

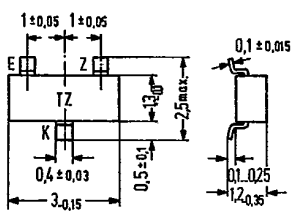
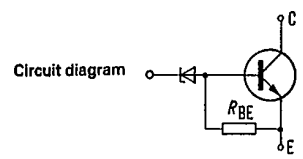
Control Unit

25C 04877 D

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This component, a transistor with integrated base emitter resistance and a Z diode, in TO 236 case (24 A 3 DIN 41869) is designed for use as control unit in various professional and industrial electronic circuits. Due to the compact design of microelectronic circuits, it is particularly suitable for hybrid circuits in thick and thin film technology. The type is marked with the code letters "TZ".

Type	Mark	Ordering code
BZW 20	TZ	Q62702-Z1387



Approx. weight 0.02 g  
Dimensions in mm

**Maximum ratings**

Collector-emitter voltage	$V_{CE0}$	20	V
Base-emitter voltage	$V_{ZE}$	8.4 to 9.5	V
Collector current	$I_C$	100	mA
Base current	$I_z$	10	mA
Storage temperature range	$T_{stg}$	-55 to +125	°C
Junction temperature	$T_j$	115	°C
Total power dissipation ( $T_{amb} \leq 45^\circ C$ )	$P_{tot}$	150	mW

**Thermal resistance**

Junction to ambient air if mounted on:			
Glass substrate (7 x 7 x 1 mm)	$R_{thJA}$	< 700	K/W
Glass fiber substrate (30 x 12 x 1.5 mm)	$R_{thJA}$	< 450	K/W
Ceramic substrate (30 x 12 x 1 mm)	$R_{thJA}$	< 450	K/W

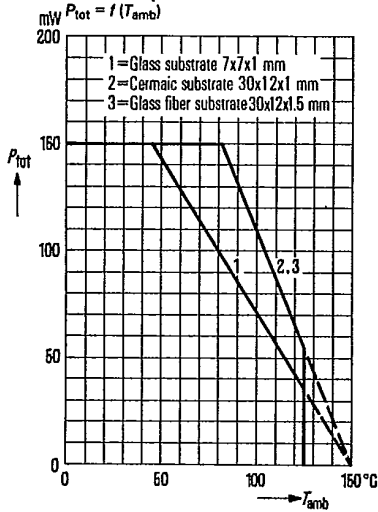
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**Static characteristics ( $T_{amb} = 25^\circ\text{C}$ )**

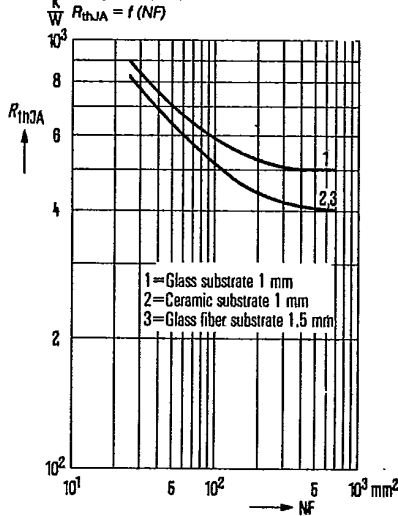
Collector cutoff current  
 ( $V_{CE} = 20\text{ V}$ )  
 ( $V_{CE} = 20\text{ V}; T_{amb} = 125^\circ\text{C}$ )  
 Collector-emitter breakdown voltage  
 ( $I_C = 100\ \mu\text{A}$ )  
 DC current gain  
 ( $I_C = 50\text{ mA}; V_{CE} = 1.5\text{ V}$ )  
 Collector-emitter saturation voltage  
 ( $I_C = 18\text{ mA}; I_Z = 2\text{ mA}$ )  
 Differential current gain  
 ( $I_C = 16\text{ mA}; V_{CE} = 1.5\text{ V}$ )  
 Differential transconductance  
 ( $I_C = 18\text{ mA}; V_{CE} = 1.5\text{ V}$ )

$I_{CEO}$	< 100	nA
$I_{CEO}$	< 30	$\mu\text{A}$
$V_{(BR)CEO}$	> 20	V
$h_{FE}$	> 15	-
$V_{CEsat}$	< 0.4	V
$h_{fe} = \frac{\Delta I_C}{\Delta I_Z}$	250	-
$S = \frac{\Delta I_C}{\Delta V_{ZE}}$	700	mS

**Total perm. power dissipation versus temperature**

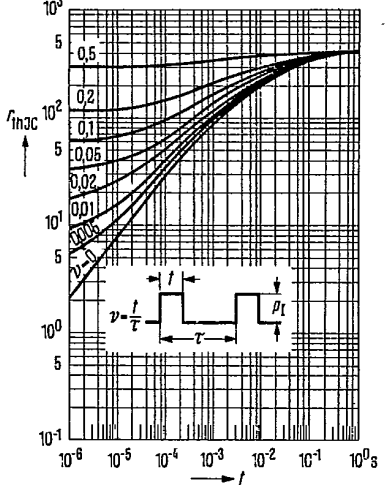


**Thermal resistance versus substrate area**

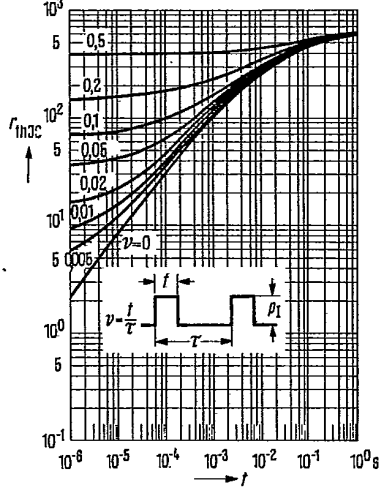


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**Permissible pulse load for ceramic substrate 30 x 12 x 1,5 mm**  
 $r_{thJC} = f(t); v = \text{parameter}$

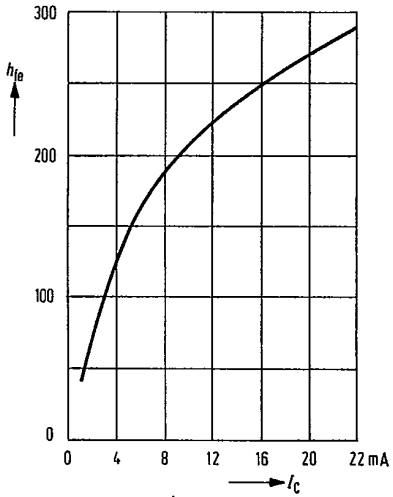


**Permissible pulse load for glass substrate 7 x 7 x 1 mm**  
 $r_{thJC} = f(t); v = \text{parameter}$



**Differential current gain**

$h_{fe} = \frac{\Delta I_c}{\Delta I_b} = f(I_c)$   
 $V_{CE} = 1,5 \text{ V}; f = 1 \text{ kHz}$



**Differential transconductance**

$S = \frac{\Delta I_c}{\Delta V_{BE}} = f(I_c)$   
 $V_{CE} = 1,5 \text{ V}; f = 1 \text{ kHz}$

