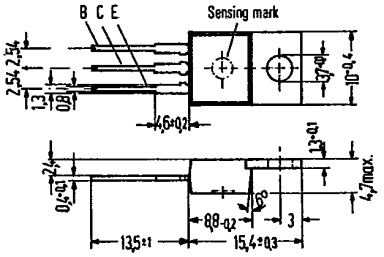
NPN Silicon Power Transistors

BUX 84
BUX 85

SIEMENS AKTIENGESELLSCHAF D

BUX 84 and BUX 85 are triple diffused NPN silicon power transistors in TO 220 cases. They are outstanding for their short switching times and high dielectric strength, and are particularly suitable for switching power supplies in TV sets. The collector is electrically connected to the metallic mounting area.

Type	Ordering code
BUX 84	Q68000-A3869
BUX 85	Q68000-A5166



Approx. weight 18 g Dimensions in mm

Maximum ratings		BUX 84	BUX 85	
Collector-emitter voltage	V_{CES}	800	1000	V
Collector-emitter voltage	V_{CEO}	400	450	V
Emitter-base voltage	V_{EBO}	10	10	V
Collector current	I_C	2	2	A
Collector-peak current ($t_p \leq 1$ ms)	I_{CM}	3	3	A
Base current	I_B	0.75	0.75	A
Base peak current	I_{BM}	1	1	A
Negative base peak current at turning off	$-I_{BM}$	1	1	A
Storage temperature range	T_{stg}	−65 to +150		°C
Junction temperature	T_j	150	150	°C
Total power dissipation ($T_{case} \leq 50$ °C)	P_{tot}	40	40	W
Thermal resistance				
Junction to mounting flange	R_{thJC}	≤ 2.5	≤ 2.5	K/W

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BUX 84
BUX 85

Static characteristics (T_{amb} = 25 °C)		**BUX 84**	**BUX 85**	
Collector-emitter breakdown voltage (I_C = 100 mA; I_B = 0; L = 25 mH)	$V_{(BR)CEO}$	≥ 400	≥ 450	V
Collector cutoff current				
(V_{CES} = 800 V)	I_{CES}	≤ 1	–	mA
(V_{CES} = 800 V; T_j = 125 °C)	I_{CES}	≤ 1.5	–	mA
(V_{CES} = 1000 V)	I_{CES}	–	≤ 0.2	mA
(V_{CES} = 1000 V; T_j = 125 °C)	I_{CES}	–	≤ 1.5	mA
Emitter cutoff current				
(V_{EBO} = 5 V)	I_{EBO}	≤ 1	≤ 1	mA
Collector-emitter saturation voltage				
(I_C = 0.3 A; I_B = 0.03 A)	V_{CEsat}	≤ 1.5	≤ 1.5	V
(I_C = 1 A; I_B = 0.2 A)	V_{CEsat}	≤ 3	≤ 3	V
Base-emitter saturation voltage				
(I_C = 1 A; I_B = 0.2 A)	V_{BEsat}	≤ 1.1	≤ 1.1	V
Dynamic characteristics (T_{amb} = 25 °C)				
Transition frequency				
(V_{CE} = 10 V; I_C = 0.2 A; f = 1 MHz)	f_T	20	20	MHz
Switching times:				
(V_{CC} = 250 V; I_C = 1 A; I_B = 0.2 A; $-I_B$ = 0.4 A)				
Turn-on time	t_{on}	0.2 (<0.5)	0.2 (<0.5)	µs
Storage time	t_s	0.2 (<3.5)	2 (<3.5)	µs
Fall time[1)]	t_f	0.4	0.4	µs

1) at T_{case} = 95 °C is t_f ≤ 1 µs

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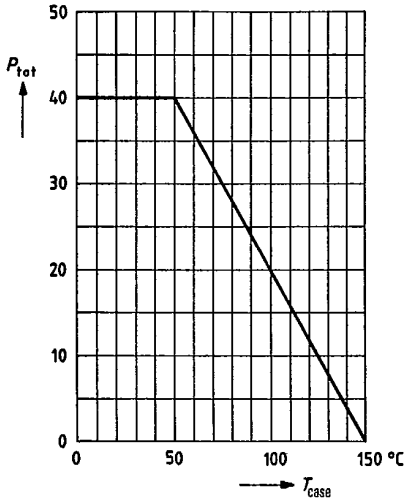
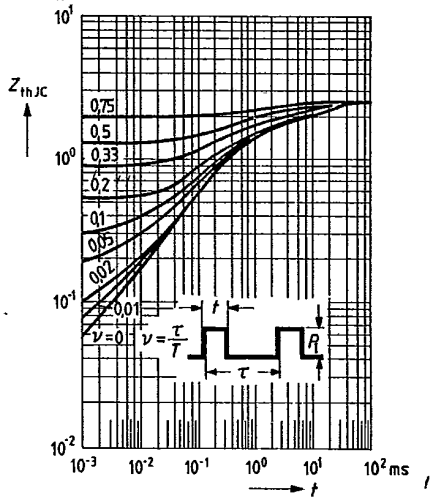
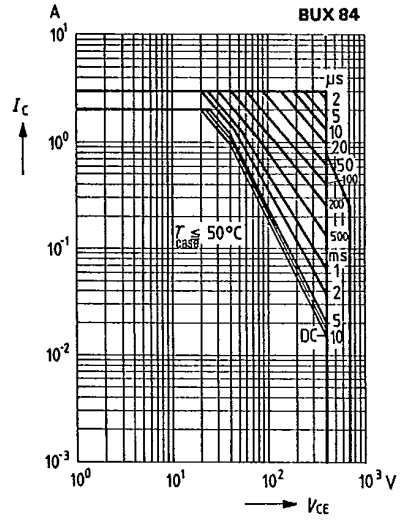
Total perm. power dissipation versus temperature
$P_{tot} = f(T_{case})$



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



Permissible operating range
$I_C = f(V_{CE})$; $T_{case} \leq 50°C$



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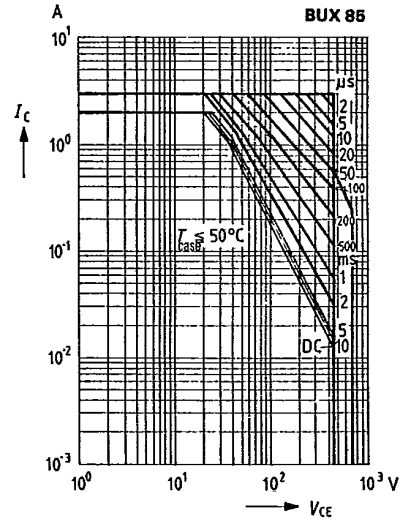
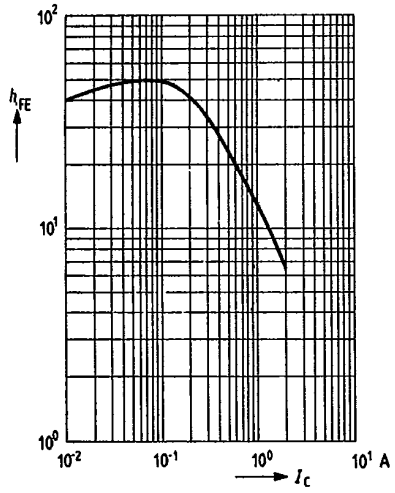
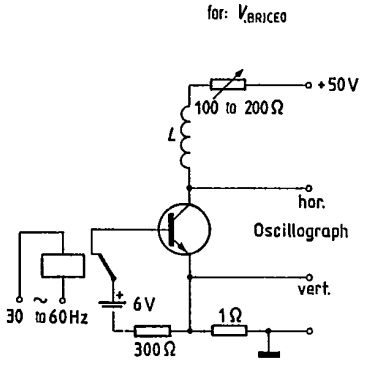
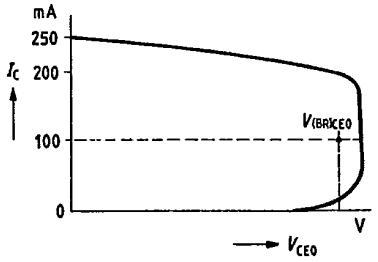


DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 5$ V; $T_{case} = 25$ °C



Test circuit for breakdown voltage $V_{(BR)CEO}$





Test circuit for switching times