

T-31-23

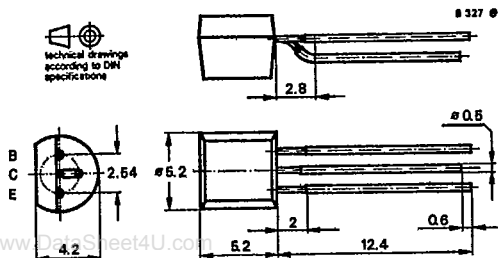
Silicon NPN Epitaxial Planar RF Transistors

Applications: Video B-class power stages in TV-receivers

Features:

- BF 420 S complementary to BF 421 S
- No h_{FE} -drift dependent of temperature
- BF 422 S complementary to BF 423 S

Dimensions in mm



Standard plastic case
10 A 3 DIN 41 868
JEDEC TO 92 Z
Weight max. 0.5 g

Absolute maximum ratings

| | BF 420 S | BF 422 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 | P_{tot} | 830 | mW |
| $R_{thJA} \leq 150 \text{ K/W}, T_{amb} \leq 25 \text{ }^\circ\text{C}$ | | 150 | $^\circ\text{C}$ |
| Junction temperature | T_j | -65 ... +150 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | | |

Maximum thermal resistances

Junction ambient

$l \leq 3 \text{ mm}$, on copper cooling area
 $\geq 10 \text{ mm} \times 10 \text{ mm}$ with $35 \text{ } \mu\text{m}$ thickness

R_{thJA}

Min. Typ. Max.

BF 420 S · BF 422 S

T-31-23

Characteristics

Min.

Typ.

Max.

$T_{amb} = 25^{\circ}C$, unless otherwise specified

Collector cut-off current

$V_{CB} = 250 V$ **BF 420 S** I_{CBO} 50 nA

$V_{CB} = 200 V$ **BF 422 S** I_{CBO} 50 nA

$V_{CE} = 200 V, R_{BE} = 2.7 k\Omega, T_j = 150^{\circ}C$ 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 420 S** $V_{(BR)CBO}$ 300 V

BF 422 S $V_{(BR)CBO}$ 250 V

Collector-emitter breakdown voltage

$I_C = 1 mA$ **BF 420 S** $V_{(BR)CEO}$ 300 V

BF 422 S $V_{(BR)CEO}$ 250 V

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

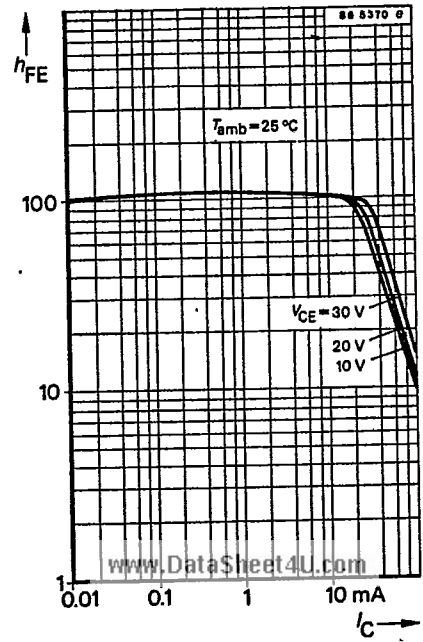
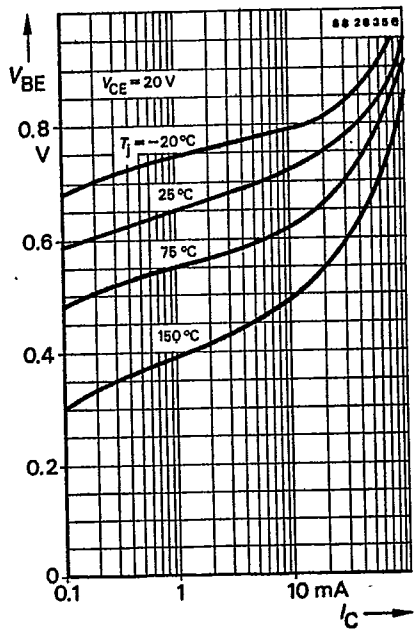
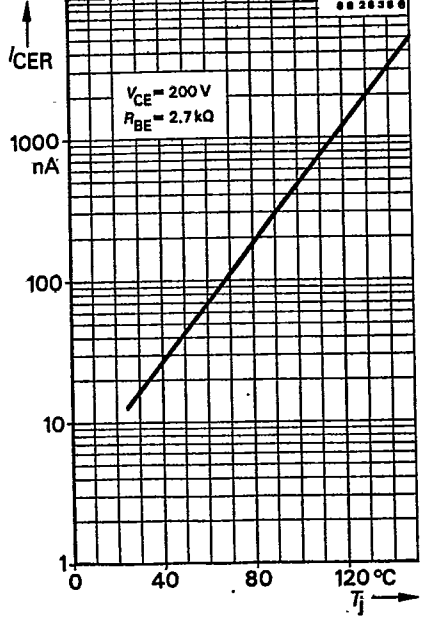
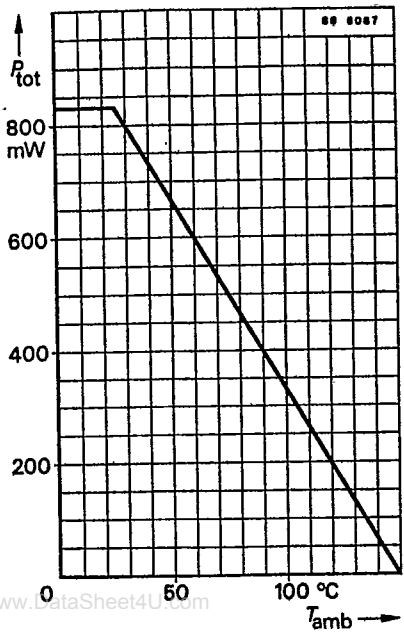
$V_{CE} = 30 V, I_C = 0, f = 1.0 MHz$ C_{12e} 1.0 1.6 pF

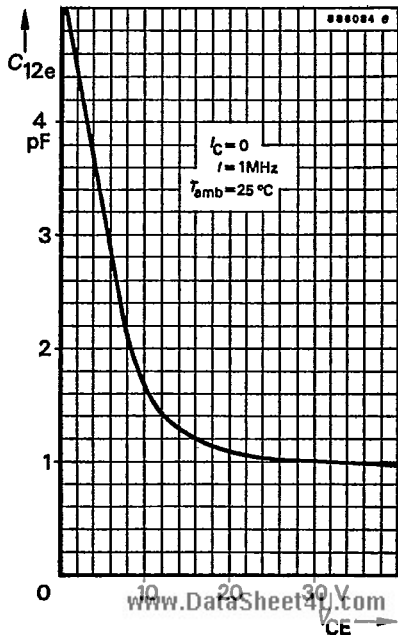
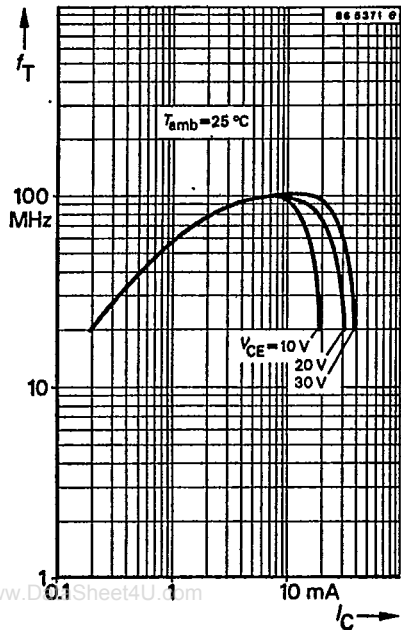
Feedback time constant

$V_{CB} = 20 V, I_E = 10 mA, f = 10.7 MHz$ $r_{bb'} C_{b'c}$ 70 ps

Collector saturation RF voltage

$I_C = 25 mA, T_j = 150^{\circ}C$ $V_{CEsatHF}$ V





● **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

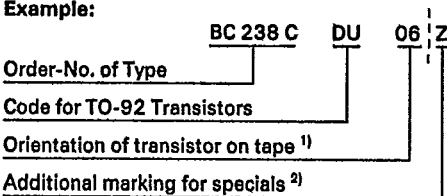
7.1. Taping of TO-92 transistors

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 "O": 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 237C DU Z

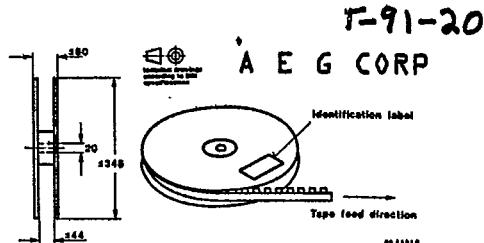


Fig. 7.1. Dimensions of reel in mm

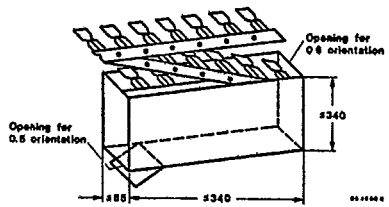


Fig. 7.2. Dimension of box for Zigzag folding in mm

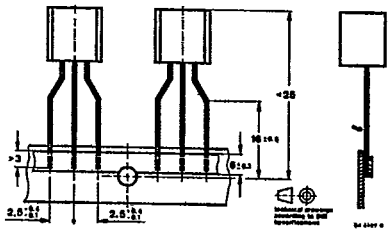


Fig. 7.3. Dimensions of tape in mm

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.

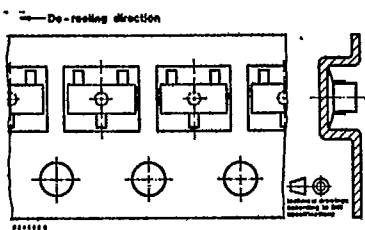


Fig. 7.4 Standard taped SOT 23

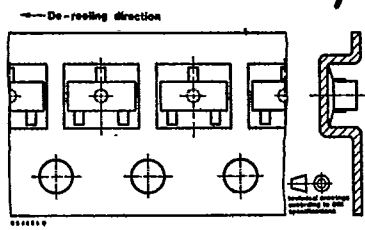


Fig. 7.6 Reverse taped SOT 23

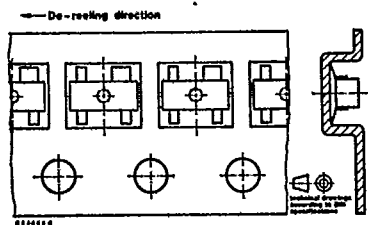


Fig. 7.5 Standard taped SOT 143

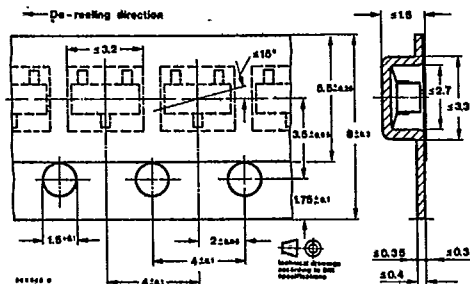


Fig. 7.7 Dimensions of tape in mm

b) Reverse taping

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.

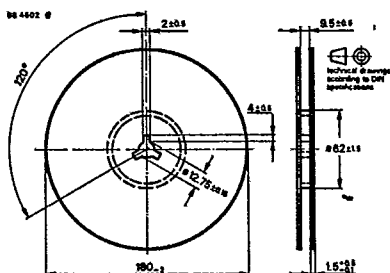


Fig. 7.8 Dimensions of reel in mm

8. Accessories

| Number | Fig. | Designation |
|---------|------|---|
| 119 880 | 8.1. | Isolating washer thickness 60 μm |
| 564 542 | 8.2. | Isolating washer thickness 50 μm |
| 912 884 | 8.3 | Isolating washer thickness 50 μm |
| 191 131 | 8.4 | Isolating washer thickness 50 μm |
| 191 140 | 8.5 | Mounting clip |
| 569 524 | 8.6 | Isolating washer thickness 100 μm + 50 μm |

7.2.2 Quantity of devices

3000 devices per reel

For case

12A 3 DIN 41 869
JEDEC TO 126 (SOT 32)
14A 3 DIN 41 869
JEDEC TO 220 (SOT 78)
15A 3 DIN 41 869
(TOP3) for clip mounting
15A 3 DIN 41 869
(TOP3) for screw mounting
15A 3 DIN 41 869

(TOP3)
www.DataSheet4U.com
3B 2 DIN 41 872

JEDEC TO 3
Devices with high reverse voltage