

T-33-13

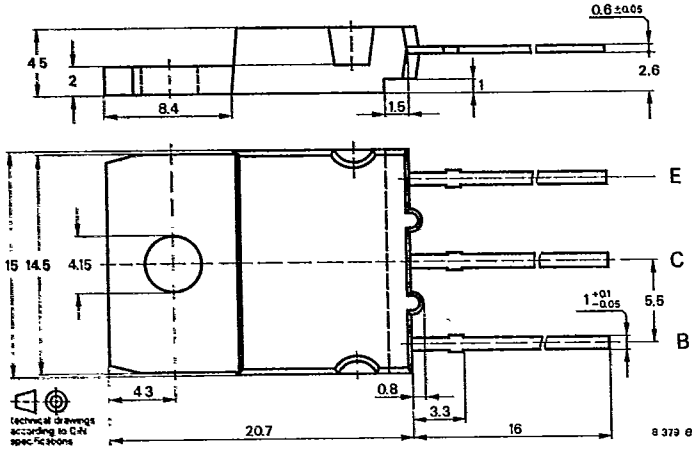
**Silicon NPN Power Transistor**

Application: Switching mode power supply

Features:

- In triple diffusion technique
- Glass passivation
- High reverse voltage
- Short switching time
- Power dissipation 125 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

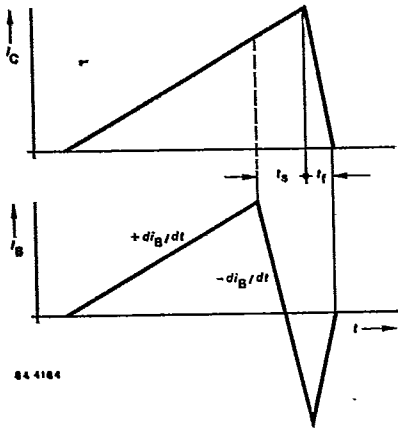
Collector emitter voltage	$V_{CE0}$	550	V
	$V_{CES}$	1300	V
Collector peak current	$I_{CM}$	8	A
Collector current	$I_C$	6	A
Base peak current	$I_{BM}$	4	A
	$-I_{BM}$	4	A
Base current	$I_B$	2	A

**BU 903**

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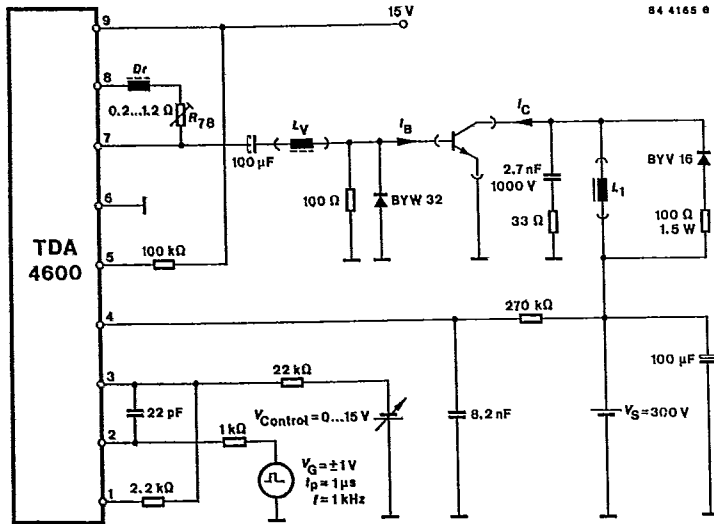
<b>Total power dissipation</b>				
$T_{case} \leq 25^\circ C$	$P_{tot}$	125		W
Junction temperature	$T_j$	150		$^\circ C$
Storage temperature range	$T_{stg}$	-65 ... +150		$^\circ C$
<b>Maximum thermal resistances</b>				
Junction case	$R_{thJC}$	1.0		K/W
<b>Characteristics</b>				
		<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>
$T_{case} = 25^\circ C$ , unless otherwise specified				
<b>Collector cut-off current</b>				
$V_{CE} = 1300 V$	$I_{CES}$		1	mA
$T_j = 125^\circ C, V_{CE} = 1200 V$	$I_{CES}$		2	mA
<b>Collector-emitter breakdown voltage</b>				
$I_C = 100 mA, I_C = 125 mA$	$V_{(BR)CEO}^{1)}$	550		V
<b>Emitter-base breakdown voltage</b>				
$I_E = 1 mA$	$V_{(BR)EBO}$	6		V
<b>Collector saturation voltage</b>				
$I_C = 6 A, I_B = 2 A$	$V_{CEsat}^{1)}$		1.8	V
<b>Base saturation voltage</b>				
$I_C = 6 A, I_B = 2 A$	$V_{BEsat}^{1)}$		2	V
<b>DC forward current transfer ratio</b>				
$V_{CE} = 2 V, I_C = 3.2 A$	$h_{FE}$	6		
$V_{CE} = 5 V, I_C = 1.5 A$	$h_{FE}$	8		
$V_{CE} = 5 V, I_C = 10 mA$	$h_{FE}$	6		
$V_{CE} = 3 V, I_C = 4 A$	$h_{FE}$	5.5		
<b>Gain bandwidth product</b>				
$V_{CE} = 10 V, I_C = 500 mA, f = 1 MHz$	$f_T$		10	MHz
<b>Switching characteristics</b>				
$I_{Cand} = 3.2 A, I_{Bend} = 0.7 A, T_{case} = 25^\circ C$ , see test circuit				
Fall time	$t_f$		0.5	$\mu s$

<sup>1)</sup>  $\frac{t_p}{T} = 0.01, t_p = 0.3 ms$



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Fig. 1 Pulse diagram



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Fig. 2 Test circuit for:  $t_f$

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