

Silicon NPN Power Transistor

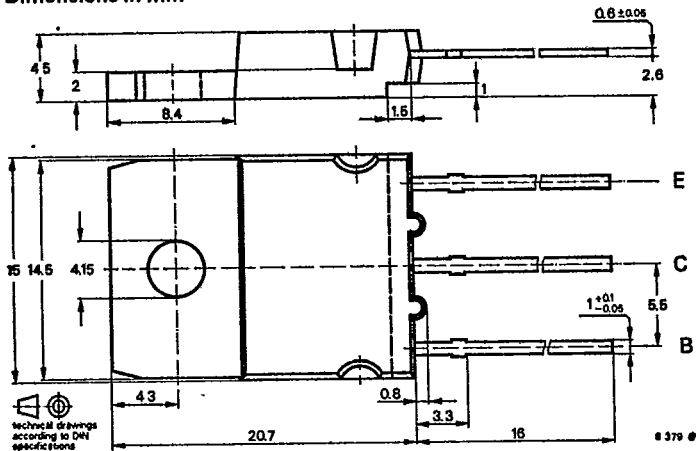
T-33-13

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

Features:

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

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}	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

¹⁾ Flash- over current, non-repetitive max. 5 A

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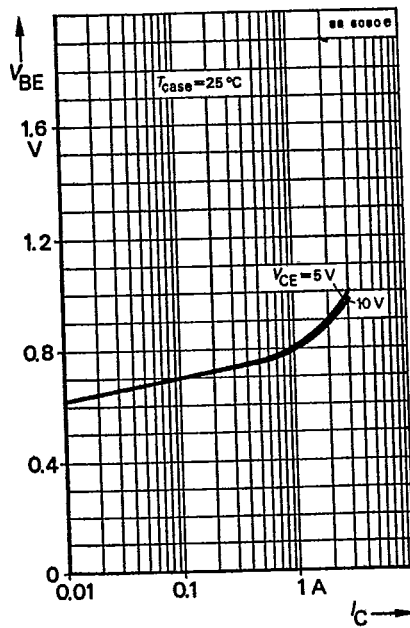
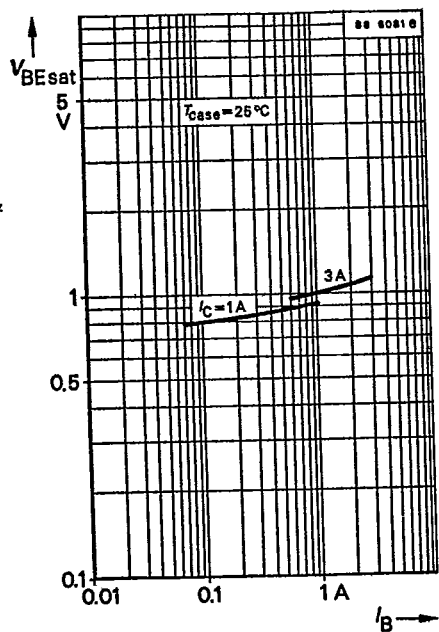
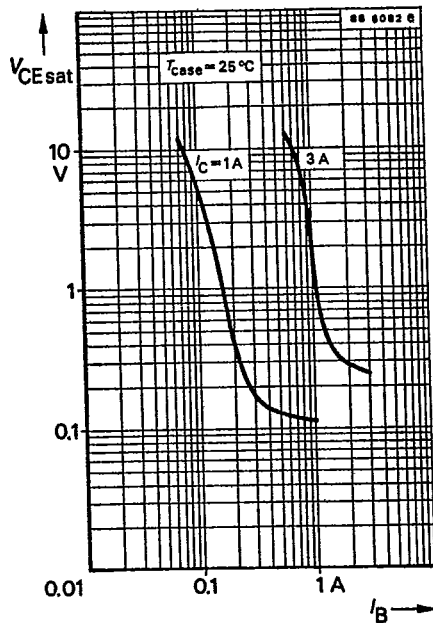
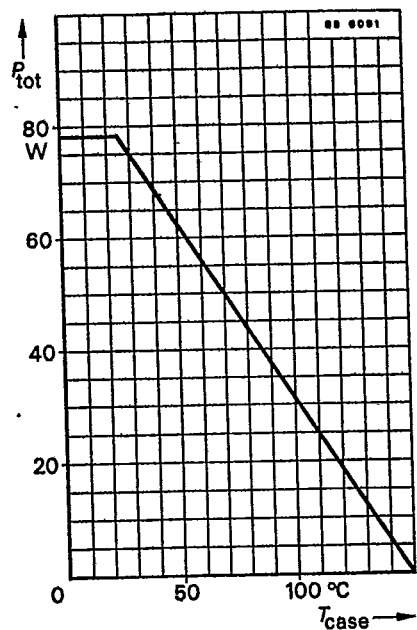
Total power dissipation $T_{\text{case}} \leq 25^\circ\text{C}$	P_{tot}	78	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 ... +150	$^\circ\text{C}$
Maximum thermal resistance Junction case	R_{thJC}	1.6	K/W
Characteristics $T_{\text{case}} = 25^\circ\text{C}$	Min.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

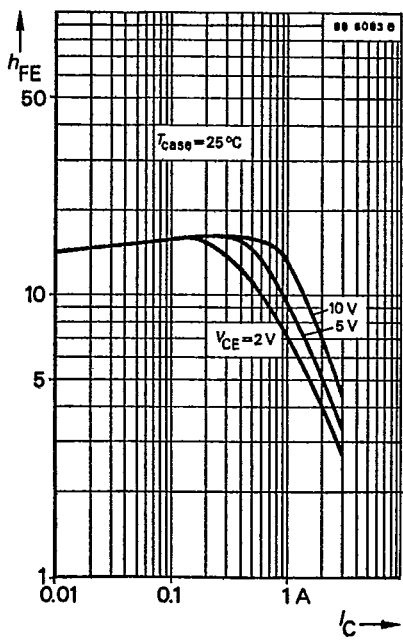
¹⁾ $\frac{t_p}{T} = 0.01, t_p = 0.3\text{ ms}$

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

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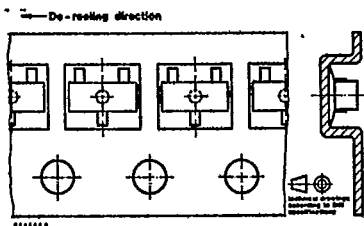


Fig. 7.4 Standard taped SOT 23

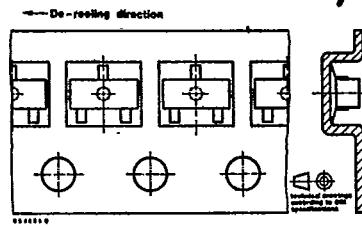


Fig. 7.6 Reverse taped SOT 23

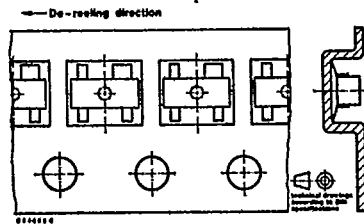


Fig. 7.5 Standard taped SOT 143

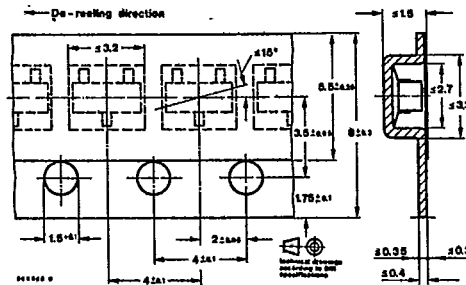


Fig. 7.7 Dimensions of tape in mm

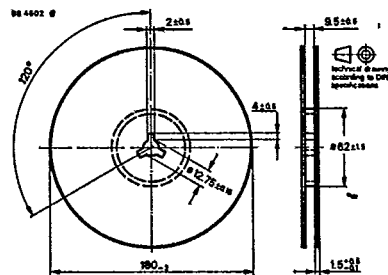


Fig. 7.8 Dimensions of reel in mm

b) Reverse taping

Designation is attached with code GS07 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.

8. Assessories

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
191 131	8.4	Isolating washer thickness 50 µm	15A 3 DIN 41 869 (TOP3) for screw mounting
191 140	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