



TELEFUNKEN electronic
Creative Technologies

BF 469 S · BF 471 S

T-33-05

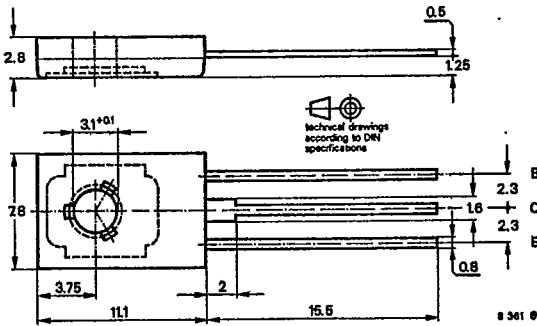
Silicon NPN Epitaxial Planar RF Transistors

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

Features:

- BF 469 S complementary to BF 470 S
- BF 471 S complementary to BF 472 S
- No h_{FE} -drift dependent of temperature

Dimensions in mm



Collector connected with metallic surface

Standard plastic case
12 A 3 DIN 41 869
JEDEC TO 126 (SOT 32)
Weight max. 0.8 g

Accessories

Isolating washer No. 119880
Washer 3.2 DIN 125A

Absolute maximum ratings

		BF 469 S	BF 471 S	
Collector-base voltage	V_{CBO}	250	300	V
Collector-emitter voltage	V_{CEO}	250	300	V
$R_{BE} \leq 2.7 \text{ k}\Omega$	V_{CER}	250	300	V
Emitter-base voltage	V_{EBO}		5	V
Collector current	I_C		30	mA
Collector peak current	I_{CM}		100	mA
Total power dissipation	P_{tot}		2	W
$T_{case} \leq 110 \text{ }^\circ\text{C}$	T_J		150	$^\circ\text{C}$
Junction temperature	T_{stg}		-65 ... +150	$^\circ\text{C}$
Storage temperature range	$M_A^{1)}$		70	Ncm
Tightening torque				

Maximum thermal resistances

Junction ambient				
$l \leq 4 \text{ mm}$, on copper cooling area				
$\geq 10 \text{ mm} \times 10 \text{ mm}$ with $35 \text{ }\mu\text{m}$ thickness	R_{thJA}	100		K/W
Junction case	R_{thJC}	20		K/W

¹⁾ with screw M3 and washer 3.2 DIN 125A

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Characteristics

Min. Typ. Max.

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

Collector cut-off current

$V_{CB} = 200 V$	BF 469 S	I_{CBO}		50	nA
$V_{CE} = 250 V, R_{BE} = 2.7 k\Omega$	BF 471 S	I_{CER}		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
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Collector-base breakdown voltage

$I_C = 10 \mu A$	BF 469 S	$V_{(BR)CBO}$	250		V
	BF 471 S	$V_{(BR)CBO}$	300		V

Collector-emitter breakdown voltage

$I_C = 1 mA$	BF 469 S	$V_{(BR)CEO}$	250		V
$I_C = 1 \mu A, R_{BE} = 2.7 k\Omega$	BF 471 S	$V_{(BR)CEO}$	300		V

Emitter-base breakdown voltage

$I_E = 10 \mu A$		$V_{(BR)EBO}$	5		V
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DC forward current transfer ratio

$V_{CE} = 20 V, I_C = 25 mA$		h_{FE}	50		
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Gain bandwidth product

$V_{CE} = 10 V, I_C = 10 mA$		f_T	60	90	MHz
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Feedback capacitance

$V_{CE} = 30 V, I_C = 0, f = 1.0 MHz$		C_{12e}	1.0	1.8	pF
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Feedback time constant

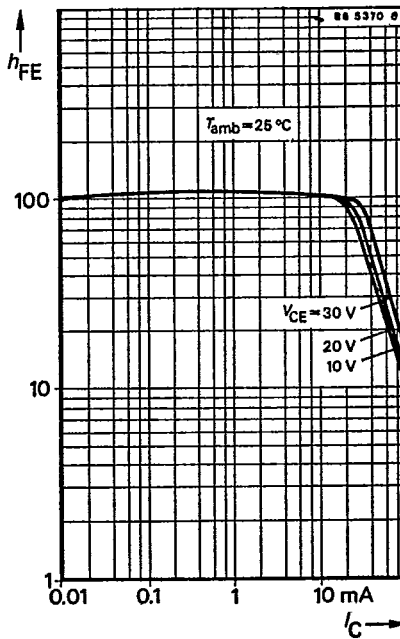
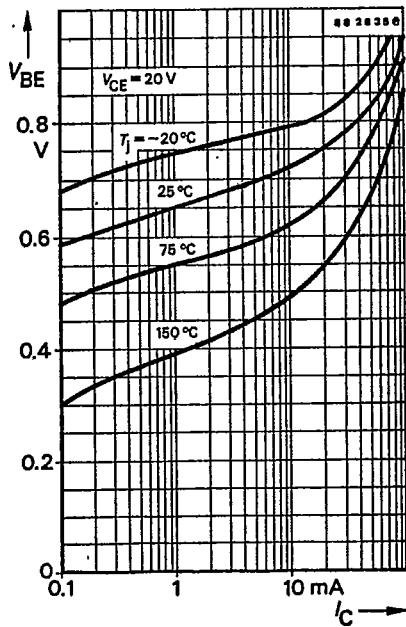
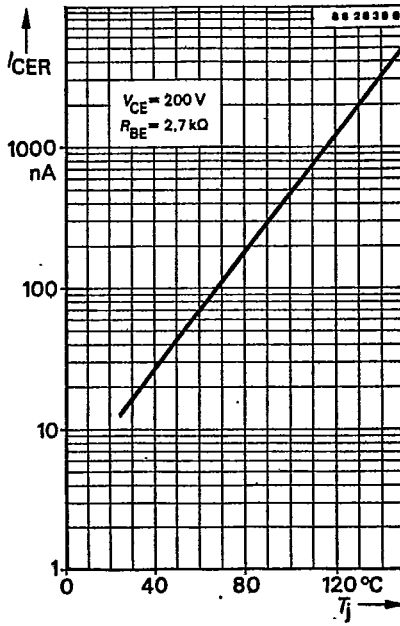
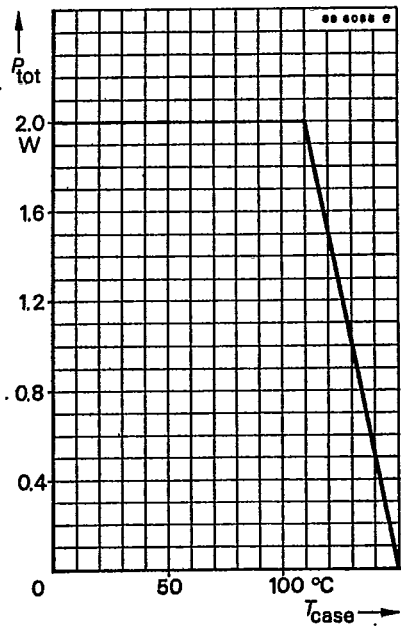
$V_{CB} = 20 V, I_E = 10 mA, f = 10.7 MHz$		$r_{bb'} C_{b'c}$		90	ps
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Collector saturation RF voltage

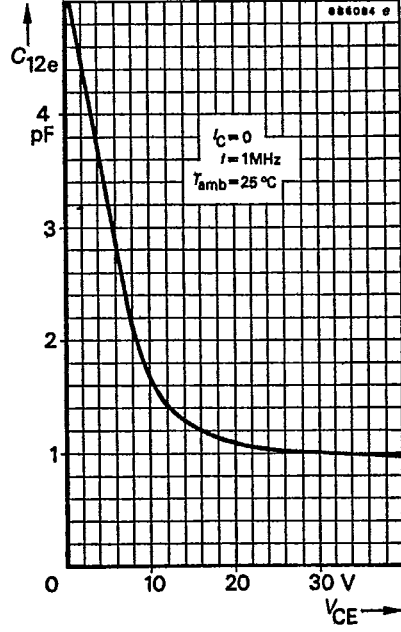
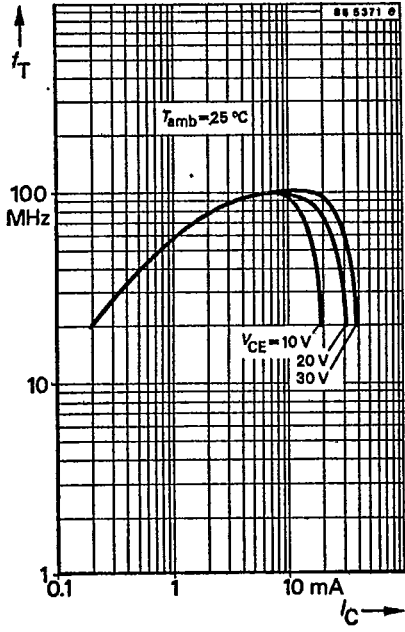
$I_C = 25 mA, T_J = 150^\circ C$		$V_{CEsat HF}$	20		V
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● Family of curves

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

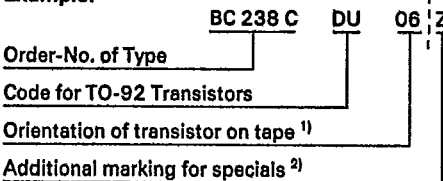
7.1. Taping of TO-92 transistors

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 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

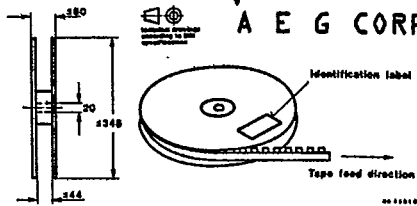


Fig. 7.1. Dimensions of reel in mm

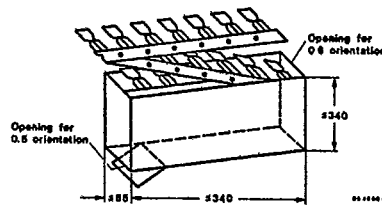


Fig. 7.2. Dimension of box for Zigzag folding in mm

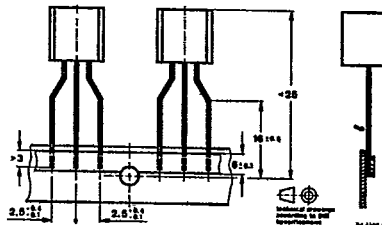


Fig. 7.3. Dimensions of tape in mm

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.

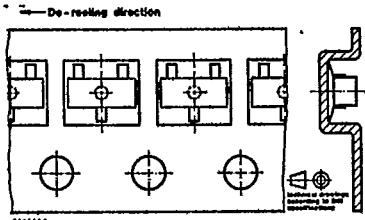


Fig. 7.4 Standard taped SOT 23

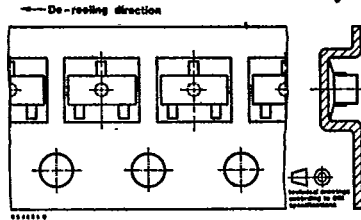


Fig. 7.6 Reverse taped SOT 23

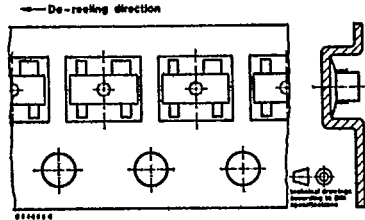


Fig. 7.5 Standard taped SOT 143

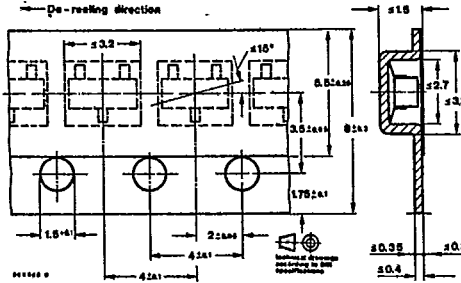


Fig. 7.7 Dimensions of tape in mm

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.

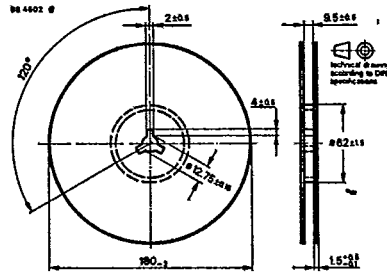


Fig. 7.8 Dimensions of reel in mm

8. Accessories

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

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)
 - 3B 2 DIN 41 872 JEDEC TO 3
- Devices with high reverse voltage