

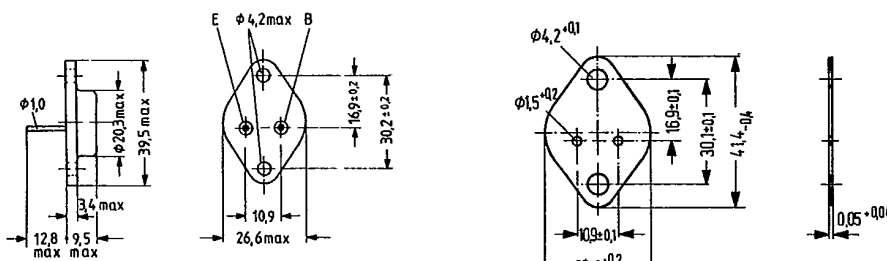
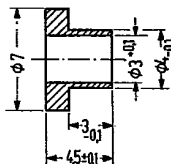
NPN Silicon Power Transistors

**BUX 82
BUX 83**

SIEMENS AKTIENGESELLSCHAFT T-33-13

BUX 82 and BUX 83 are triple diffused NPN silicon power transistors in a case similar to TO 3 (3 A 2 DIN 41872). The collector is electrically connected to the case. The transistors are particularly designed for use as high-speed power switch at high voltages. BUX 82 is suitable as replacement for BUX 26, BUX 27 (also BUY 79).

Type	Ordering code
BUX 82	Q68000-A4676
BUX 83	Q68000-A4677
Mica washer	Q62901-B11-A
Insulating nipple	Q62901-B20



Approx. weight 18 g Dimensions in mm

Maximum ratings

- Collector-emitter voltage
- Collector-emitter voltage
- Collector-emitter voltage ($R_{BE} = 50 \Omega$)
- Collector current
- Collector peak current ($t < 2 \text{ ms}$)
- Base current
- Base peak current ($t < 2 \text{ ms}$)
- Negative base peak current
- Storage temperature range
- Junction temperature
- Total power dissipation ($T_{case} \leq 25 \text{ }^\circ\text{C}$)

	BUX 82	BUX 83	
V_{CES}	800	1000	V
V_{CEO}	400	450	V
V_{CER}	500	500	V
I_C	6	6	A
I_{CM}	8	8	A
I_B	2	2	A
I_{BM}	3	3	A
$-I_{BM}$	3	3	A
T_{stg}	-65 to +150		$^\circ\text{C}$
T_j	150	150	$^\circ\text{C}$
P_{tot}	75	75	W

Thermal resistance

Junction to case	R_{thJC}	≤ 1.65	≤ 1.65	K/W
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Static characteristics ($T_{amb} = 25^\circ\text{C}$)

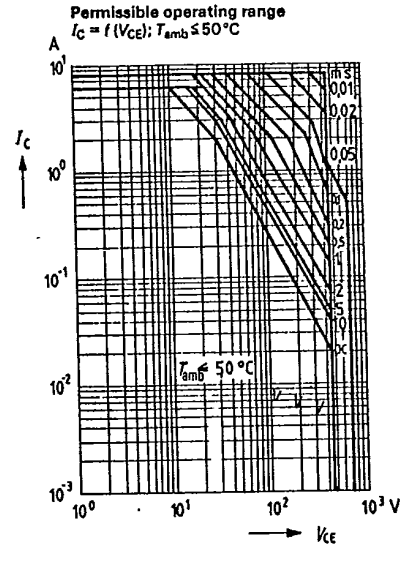
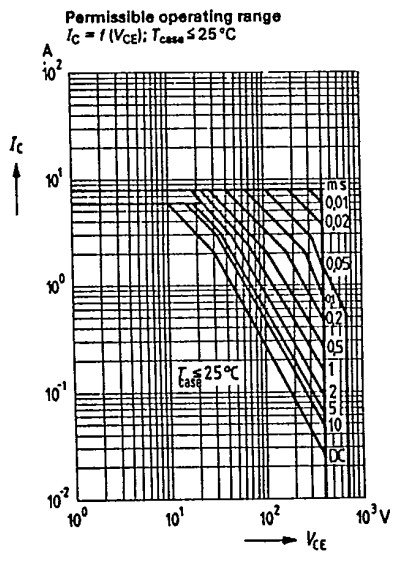
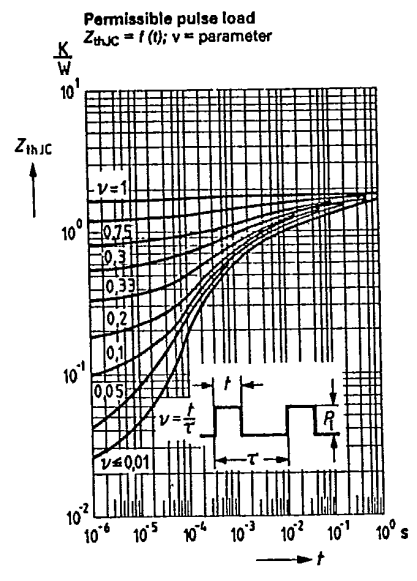
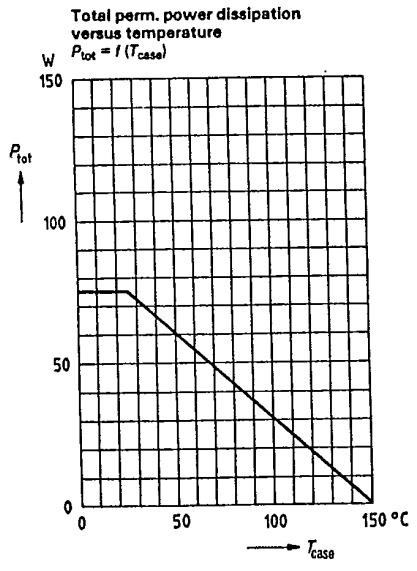
		BUX 82	BUX 83	
Collector-emitter breakdown voltage ($I_C = 100\text{ mA}$; $I_B = 0$; $L = 25\text{ mH}$)	$V_{(BR)CEO}$	> 400	> 450	V
($I_C = 100\text{ mA}$; $R_{BE} = 100\ \Omega$; $L = 15\text{ mH}$)	$V_{(BR)CER}$	> 500	> 500	V
Collector cutoff current ($V_{CES} = 800\text{ V}$)	I_{CES}	< 1	-	mA
($V_{CES} = 800\text{ V}$; $T_j = 125^\circ\text{C}$)	I_{CES}	< 2	-	mA
($V_{CES} = 1000\text{ V}$)	I_{CES}	-	< 1	mA
($V_{CES} = 1000\text{ V}$; $T_j = 125^\circ\text{C}$)	I_{CES}	-	< 2	mA
Emitter cutoff current ($V_{EBO} = 10\text{ V}$)	I_{EBO}	< 10	< 10	mA
DC current gain ($I_C = 1.2\text{ A}$; $V_{CE} = 5\text{ V}$)	h_{FE}	30	30	-
Collector-emitter saturation voltage ($I_C = 4\text{ A}$; $I_B = 1.25\text{ A}$)	V_{CEsat}	< 3	< 1.6	V
($I_C = 2.5\text{ A}$; $I_B = 0.5\text{ A}$)	V_{CEsat}	< 1.5	< 1.4	V
Base-emitter saturation voltage ($I_C = 4\text{ A}$; $I_B = 1.25\text{ A}$)	V_{BEsat}	< 1.6	< 1.6	V
($I_C = 2.5\text{ A}$; $I_B = 0.5\text{ A}$)	V_{BEsat}	< 1.4	< 1.4	V

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

Transition frequency ($I_C = 0.2\text{ A}$; $V_{CE} = 10\text{ V}$; $f = 1\text{ MHz}$)	f_T	6	6	MHz
Switching times: ($V_{CC} = 250\text{ V}$; $I_C = 2.5\text{ A}$; $I_{B1} = 0.5\text{ A}$, $-I_{B2} = 1\text{ A}$)				
Turn-on time	t_{on}	0.3 (< 0.5)	0.3 (< 0.5)	μs
Storage time	t_s	2 (< 3.5)	2 (< 3.5)	μs
Fall time ¹⁾	t_f	0.3	0.3	μs

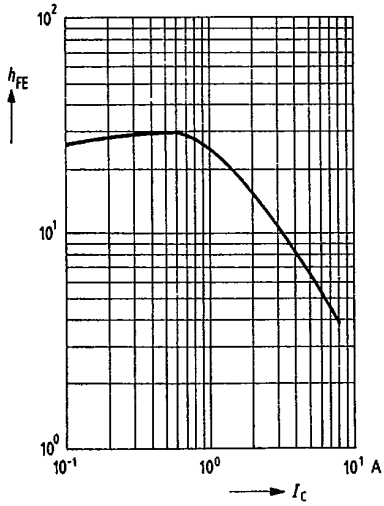
1) at $T_{case} = 95^\circ\text{C}$ is $t_f \leq 1\ \mu\text{s}$

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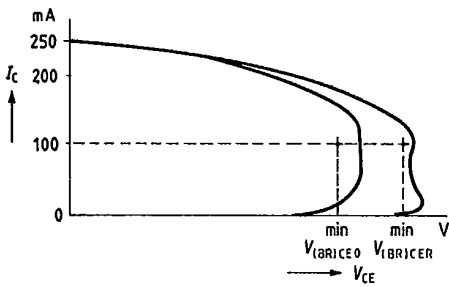


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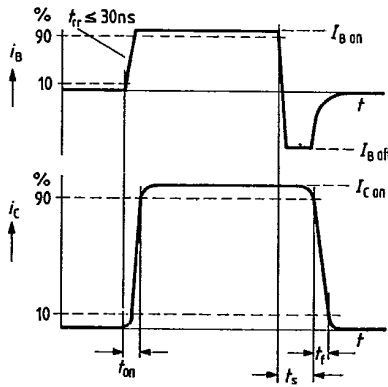
DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 5\text{ V}; T_{case} = 25^\circ\text{C}$



Oscillator – voltage curve

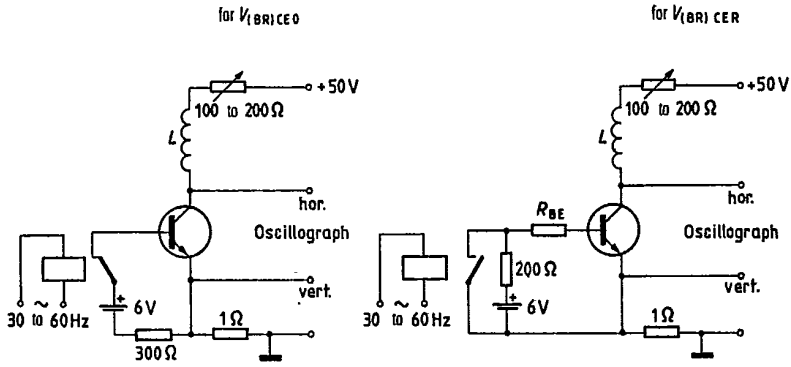


Timing diagram

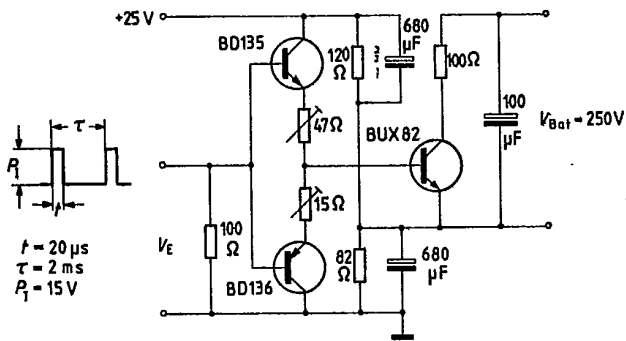


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Test circuits for breakdown voltages



Test circuit for switching times





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