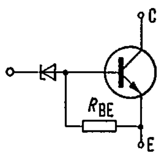
Control Unit BZW 20

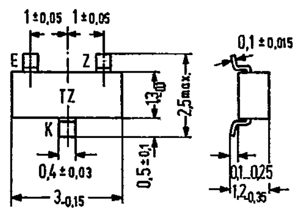
This component, a transistor with integrated base emitter resistance and a Z diode, in TO 236 case (24 A 3 DIN 41869) is designed for use as control unit in various professional and industrial electronic circuits. Due to the compact design of microelectronic circuits, it is particularly suitable for 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

Circuit diagram





Approx. weight 0.02 g
Dimensions in mm

Maximum ratings

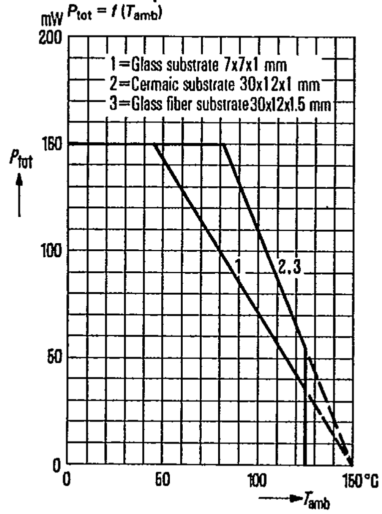
Collector-emitter voltage	V_{CEO}	20	V
Base-emitter voltage	V_{ZE}	8.4 to 9.5	V
Collector current	I_C	100	mA
Base current	I_z	10	mA
Storage temperature range	T_{stg}	−55 to +125	°C
Junction temperature	T_j	115	°C
Total power dissipation ($T_{amb} \leq 45$ °C)	P_{tot}	150	mW

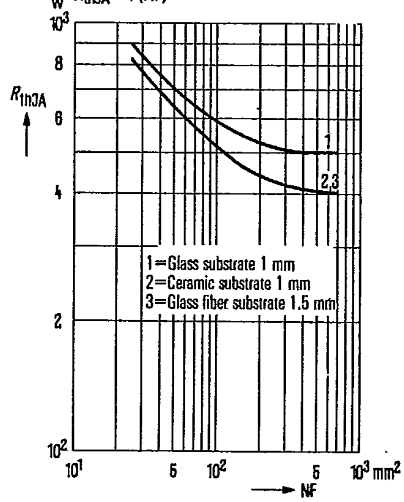
Thermal resistance

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

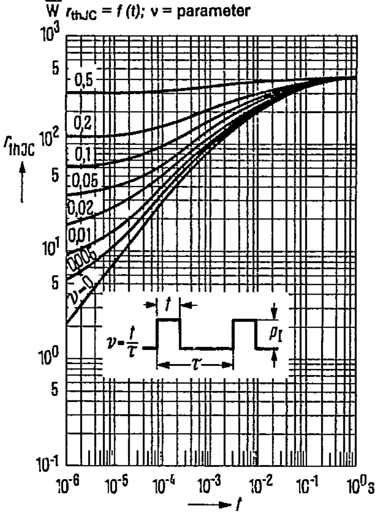
Static characteristics (T_{amb} = 25 °C)

Collector cutoff current			
(V_{CE} = 20 V)	I_{CEO}	< 100	nA
(V_{CE} = 20 V; T_{amb} = 125 °C)	I_{CEO}	< 30	µA
Collector-emitter breakdown voltage (I_C = 100 µA)	$V_{(BR)CEO}$	> 20	V
DC current gain (I_C = 50 mA; V_{CE} = 1.5 V)	h_{FE}	> 15	–
Collector-emitter saturation voltage (I_C = 18 mA; I_Z = 2 mA)	V_{CEsat}	< 0.4	V
Differential current gain (I_C = 16 mA; V_{CE} = 1.5 V)	$h_{fe} = \frac{\Delta I_C}{\Delta I_Z}$	250	–
Differential transconductance (I_C = 18 mA; V_{CE} = 1.5 V)	$S = \frac{\Delta I_C}{\Delta V_{ZE}}$	700	mS

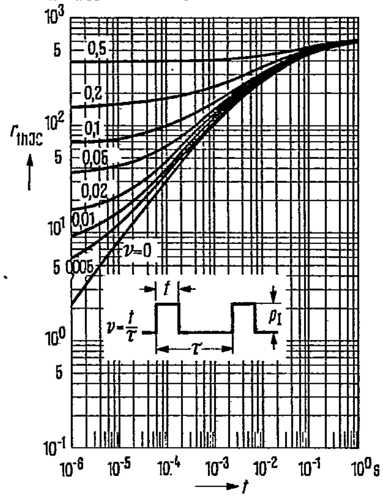




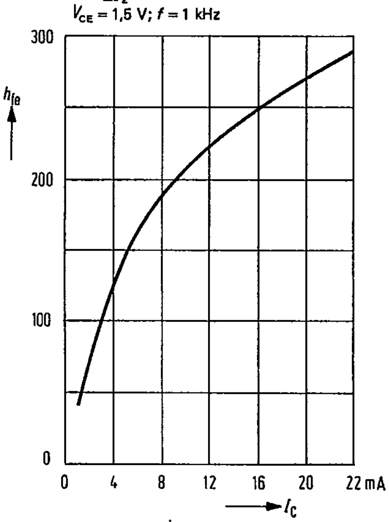
Permissible pulse load for ceramic substrate 30 x 12 x 1,5 mm
$r_{thJC} = f(t)$; v = parameter



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



Differential current gain
$h_{fe} = \frac{\Delta I_C}{\Delta I_Z} = f(I_C)$
V_{CE} = 1,5 V; f = 1 kHz



Differential transconductance
$S = \frac{\Delta I_C}{\Delta V_{ZE}} = f(I_C)$
V_{CE} = 1,5 V; f = 1 kHz