

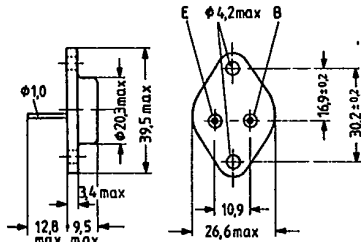
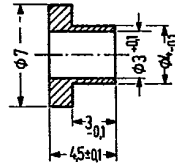
**NPN Silicon Power Transistors**

**BUX 80  
BUX 81**

SIEMENS AKTIENGESELLSCHAFT

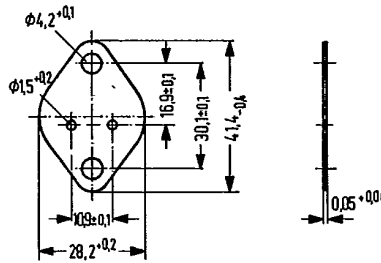
BUX 80 and BUX 81 are triple diffused NPN silicon power transistors in a case similar to TO 3 (3 A 2 DIN 41872). The collector is electrically connected to the case. The transistors are particularly suitable for use as high-speed power switch at high voltages. BUX 80 is intended as replacement for BUW 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	$R_{thJC}$	$\leq 1.1$	$\leq 1.1$	K/W
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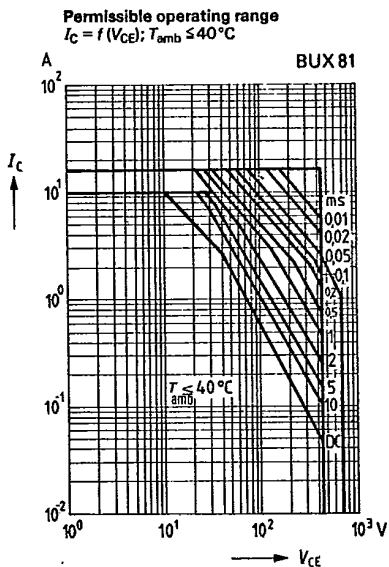
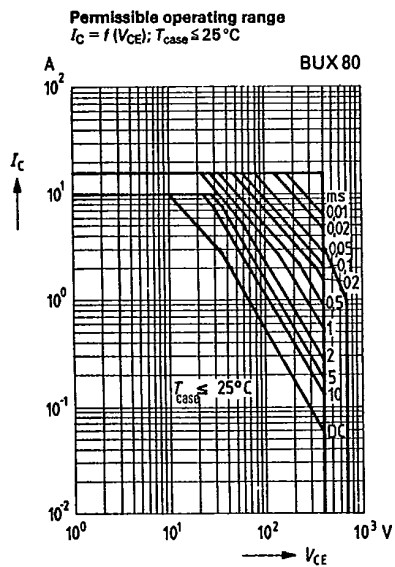
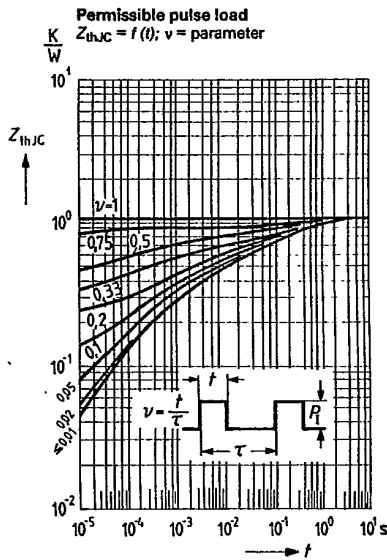
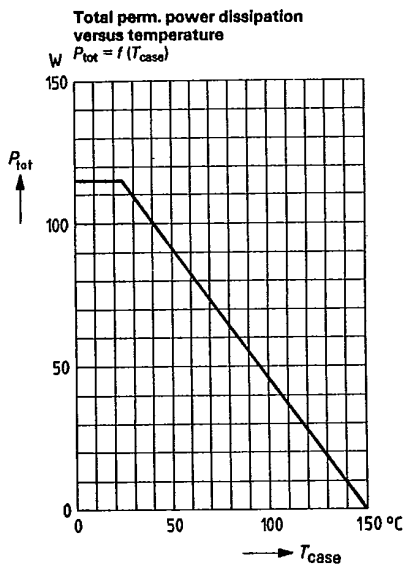
Static characteristics ( $T_{amb} = 25^\circ\text{C}$ )

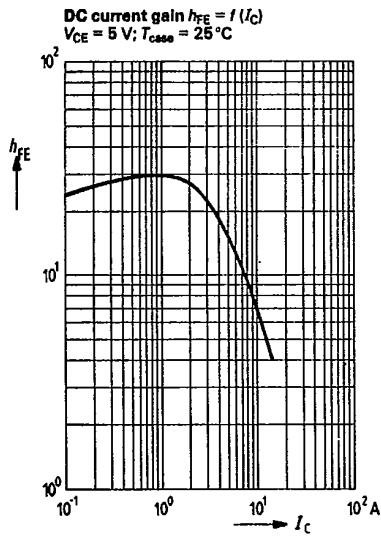
	BUX 80	BUX 81	
Collector-emitter breakdown voltage ( $I_C = 100\text{ mA}$ ; $I_B = 0$ ; $L = 25\text{ mH}$ )	$V_{(BR)CEO} > 400$	$> 450$	V
( $I_C = 100\text{ mA}$ ; $R_{BE} = 50\ \Omega$ ; $L = 15\text{ mH}$ )	$V_{(BR)CER} > 500$	$> 500$	V
Collector cutoff current ( $V_{CES} = 800\text{ V}$ )	$I_{CES} < 1$	-	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 ( $T_{amb} = 25^\circ\text{C}$ )

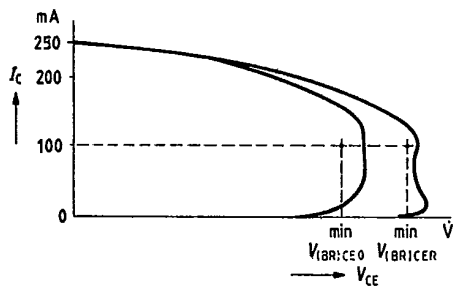
Transition frequency ( $I_C = 0.2\text{ A}$ ; $V_{CE} = 10\text{ V}$ ; $f = 1\text{ MHz}$ )	$f_T$	6	6	MHz
Switching times: ( $V_{CC} = 250\text{ V}$ ; $I_C = 5\text{ A}$ ; $I_B = 1\text{ A}$ ; $-I_B = 2\text{ A}$ )				
Turn-on time	$t_{on}$	0.35 (<0.5)	0.35 (<0.5)	$\mu\text{s}$
Storage time	$t_s$	2.5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

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

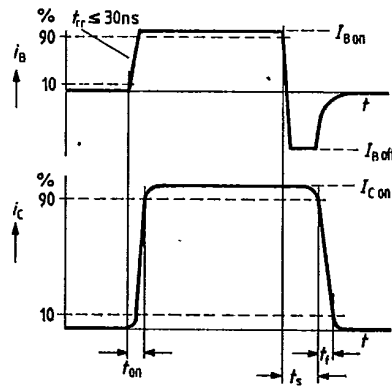




Oscillator – voltage curve



Timing diagram

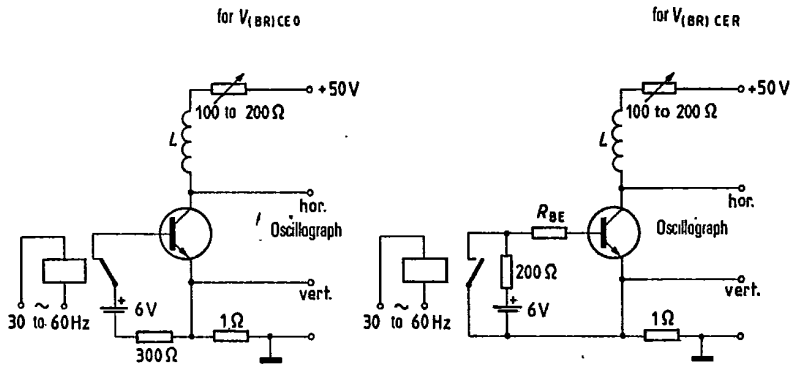


906

2222

E-05

Test circuits for breakdown voltages



Test circuit for switching times

