

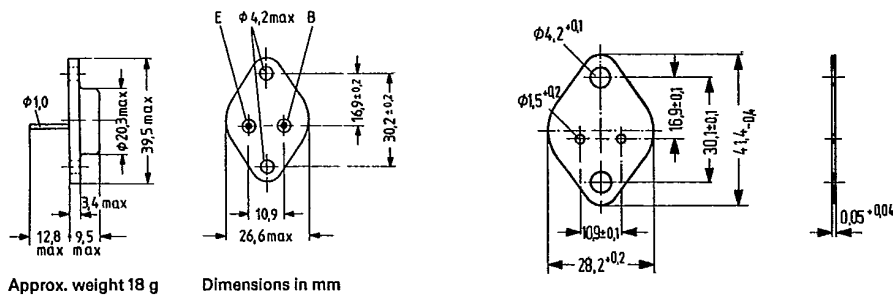
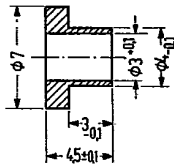
NPN Silicon Power Transistors

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

	BUX 82	BUX 83	
Collector-emitter voltage	800	1000	V
Collector-emitter voltage	400	450	V
Collector-emitter voltage ($R_{BE} = 50 \Omega$)	500	500	V
Collector current	6	6	A
Collector peak current ($t < 2 \text{ ms}$)	8	8	A
Base current	2	2	A
Base peak current ($t < 2 \text{ ms}$)	3	3	A
Negative base peak current	3	3	A
Storage temperature range	-65 to +150		°C
Junction temperature	150	150	°C
Total power dissipation ($T_{case} \leq 25 \text{ °C}$)	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

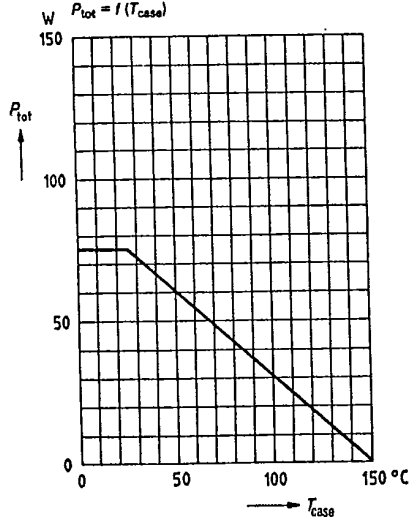
Dynamic characteristics ($T_{amb} = 25^\circ\text{C}$)

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

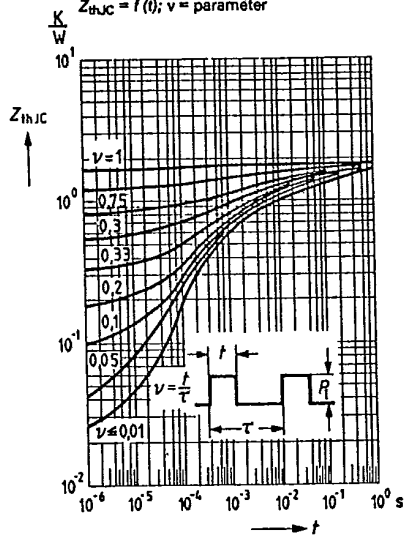
1) at $T_{case} = 95^\circ\text{C}$ is $t_f \leq 1\ \mu\text{s}$

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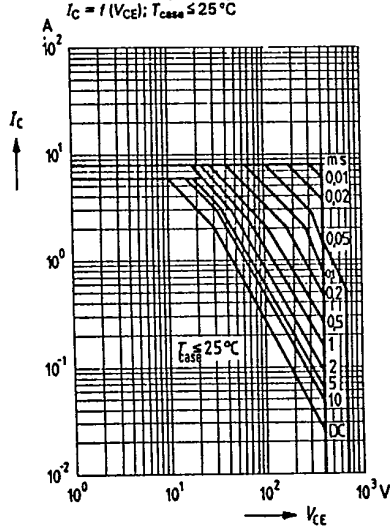
Total perm. power dissipation
versus temperature
 $P_{tot} = f(T_{case})$



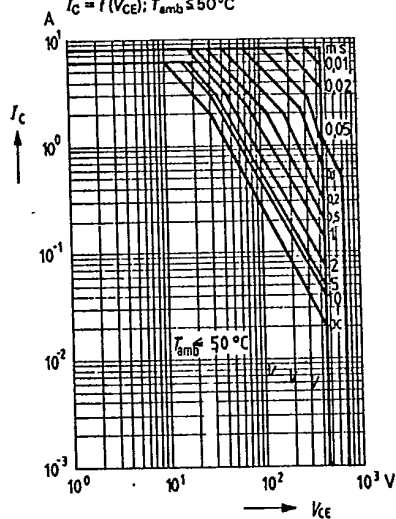
Permissible pulse load
 $Z_{thJC} = f(t); v = \text{parameter}$



Permissible operating range
 $I_C = f(V_{CE}); T_{case} \leq 25^\circ\text{C}$

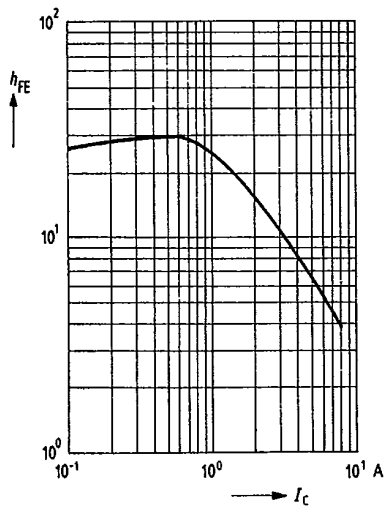


Permissible operating range
 $I_C = f(V_{CE}); T_{amb} \leq 50^\circ\text{C}$

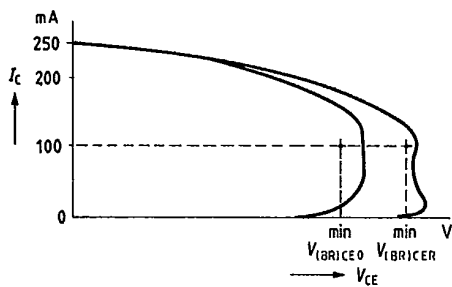


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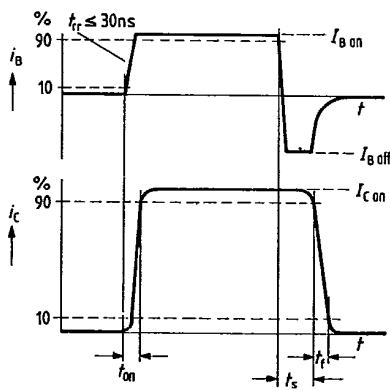
DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 5 \text{ V}; T_{case} = 25^\circ\text{C}$



Oscillator – voltage curve

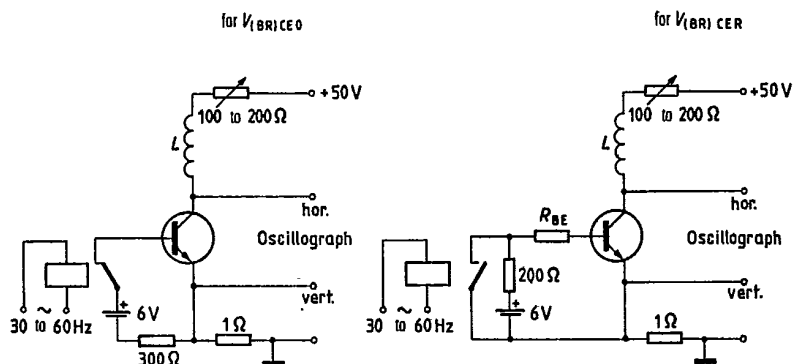


Timing diagram



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Test circuits for breakdown voltages



Test circuit for switching times

