TELEFUNKEN electronic
Creative Technologies

BF 820 S · BF 822 S

T-31-17

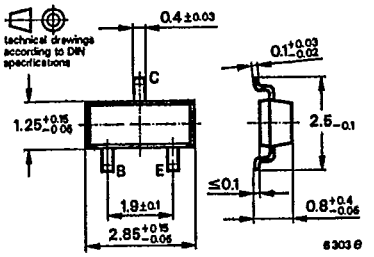
Silicon NPN Epitaxial Planar Transistors

Applications: For telephone sets, telecommunication circuits, hybrid circuits, video-B-class power stages and general in circuits with high supply voltage

Features:

- High reverse voltage
- BF 820 S complementary to BF 821 S
- No h_{FE}-drift dependent of temperature
- BF 822 S complementary to BF 823 S

Dimensions in mm



Standard plastic case
23 A3 DIN 41 869/8
(SOT 23)
Weight max. 0.02 g

Marking: BF 820 S with 1V
BF 822 S with 1X

Absolute maximum ratings		BF 820 S	BF 822 S	
Collector-base voltage	V_{CBO}	300	250	V
Collector-emitter voltage	V_{CEO}	300	250	V
Emitter-base voltage	V_{EBO}	5		V
Collector current	I_C	25		mA
Collector peak current	I_{CM}	100		mA
Total power dissipation $R_{thJA} \leq 370$ K/W, $T_{amb} \leq 25$ °C	P_{tot}	335		mW
Junction temperature	T_j	150		°C
Storage temperature range	T_{stg}	−55 ... +150		°C
Maximum thermal resistance				
Junction ambient on ceramic substrate 0.7 mm; 2.5 cm²	R_{thJA}	370		K/W

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T-31-17

Characteristics $T_{amb} = 25\,°C$, unless otherwise specified			Min.	Typ.	Max.	
Collector cut-off current						
$V_{CE} = 250\,V$	BF 820 S	I_{CES}			10	nA
$V_{CE} = 200\,V$	BF 822 S	I_{CES}			10	nA
$V_{CE} = 200\,V$, $R_{BE} = 2.7\,k\Omega$, $T_j = 150\,°C$		I_{CER}			10	µA
Emitter cut-off current						
$V_{BE} = 5\,V$		I_{EBO}			10	µA
Collector-base breakdown voltage						
$I_C = 10\,\mu A$	BF 822 S	$V_{(BR)CBO}$	300			V
	BF 820 S	$V_{(BR)CBO}$	250			V
Collector-emitter breakdown voltage						
$I_C = 1\,mA$	BF 820 S	$V_{(BR)CEO}$	300			V
	BF 822 S	$V_{(BR)CEO}$	250			V
Emitter-base breakdown voltage						
$I_E = 10\,\mu A$		$V_{(BR)EBO}$	5			V
Collector saturation voltage						
$I_C = 30\,mA$, $I_B = 5\,mA$		V_{CEsat}			600	mV
DC forward current transfer ratio						
$V_{CE} = 20\,V$, $I_C = 25\,mA$		h_{FE}	50			
Gain bandwidth product						
$V_{CE} = 10\,V$, $I_C = 10\,mA$		f_T	60	90		MHz
Feedback capacitance						
$V_{CE} = 30\,V$, $I_C = 0$, $f = 1.0\,MHz$		C_{12e}		0.8	1.6	pF

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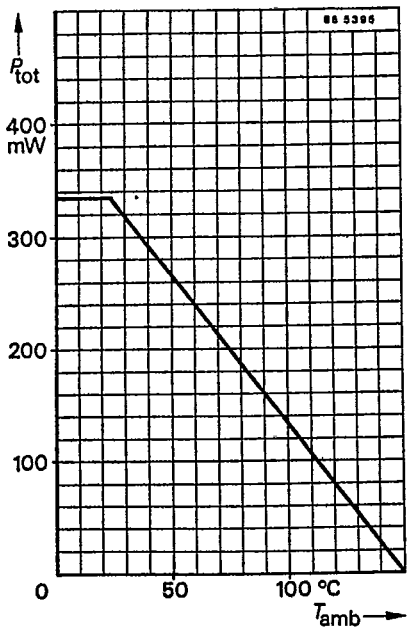
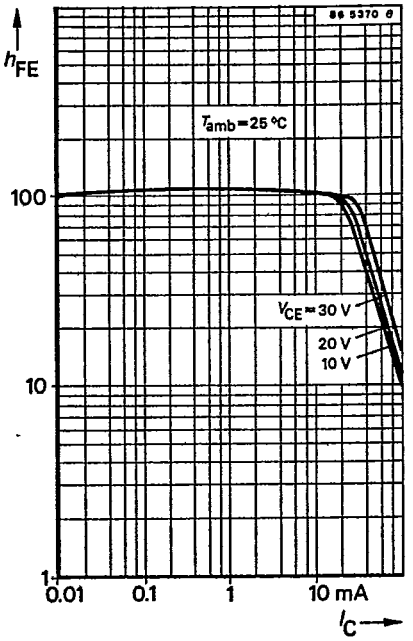
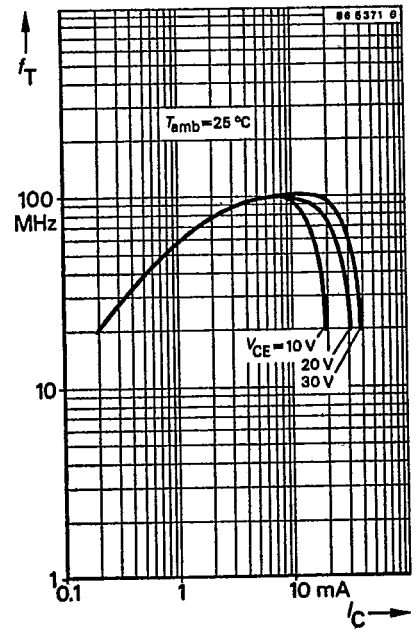
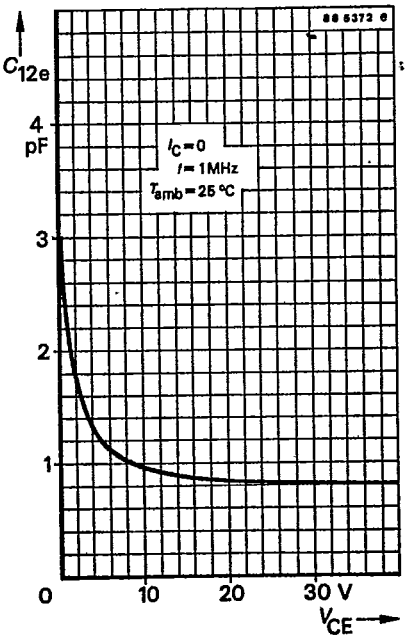
T-31-17









T-91-20

A E G CORP

● 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 interdepedence 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:

BC 238 C DU 06 Z

- Order-No. of Type
- Code for TO-92 Transistors
- Orientation of transistor on tape [1]
- Additional marking for specials [2]

[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 inspecial box. Marking for orientation of transistor not necessary, because box can be opened on top or botton.

Example for order No.: BC 237 C DU Z

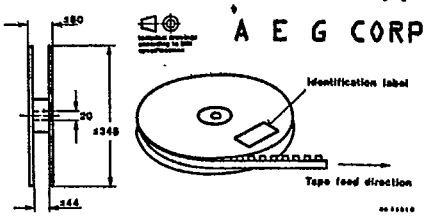


Fig. 7.1. Dimensions of reel in mm

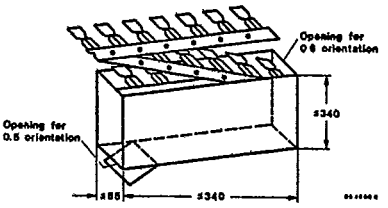


Fig. 7.2. Dimension of box for Zigzag folding in mm

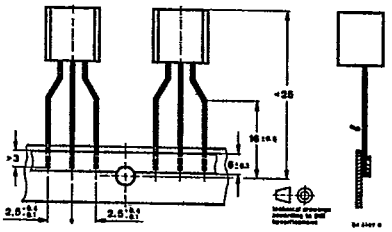


Fig. 7.3. Dimensions of tape in mm

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.

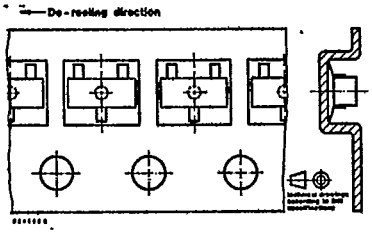


Fig. 7.4 Standard taped SOT 23

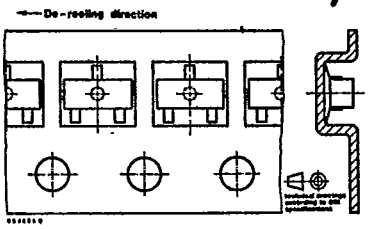


Fig. 7.6 Reverse taped SOT 23

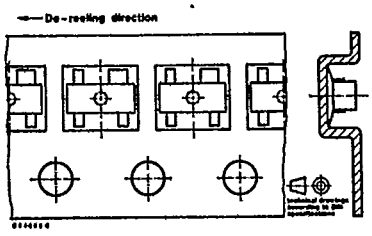


Fig. 7.5 Standard taped SOT 143

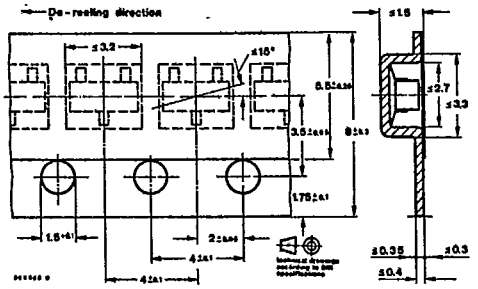


Fig. 7.7 Dimensions of tape in mm

b) Reverse taping
Desigantion 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.

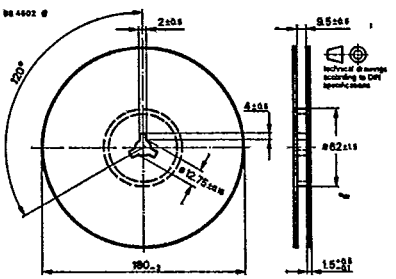


Fig. 7.8 Dimensions of reel in mm

7.2.2 Quantity of devices
3000 devices per reel

8. Assessories

Number	Fig.	Designation	For case
119880	8.1.	Isolating washer thickness 60 µm	12A 3 DIN 41869 JEDEC TO 126 (SOT 32)
564542	8.2.	Isolating washer thickness 50 µm	14A 3 DIN 41869 JEDEC TO 220 (SOT 78)
912884	8.3	Isolating washer thickness 50 µm	15A 3 DIN 41869 (TOP3) for clip mounting
191131	8.4	Isolating washer thickness 50 µm	15A 3 DIN 41869 (TOP3) for screw mounting
191140	8.5	Mounting clip	15A 3 DIN 41869 (TOP3)
569524	8.6	Isolating washer thickness 100 µm + 50 µm	3B 2 DIN 41872 JEDEC TO 3 Devices with high reverse voltage