

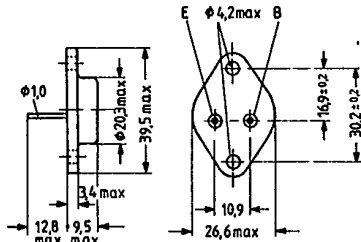
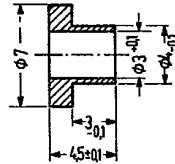
NPN Silicon Power Transistors

**BUX 80
BUX 81**

SIEMENS AKTIENGESELLSCHAFT

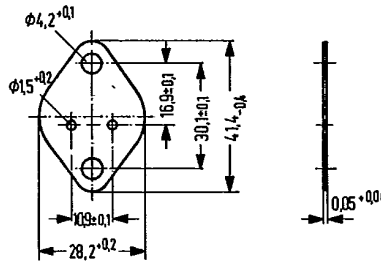
BUX 80 and BUX 81 are triple diffused NPN silicon power transistors in a case similar to TO 3 (3 A 2 DIN 41872). The collector is electrically connected to the case. The transistors are particularly suitable for use as high-speed power switch at high voltages. BUX 80 is intended as replacement for BUW 77 (also BUW 76).

Type	Ordering code
BUX 80	Q68000-A4634
BUX 81	Q68000-A4675
Mica washer	Q62901-B11-A
Insulating nipple	Q62901-B50



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 ($t < 2$ ms)
- Base current
- Base peak current ($t < 2$ ms)
- Negative base peak current at turning off
- Storage temperature range
- Junction temperature
- Total power dissipation ($T_{case} \leq 40^\circ C$)

	BUX 80	BUX 81	
V_{CES}	800	1000	V
V_{CEO}	400	450	V
V_{CER}	500	500	V
I_C	10	10	A
I_{CM}	15	15	A
I_B	4	4	A
I_{BM}	6	6	A
$-I_{BM}$	6	6	A
T_{stg}	-65 to +150		$^\circ C$
T_j	150	150	$^\circ C$
P_{tot}	100	100	W

Thermal resistance

Junction to case	R_{thJC}	≤ 1.1	≤ 1.1	K/W
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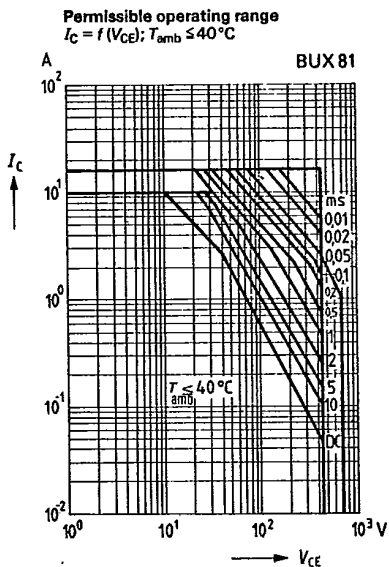
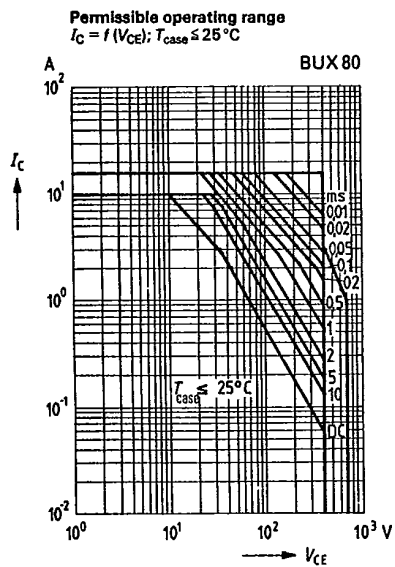
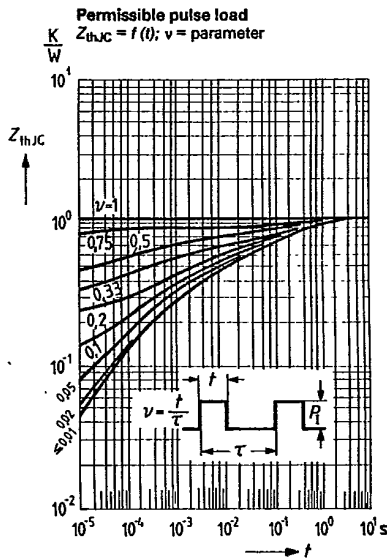
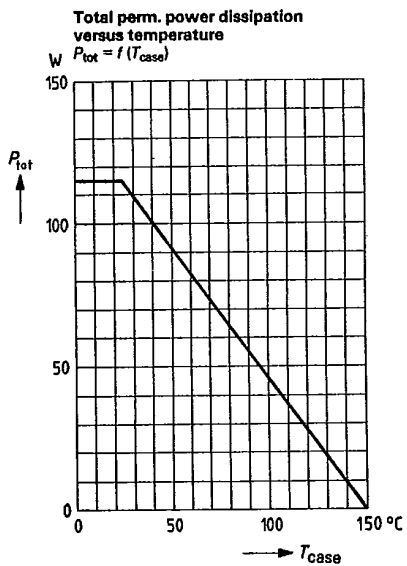
Static characteristics ($T_{amb} = 25^\circ\text{C}$)

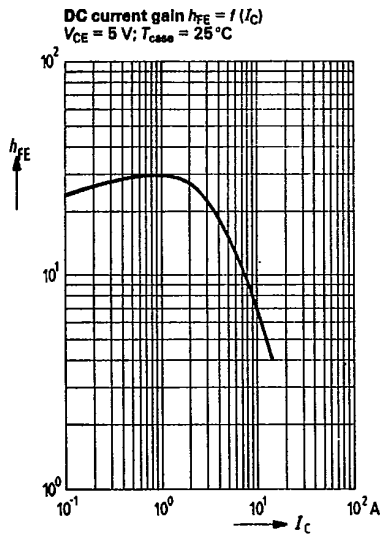
	BUX 80	BUX 81	
Collector-emitter breakdown voltage ($I_C = 100\text{ mA}$; $I_B = 0$; $L = 25\text{ mH}$)	$V_{(BR)CEO} > 400$	> 450	V
($I_C = 100\text{ mA}$; $R_{BE} = 50\ \Omega$; $L = 15\text{ mH}$)	$V_{(BR)CER} > 500$	> 500	V
Collector cutoff current ($V_{CES} = 800\text{ V}$)	$I_{CES} < 1$	-	mA
($V_{CES} = 800\text{ V}$; $T_j = 125^\circ\text{C}$)	$I_{CES} < 3$	-	mA
($V_{CES} = 1000\text{ V}$)	$I_{CES} -$	< 1	mA
($V_{CES} = 1000\text{ V}$; $T_j = 125^\circ\text{C}$)	$I_{CES} -$	< 3	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 ($I_C = 8\text{ A}$; $I_B = 2.5\text{ A}$)	$V_{CEsat} < 3$	< 3	V
($I_C = 5\text{ A}$; $I_B = 1\text{ A}$)	$V_{CEsat} < 1.5$	< 1.5	V
Base-emitter saturation voltage ($I_C = 8\text{ A}$; $I_B = 2.5\text{ A}$)	$V_{BEsat} < 1.8$	< 1.8	V
($I_C = 5\text{ A}$; $I_B = 1\text{ A}$)	$V_{BEsat} < 1.4$	< 1.4	V

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

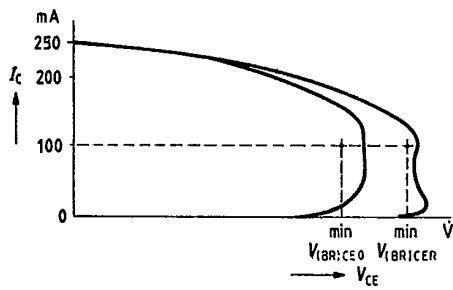
Transition frequency ($I_C = 0.2\text{ A}$; $V_{CE} = 10\text{ V}$; $f = 1\text{ MHz}$)	f_T	6	6	MHz
Switching times: ($V_{CC} = 250\text{ V}$; $I_C = 5\text{ A}$; $I_B = 1\text{ A}$; $-I_B = 2\text{ A}$)				
Turn-on time	t_{on}	0.35 (<0.5)	0.35 (<0.5)	μs
Storage time	t_s	2.5 (<3.5)	2.5 (<3.5)	μs
Fall time ¹⁾	t_f	0.3	0.3	μs

1) at $T_{case} = 95^\circ\text{C}$ is $t_f < 0.8\ \mu\text{s}$

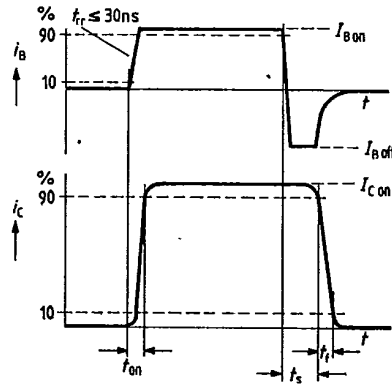




Oscillator – voltage curve



Timing diagram

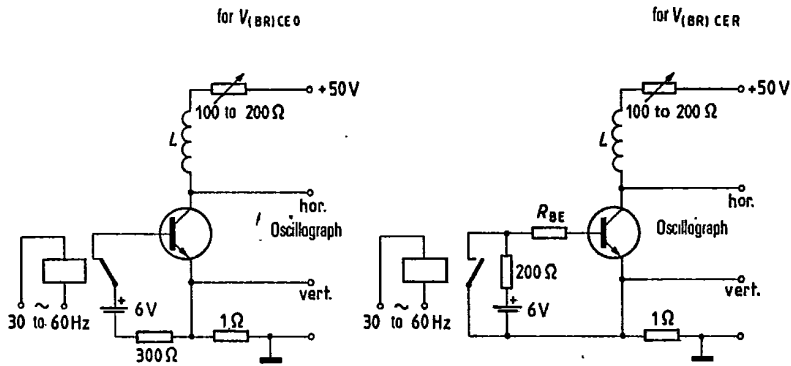


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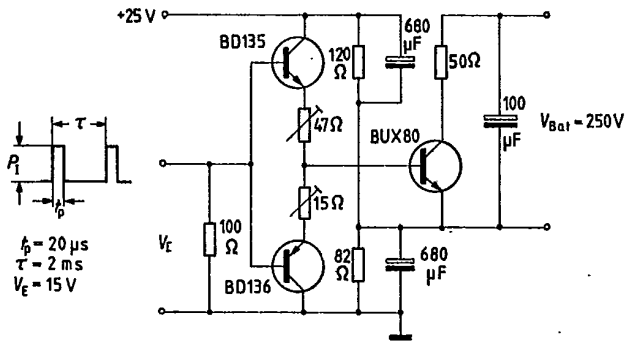
2222

E-05

Test circuits for breakdown voltages



Test circuit for switching times





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