



TELEFUNKEN electronic
Creative Technologies

BUV 48T

T-33-13

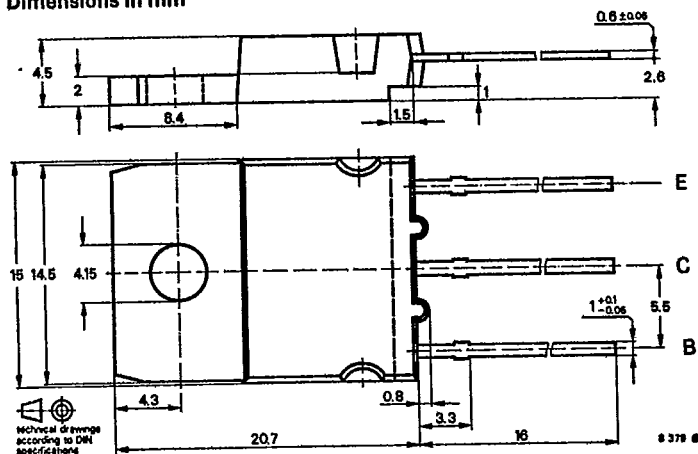
Silicon NPN Power Transistors

Applications: Switching mode power supply, inverters, motor control and relay driver

Features:

- In triple diffusion technique
- Glass passivation
- High reverse voltage
- Short switching times
- Power dissipation 150 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_{CEO}	400	V
	V_{CES}	850	V
Emitter-base voltage	V_{EBO}	7	V
Collector current, average	I_{CAV}	15	A
Collector peak current	I_{CM}	30	A
Base current, average	I_{BAV}	5	A
Base peak current	I_{BM}	20	A
	$-I_{BM}$	4	A

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Total power dissipation $T_{\text{case}} \leq 25^\circ\text{C}$	P_{tot}	150	W
Junction temperature	T_j	175	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 ... +175	$^\circ\text{C}$
Maximum thermal resistance			
Junction case	R_{thJC}	1.0	K/W
Characteristics		Min.	Typ. Max.
$T_{\text{case}} = 25^\circ\text{C}$, unless otherwise specified			
Collector cut-off current $V_{\text{CE}} = 850\text{ V}$	I_{CES}		0.5 mA
$T_{\text{case}} = 125^\circ\text{C}$, $V_{\text{CE}} = 850\text{ V}$	I_{CES}		2.0 mA
Collector-emitter breakdown voltage $I_{\text{C}} = 100\text{ mA}$, $L_{\text{C}} = 125\text{ mH}$	$V_{(\text{BR})\text{CEO}}^{1)}$	400	V
Emitter-base breakdown voltage $I_{\text{E}} = 1\text{ mA}$	$V_{(\text{BR})\text{EBO}}$	7	V
Collector-emitter saturation voltage $I_{\text{C}} = 10\text{ A}$, $I_{\text{B}} = 2\text{ A}$	$V_{\text{CEsat}}^{1)}$		0.9 V
Base-emitter saturation voltage $I_{\text{C}} = 10\text{ V}$, $I_{\text{B}} = 2\text{ A}$	$V_{\text{BEsat}}^{1)}$		1.6 V
DC forward current transfer ratio $V_{\text{CE}} = 5\text{ V}$, $I_{\text{C}} = 15\text{ A}$	h_{FE}	6	
Gain bandwidth product $V_{\text{CE}} = 10\text{ V}$, $I_{\text{C}} = 1\text{ A}$	f_{T}	5	MHz
Collector-base capacitance $V_{\text{CB}} = 10\text{ V}$, $I_{\text{E}} = 0$, $f = 1\text{ MHz}$	C_{CBO}	250	pF
Dynamic saturation voltage $I_{\text{C}} = 7\text{ A}$, $I_{\text{B}} = 2\text{ A}$ $t = 3\text{ }\mu\text{s}$	V_{CEsatdyn}	1.5	V

$$^{1)} \frac{t_{\text{p}}}{T} = 0.02, t_{\text{p}} = 0.3\text{ ms}$$

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Switching characteristics

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

Min. Typ. Max.

Resistive load

 $V_{\text{CE}} = 150\text{ V}$ $I_{\text{C}} = 10\text{ A}$, $I_{\text{B1}} = -I_{\text{B2}} = 2\text{ A}$

Turn on time

 t_{on} 0.5 μs

Storage time

 t_{s} 3.0 μs

Fall time

 t_{f} 0.5 μs

Inductive load

 $V_{\text{CE}} = 300\text{ V}$, $-V_{\text{BEoff}} = 5\text{ V}$, $L_{\text{B}} = 3\text{ }\mu\text{H}$ $I_{\text{C}} = 10\text{ A}$, $I_{\text{Bend}} = 2\text{ A}$

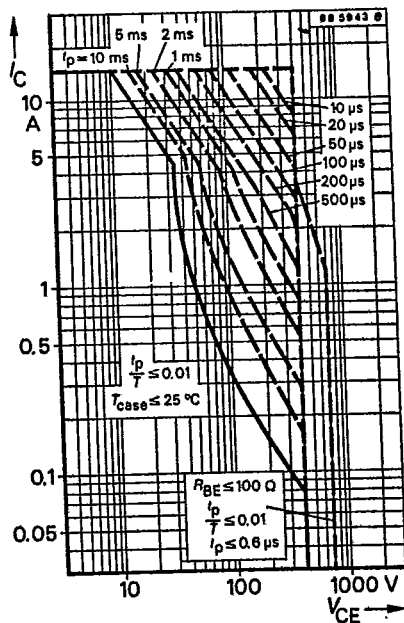
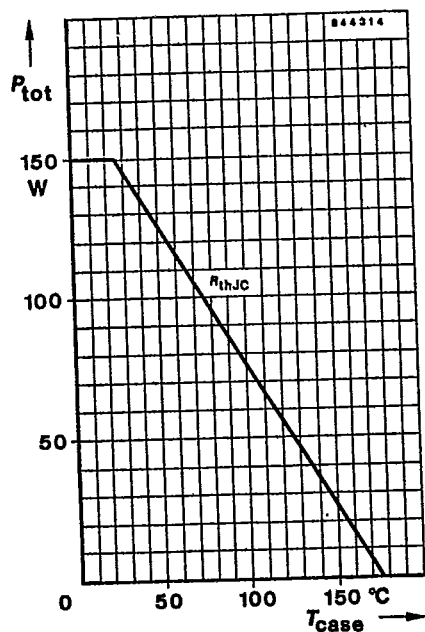
Storage time

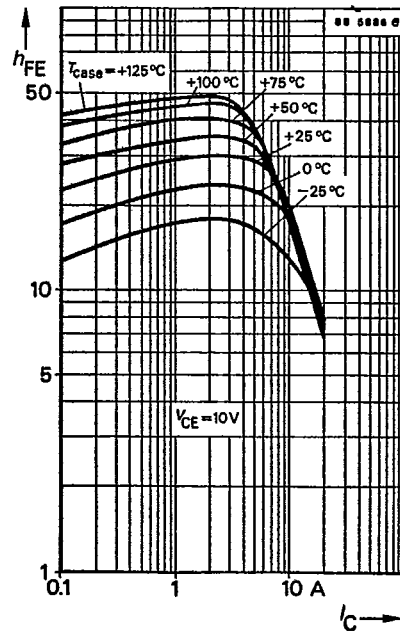
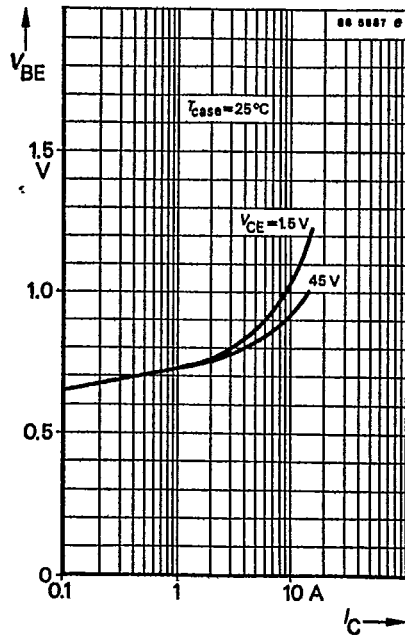
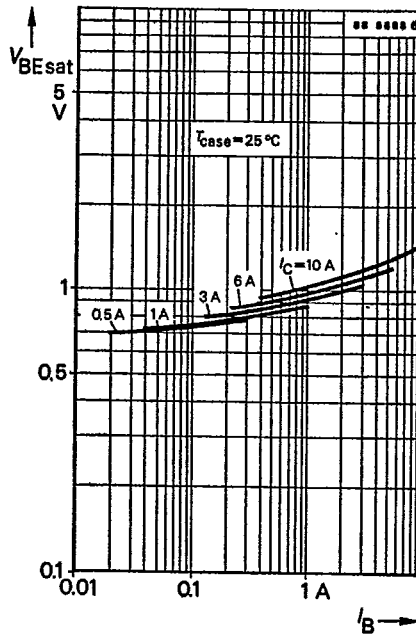
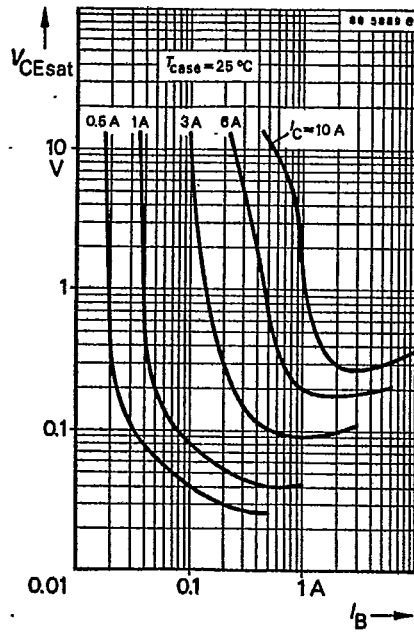
 $T_{\text{case}} = 100^\circ\text{C}$ t_{s} 3 μs 5 μs

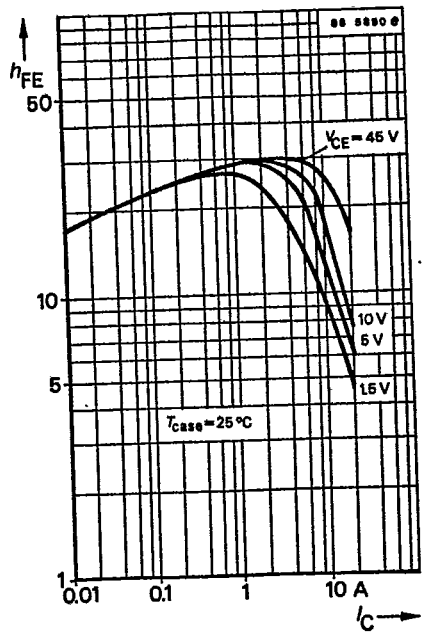
Fall time

 $T_{\text{case}} = 100^\circ\text{C}$ t_{f}

0.1

0.4 μs 





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

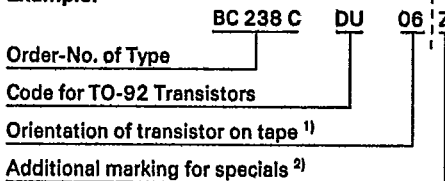
7.1. Taping of TO-92 transistors

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:



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

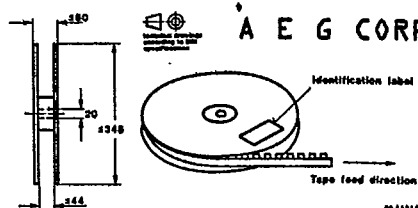


Fig. 7.1. Dimensions of reel in mm

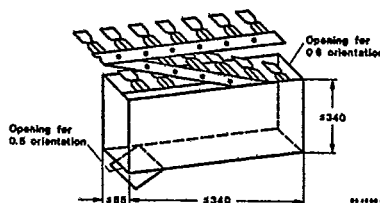


Fig. 7.2. Dimension of box for Zigzag folding in mm

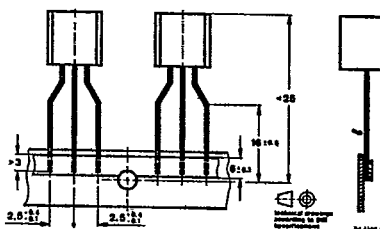


Fig. 7.3. Dimensions of tape in mm

7.1.2 Quantity of devices

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-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.

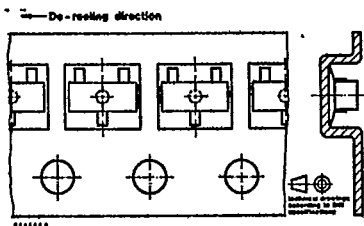


Fig. 7.4 Standard taped SOT 23

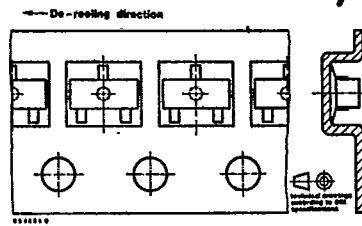


Fig. 7.6 Reverse taped SOT 23

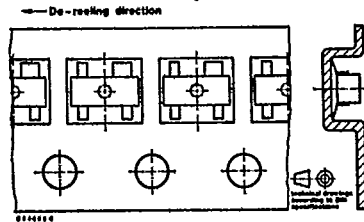


Fig. 7.5 Standard taped SOT 143

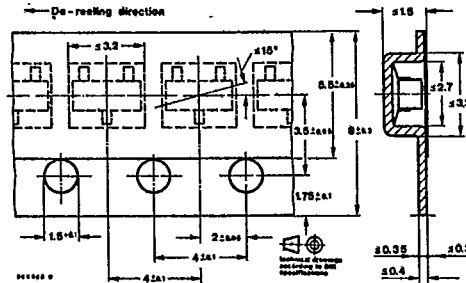


Fig. 7.7 Dimensions of tape in mm

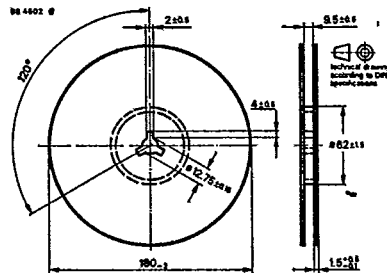


Fig. 7.8 Dimensions of reel in mm

8. Assessories

Number	Fig.	Designation	For case
119 880	8.1.	Isolating washer thickness 80 µm	12 A 3 DIN 41 869 JEDEC TO 126 (SOT 32)
564 542	8.2.	Isolating washer thickness 50 µm	14 A 3 DIN 41 869 JEDEC TO 220 (SOT 78)
912 884	8.3	Isolating washer thickness 50 µm	15 A 3 DIN 41 869 (TOP3) for clip mounting
191 131	8.4	Isolating washer thickness 50 µm	15 A 3 DIN 41 869 (TOP3) for screw mounting
191 140	8.5	Mounting clip	15 A 3 DIN 41 869 (TOP3)
569 524	8.6	Isolating washer thickness 100 µm + 50 µm	3B 2 DIN 41 872 JEDEC TO 3 Devices with high reverse voltage