


Fig. 7.2. Dimension of box for Zigzag folding in mm

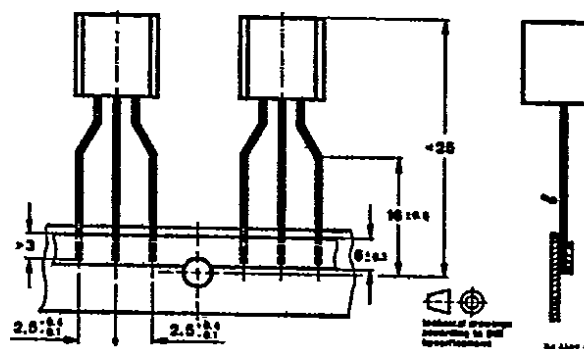


Fig. 7.3. Dimensions of tape in mm

7.1.2 Quantity of devices

1 000 devices per reel

2 000 devices per folded tape in special box.

7.2 Taped transistors in SOT 23 and SOT 143 case

a) Standard taping

Designation is attached with code GS 08 in case of standard taping. Example for normal version transistors as standard taped: BF 569-GS08.

Example for R-version transistors as standard taped: BF 569 R-GS 08.

In case of standard taping, the transistor orientation on the tape is shown in Fig. 7.4 and Fig. 7.5.

