

**Silicon NPN Power Transistor**

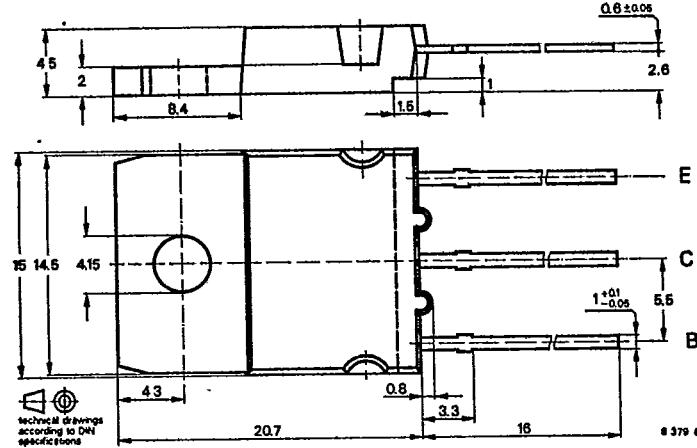
T-33-13

Applications: Horizontal deflection circuits in black and white TV-receivers

## Features:

- High reverse voltage
- In triple diffusion technique
- High peak power
- Glass passivation
- Power dissipation 78 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. 191131

Mounting Clip No. 191940

## Absolute maximum ratings

Collector emitter voltage	$V_{CEO}$	700	V
	$V_{CES}$	1500	V
Collector current, average	$I_{CAV}$	2.5	A
Collector peak current	$I_{CM}^{(1)}$	3.0	A
Base current	$I_{BM}$	2.5	A
Negative base peak current	$-I_{BM}$	1.5	A
Negative base current, average $t_{av} \leq 20$ ms	$I_{BAV}$	0.1	A

<sup>(1)</sup> Flash- over current, non-repetitive max. 5 A

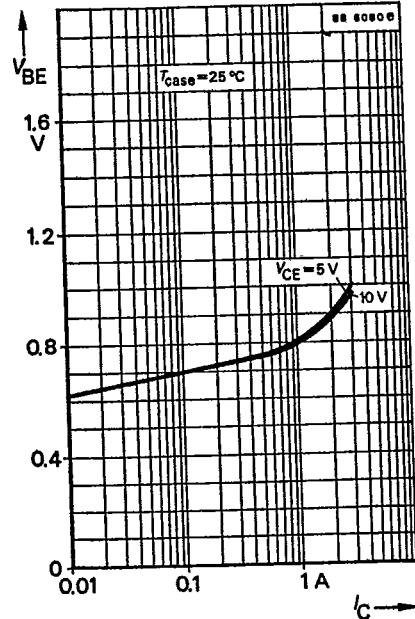
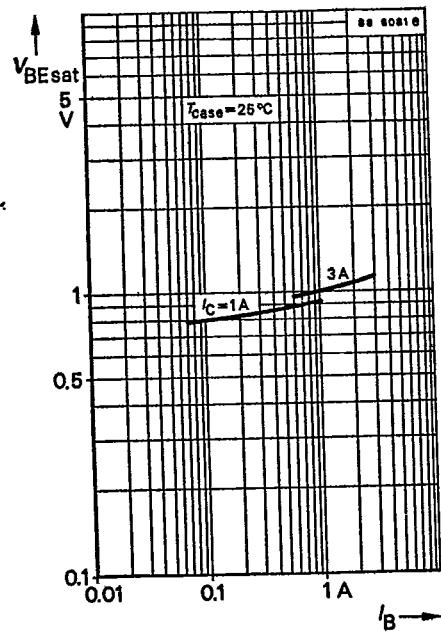
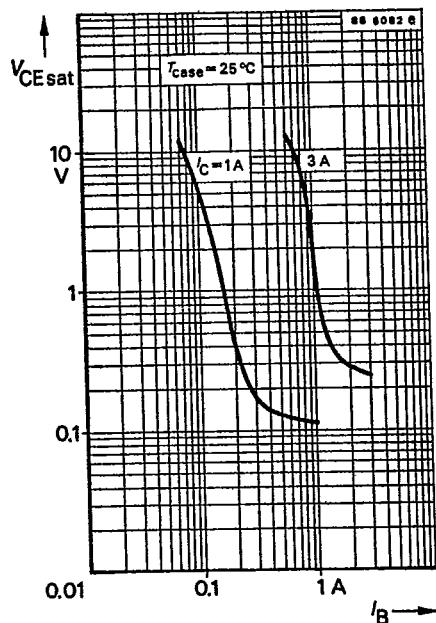
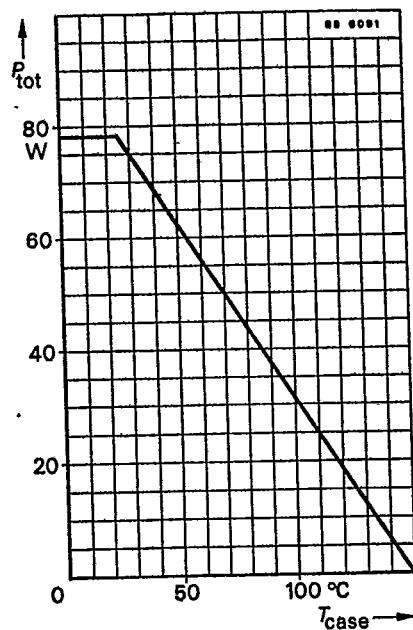
T1.2/710.0888 E

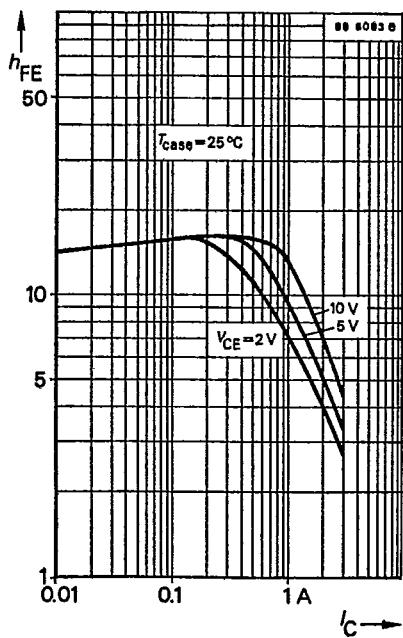
Total power dissipation $T_{case} \leq 25^\circ C$	$P_{tot}$	78	W	
Junction temperature	$T_J$	150	$^\circ C$	
Storage temperature range	$T_{stg}$	-65 ... +150	$^\circ C$	
Maximum thermal resistance Junction case	$R_{thJC}$	1.6	K/W	
Characteristics $T_{case} = 25^\circ C$		Min.	Typ.	Max.
Collector cut-off current $V_{CES} = 1500 V$	$I_{CES}$		0.5	mA
Collector-base breakdown voltage $I_c = 100 \text{ mA}$	$V_{(BR)CEO}^{1)}$	700		V
Emitter-base breakdown voltage $I_E = 100 \text{ mA}$	$V_{(BR)EBO}$	5		V
Base-emitter saturation voltage $I_c = 2 \text{ A}, I_B = 1 \text{ A}$	$V_{BEsat}^{1)}$		1.5	V
DC forward current transfer ratio $V_{CE} = 5 \text{ V}, I_c = 2 \text{ A}$	$h_{FE}$	2.0		
Gain bandwidth product $V_{CE} = 5 \text{ V}, I_c = 100 \text{ mA}, f = 5 \text{ MHz}$	$f_T$	7.5		MHz
Collector base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{CBO}$	80		pF
Fall time $I_c = 2 \text{ A}, I_B = 1 \text{ A}^2)$	$t_f$	0.75		$\mu\text{s}$

<sup>1)</sup>  $\frac{t_p}{T} = 0.01, t_p = 0.3 \text{ ms}$

<sup>2)</sup> The inductance in base circuit and rectangular drive voltage pulse should be selected that a storage time  $t_s$  is approximately  $10 \mu\text{s}$

T-33-13





T-91-20

● 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:**

Order-No. of Type	BC 238 C	DU	06	Z
<b>Code for TO-92 Transistors</b>				
<b>Orientation of transistor on tape<sup>1)</sup></b>				
<b>Additional marking for specials<sup>2)</sup></b>				

<sup>1)</sup> 06 = View on flat side of transistor, view on gummed tape

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

<sup>2)</sup> Additional marking "O":

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

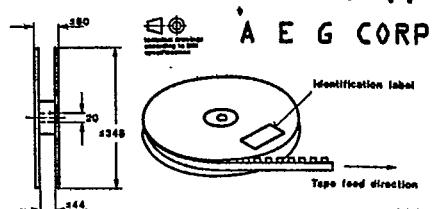


Fig. 7.1. Dimensions of reel in mm

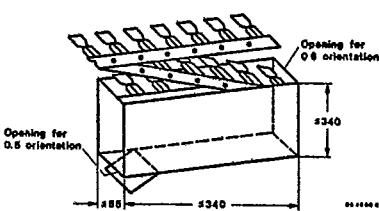


Fig. 7.2. Dimension of box for Zigzag folding in mm

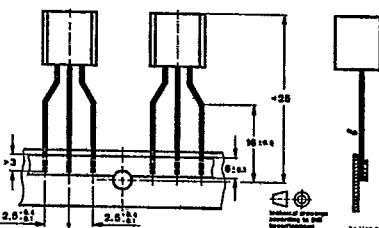


Fig. 7.3. Dimensions of tape in mm

#### 7.1.2 Quantity of devices

1000 devices per reel

2000 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-GS 08.

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.

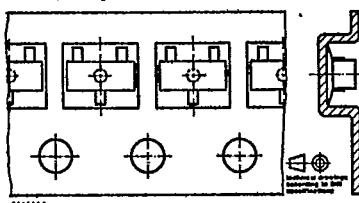
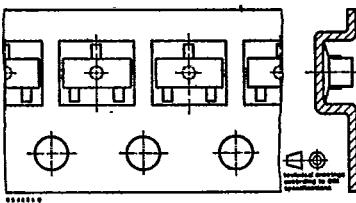


Fig. 7.4 Standard taped SOT 23



TELEFUNKEN ELECTRONIC

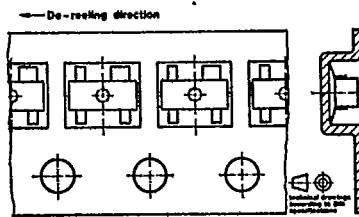


Fig. 7.5 Standard taped SOT 143

**b) Reverse taping**

Designation is attached with code GS 07 in case of reverse taping. Example for normal version transistors as reverse taped: BF 569 R-GS 07. Example for R-version transistors as reverse taping: BF 569 R-GS 07.

In case of reverse taping, the transistor orientation on the tape is shown in Fig. 6.

Regarding MOF-FET and MES-FET devices, reverse taping is at present not available.

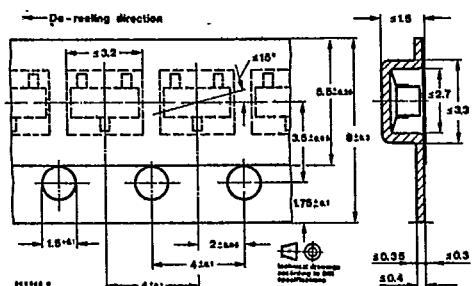


Fig. 7.7 Dimensions of tape in mm

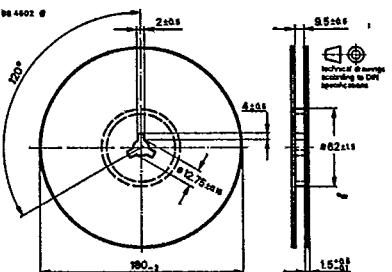


Fig. 7.8 Dimensions of reel in mm

### 7.2.2 Quantity of devices 3000 devices per reel

**8. Accessories**

Number	Fig.	Designation	For case
119880	8.1.	Isolating washer thickness 60 µm	12A 3 DIN 41 869 JEDEC TO 126 (SOT 32)
564542	8.2.	Isolating washer thickness 50 µm	14A 3 DIN 41 869 JEDEC TO 220 (SOT 78)
912884	8.3	Isolating washer thickness 50 µm	15A 3 DIN 41 869 (TOP3) for clip mounting
191131	8.4	Isolating washer thickness 50 µm	15A 3 DIN 41 869 (TOP3) for screw mounting
191140	8.5	Mounting clip	15A 3 DIN 41 869 (TOP3)
569524	8.6	Isolating washer thickness 100 µm + 50 µm	3B 2 DIN 41 872 JEDEC TO 3 Devices with high reverse voltage