

**Silicon NPN Power Transistor**

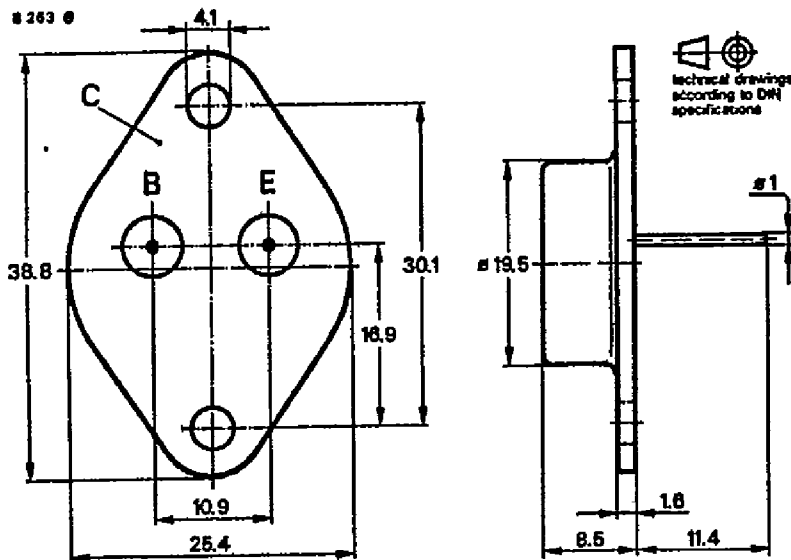
T-33-11

**Applications:** Switching mode power supply

**Features:**

- In triple diffusion technique
- Glass passivation
- High reverse voltage
- Short switching time
- Power dissipation 62 W

**Dimensions in mm**



Collector connected with case

Standard metal case  
3 B 2 DIN 41 872  
JEDEC TO 3  
Weight max. 20 g

**Accessories**

Isolating washer No. 569524

**Absolute maximum ratings**

Collector emitter voltage

$V_{CEO}$  480 V

$V_{CES}$  1100 V

$V_{CER}$  1100 V

$R_{BE} \approx 100 \Omega$

Collector peak current

$I_{CM}$  10 A

Collector current

$I_C$  8 A

Base current

$I_{BM}$  4 A

$-I_{BM}$  4 A

Total power dissipation

$P_{tot}$  62 W

$T_{case} \leq 25^\circ C$

Junction temperature

$T_j$  150  $^\circ C$

Storage temperature range

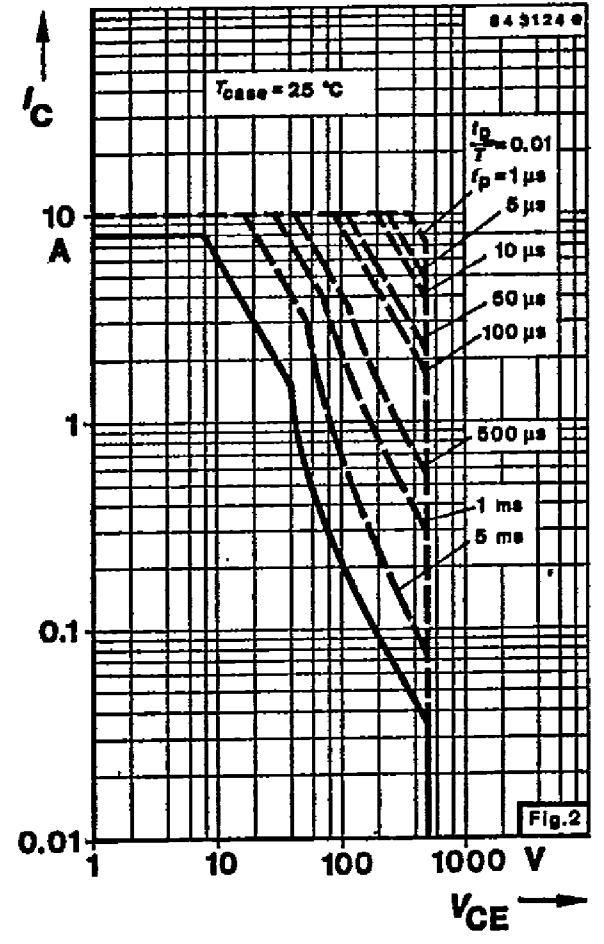
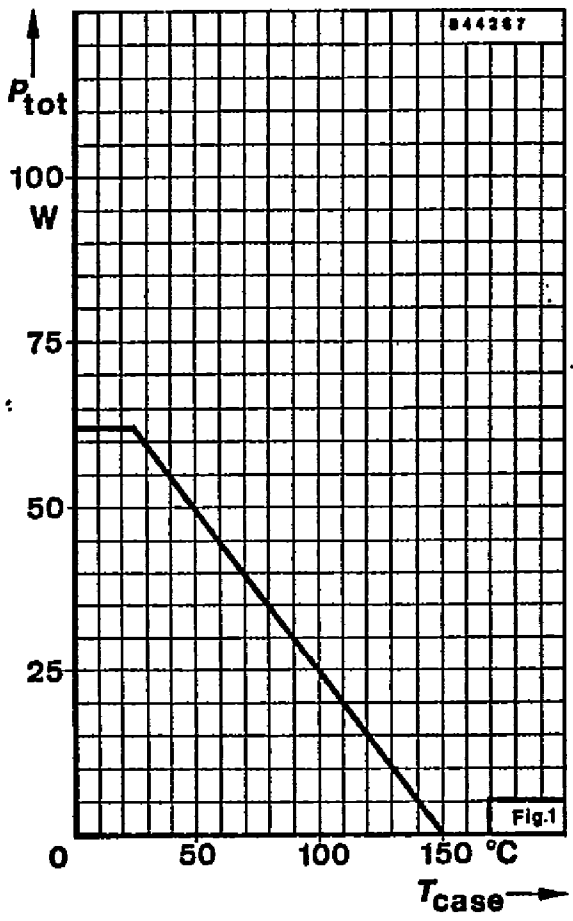
$T_{stg}$  -65 ... +150  $^\circ C$

**Maximum thermal resistance**

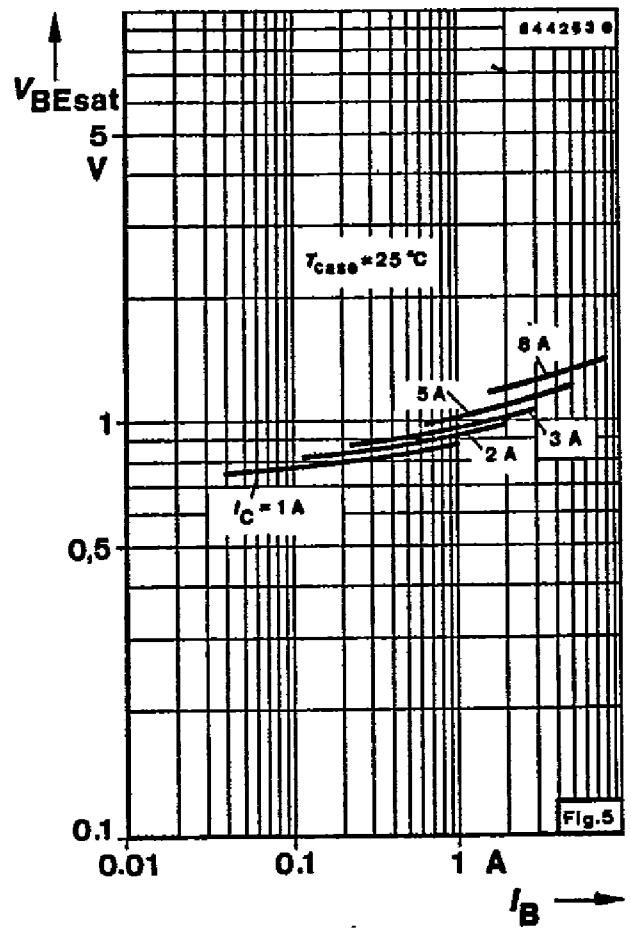
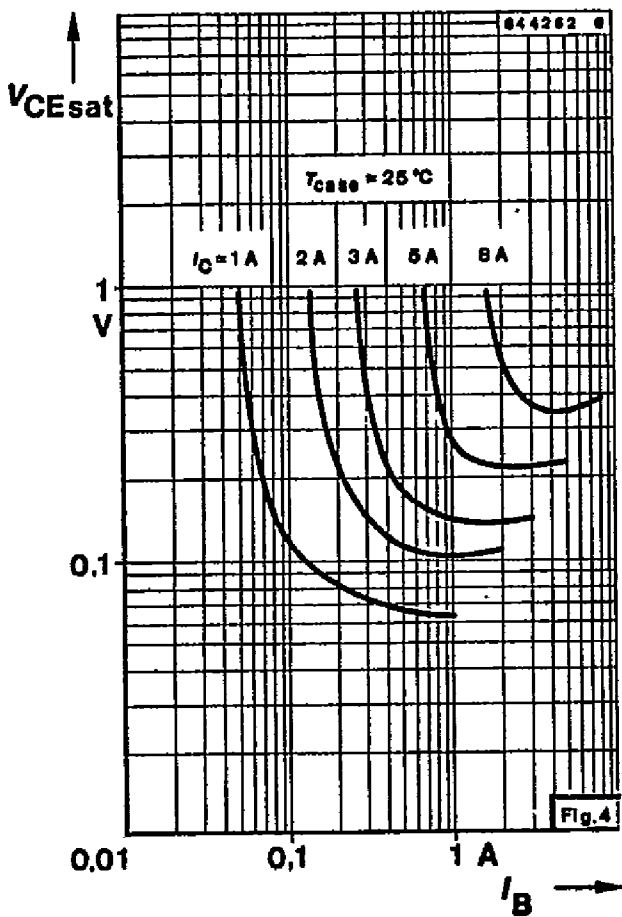
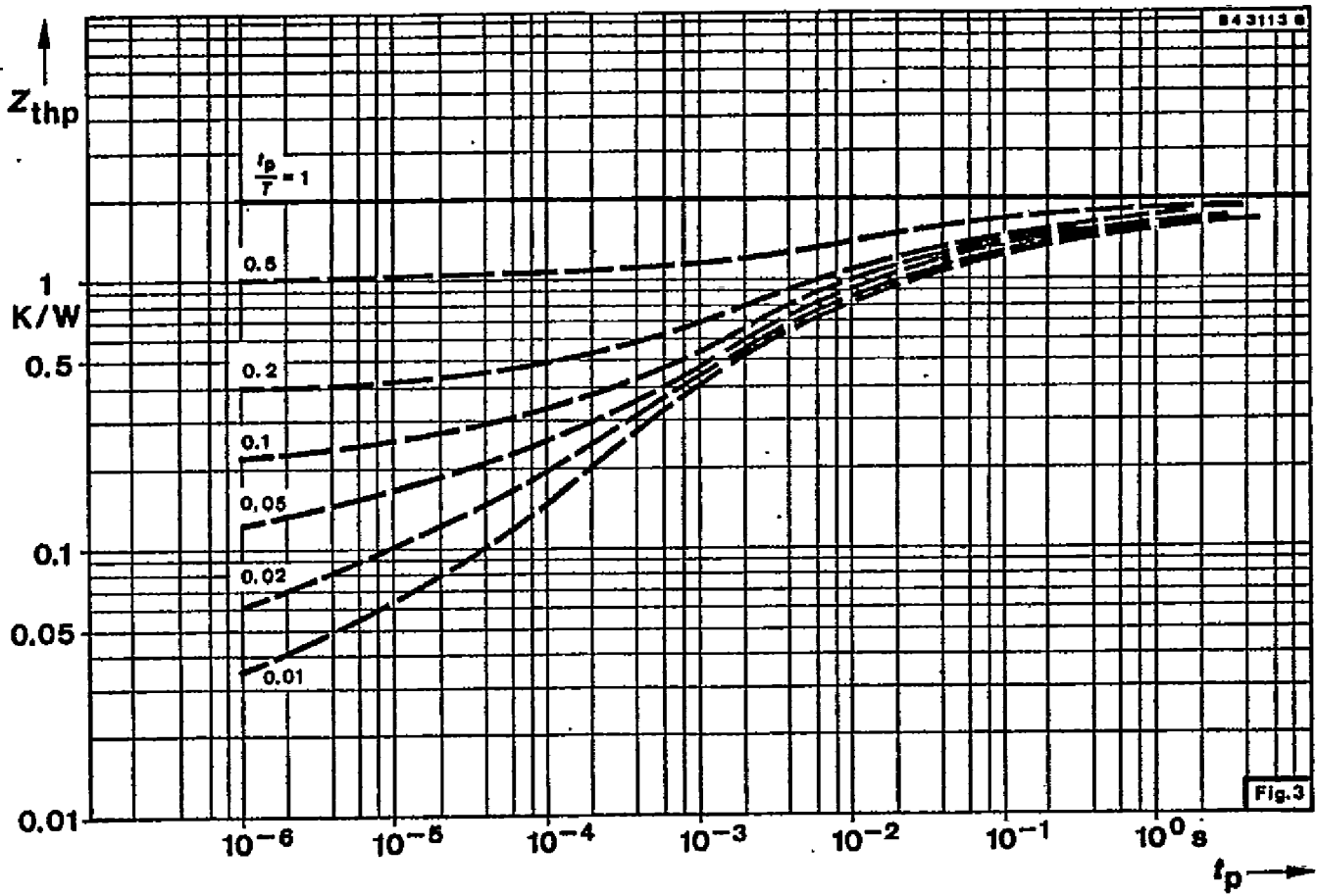
Junction case

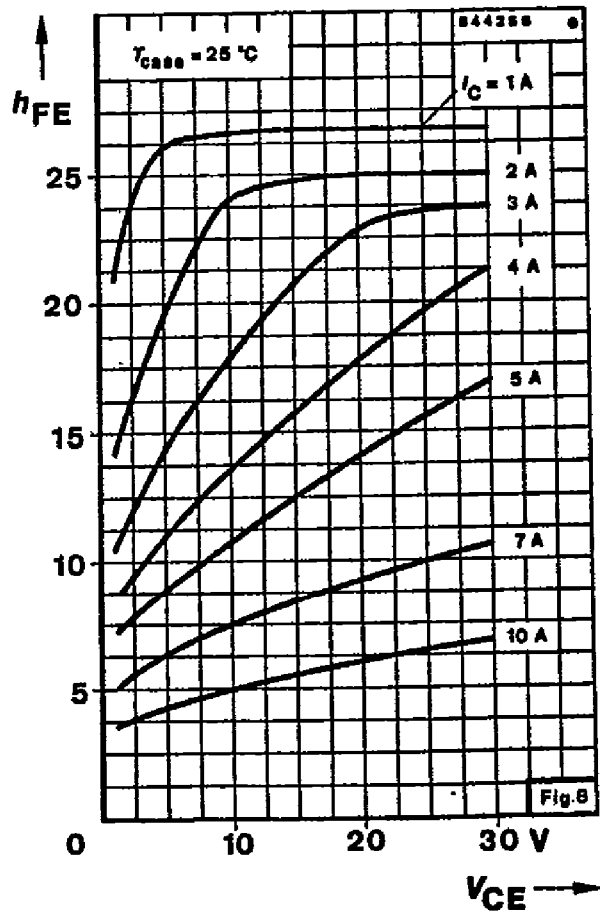
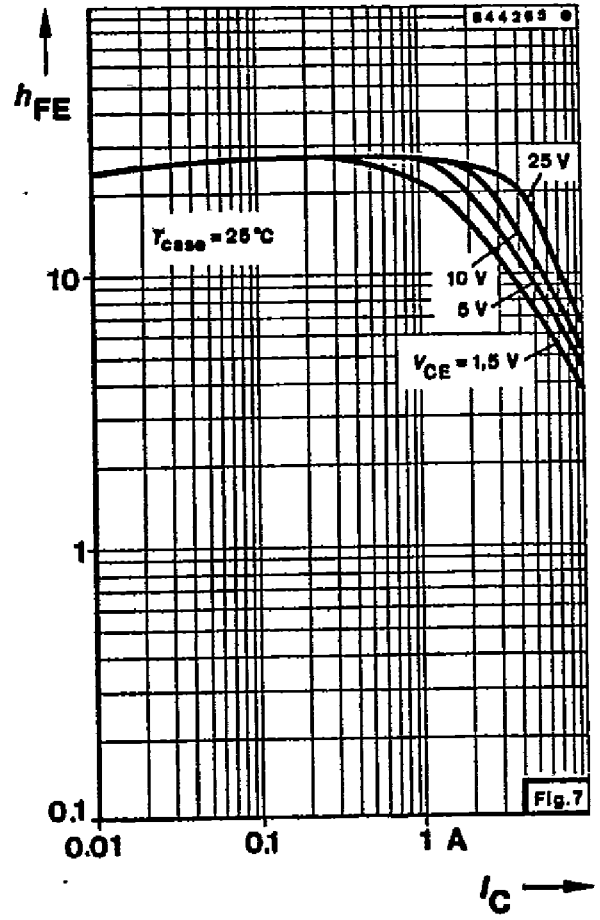
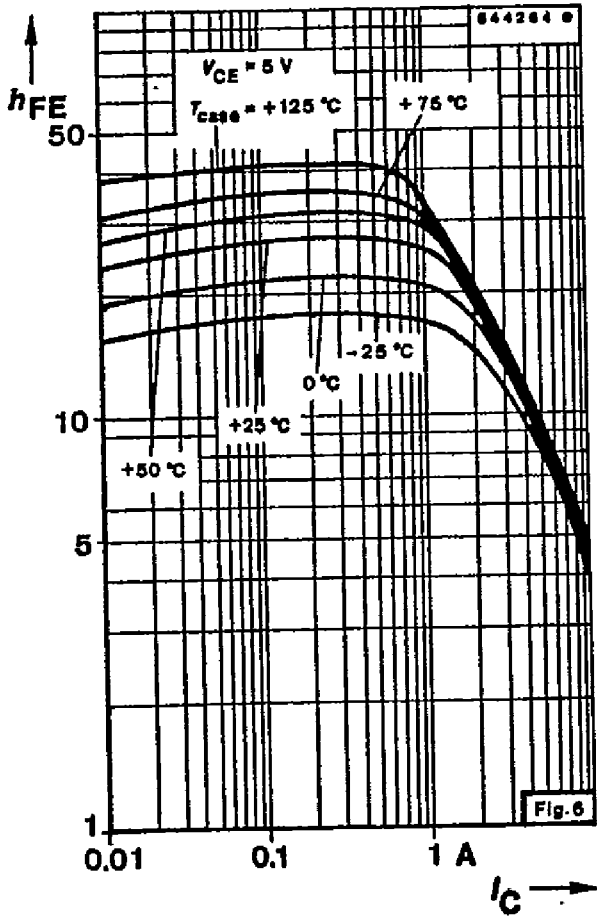
$R_{thJC}$  2 K/W

Characteristics	Min.	Typ.	Max.
$T_{case} = 25^\circ C$ , unless otherwise specified			
Collector cut-off current			
$V_{CE} = 1100 V$			1 mA
$T_j = 125^\circ C, V_{CE} = 1100 V$			2 mA
Collector-emitter breakdown voltage			
$I_C = 100 mA, L_C = 125 mH$	$V_{(BR)CEO}^{1)}$	480	V
Emitter-base breakdown voltage			
$I_C = 4 A, I_B = 1 A$	$V_{(BR)EBO}$	6	V
Base saturation voltage			
$I_C = 4 A, I_B = 0.8 A$	$V_{BEsat}^{1)}$		2 V
DC forward current transfer ratio			
$V_{CE} = 5 V, I_C = 1 A$	$h_{FE}$	10	
$V_{CE} = 5 V, I_C = 4 A$	$h_{FE}$	5.5	
Gain bandwidth product			
$V_{CE} = 10 V, I_C = 500 mA, f = 1 MHz$	$f_T$	10	MHz
Switching characteristics $I_C = 4 A, I_{B1} = -I_{B2} = 1.25 A, t_p = 20 \mu s$			
Fall time	$t_f^{2)}$		1 $\mu s$
Turn-off time	$t_{off}$		4 $\mu s$



<sup>1)</sup>  $\frac{t_p}{T} \geq 0.01, t_p = 0.1 ms$ ; <sup>2)</sup> By using retrace capacitor at switching-off inductive load







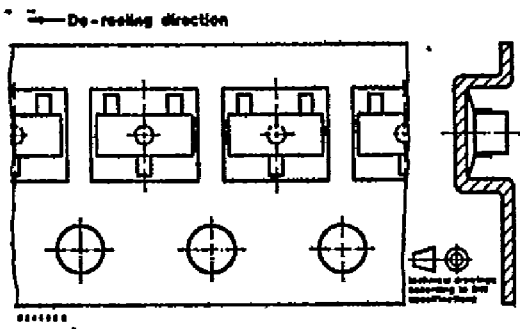


Fig. 7.4 Standard taped SOT 23

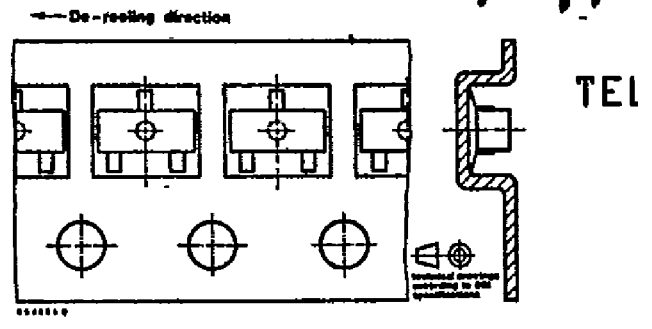


Fig. 7.6 Reverse taped SOT 23

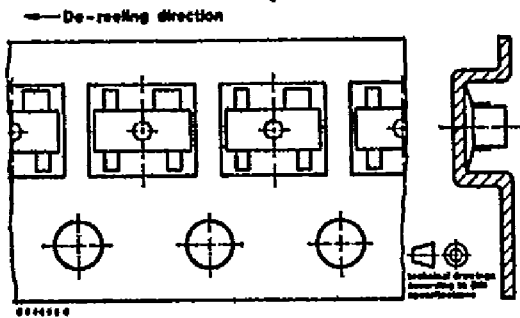


Fig. 7.5 Standard taped SOT 143

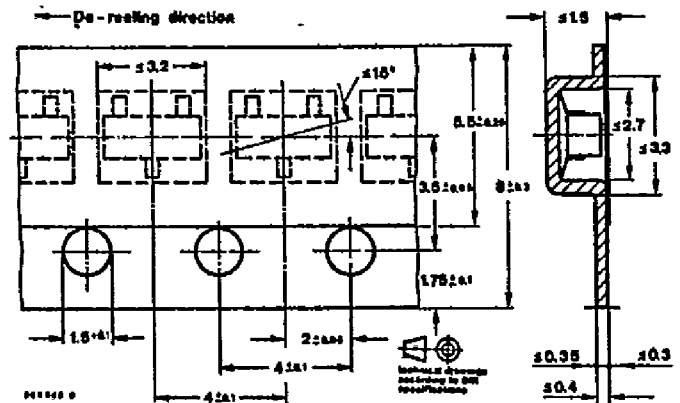


Fig. 7.7 Dimensions of tape in mm

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.

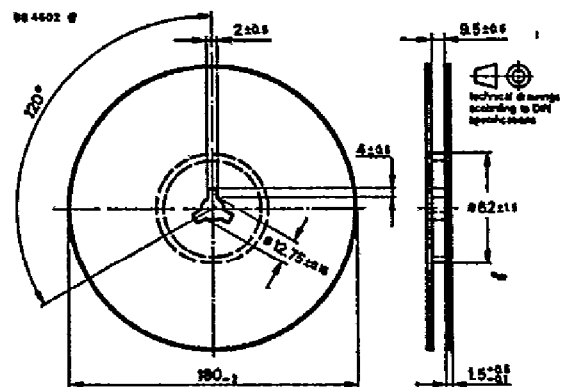


Fig. 7.8 Dimensions of reel in mm

## 8. Accessories

Number	Fig.	Designation
119880	8.1.	Isolating washer thickness 60 µm
564542	8.2.	Isolating washer thickness 50 µm
912884	8.3	Isolating washer thickness 50 µm
191131	8.4	Isolating washer thickness 50 µm
191140	8.5	Mounting clip
569524	8.6	Isolating washer thickness 100 µm + 50 µm

### 7.2.2 Quantity of devices

3000 devices per reel

For case

- 12 A 3 DIN 41 869
- JEDEC TO 126 (SOT 32)
- 14 A 3 DIN 41 869
- JEDEC TO 220 (SOT 78)
- 15 A 3 DIN 41 869
- (TOP3) for clip mounting
- 15 A 3 DIN 41 869
- (TOP3) for screw mounting
- 15 A 3 DIN 41 869
- (TOP3)
- 3 B 2 DIN 41 872
- JEDEC TO 3
- Devices with high reverse voltage