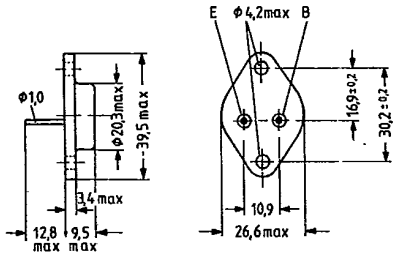
NPN Silicon Power Transistors

BU 208
BU 208 A

BU 208 and BU 208 A are triple diffused silicon NPN power switching transistors in TO 3 case (3 B 2 DIN 41872). They are outstanding for short switching times and high dielectric strength and are intended for use in horizontal deflection output stages for color TV receivers. The collector is electrically connected to the case.

Type	Ordering code
BU 208	Q68000-A494
BU 208 A	Q68000-A5163



Approx. weight 18 g

Dimensions in mm

Maximum ratings		BU 208	BU 208 A	
Collector-emitter voltage (V_{BE} = 0)	V_{CESM}	1500	1500	V[1]
Collector-emitter voltage	V_{CEO}	700	700	V
Collector current	I_C	5	5	A[2]
Collector peak current	I_{CM}	7.5	7.5	A
Base peak current	I_{BM}	4	4	A
Negative base current	$-I_B$	0.1	0.1	A
Negative base peak current at turning off	$-I_{BM}$	2.5	2.5	A
Junction temperature	T_j	115	115	°C
Storage temperature range	T_{stg}	−65 to +115		°C
Total power dissipation ($T_{case} \leq 95$ °C)	P_{tot}	12.5	12.5	W

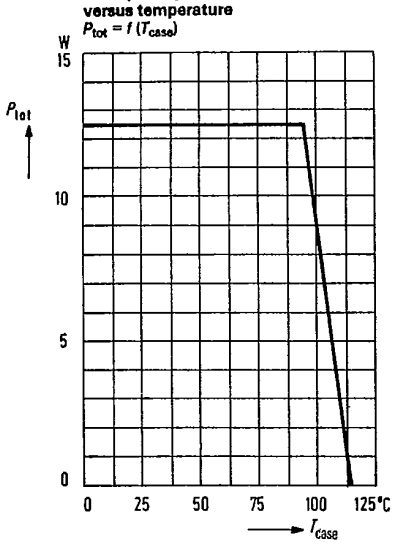
Thermal resistance				
Junction to case	R_{thJC}	≤1.6	≤1.6	K/W

1) Max. 1650 V are permitted in case of picture tube spark-overs.
2) Max. 5 A are permitted in case of picture tube spark-overs.

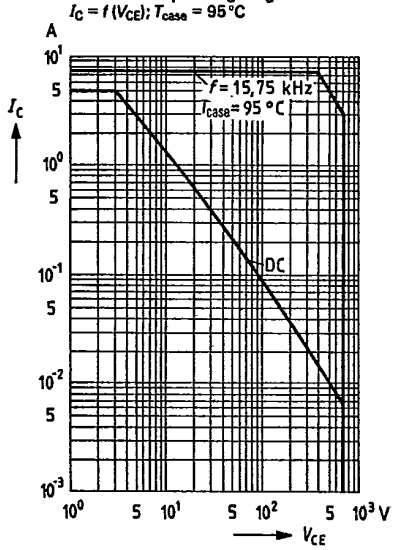
Static characteristics		BU 208	BU 208 A	
Collector cutoff current (V_{CE} = 1500 V; V_{BE} = 0)	I_{CES}	≤1	≤1	mA
Emitter-base breakdown voltage (I_E = 10 mA; I_C = 0)	$V_{(BR)EBO}$	≥5	≥5	V
(I_E = 100 mA, I_C = 0)	$V_{(BR)EBO}$	≥7	≥7	V
Collector-emitter breakdown voltage (I_C = 100 mA, I_B = 0, L = 25 mH)	$V_{(BR)CEO}$	≥700	≥700	V
Collector-emitter saturation voltage (I_C = 4.5 A, I_B = 2 A)	V_{CEsat}	≤5	≤1	V
Base-emitter saturation voltage (I_C = 4.5 A; I_B = 2 A)	V_{BEsat}	≤1.5	≤1.5	V
DC current gain (V_{CE} = 5 V, I_C = 4.5 A)	h_{FE}	≥2.25	≥2.25	–
Dynamic characteristics				
Transition frequency (V_{CE} = 5 V; I_C = 0.1 A)	f_T	1	–	MHz
(V_{CE} = 5 V; I_C = 0.1 A; f = 5 MHz)	f_T	–	7	MHz
Collector-base capacitance (V_{CB} = 10 V, I_E = 0, f = 1 MHz)	C_{CBO}	150	125	pF
Switching times: (I_C = 4.5 A, I_B = 1.8 A, L_B = 10 µH)	t_f	0.7	0.7	µs
(I_C = 4.5 A, I_B = 1.8 A, L_B = 10 µH)	t_s	10	10	µs

BU 208
BU 208 A

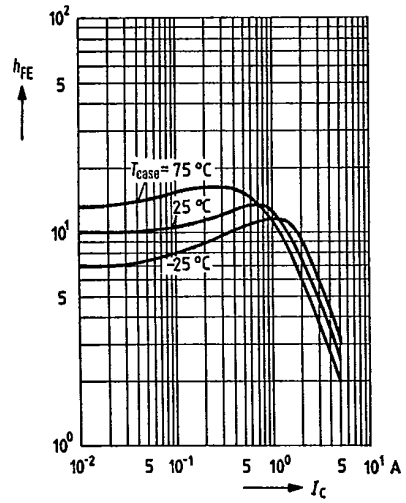
Total perm. power dissipation versus temperature
$P_{tot} = f(T_{case})$



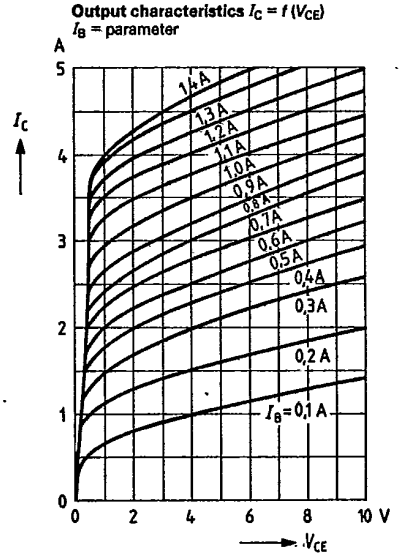
Permissible operating range
$I_C = f(V_{CE})$; $T_{case} = 95°C$



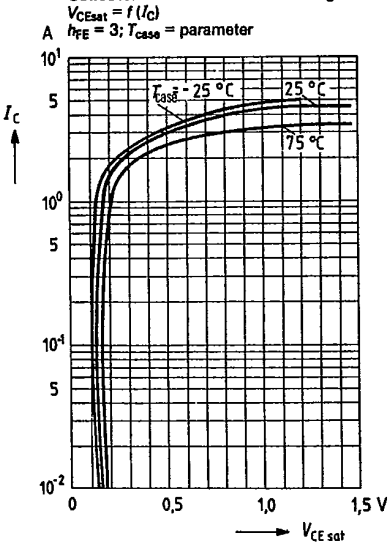
DC current gain $h_{FE} = f(I_C)$
T_{case} = parameter



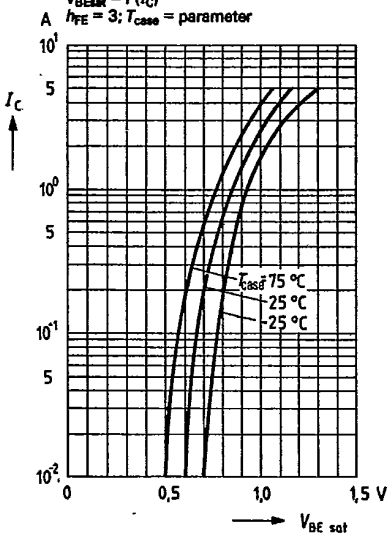
Output characteristics $I_C = f(V_{CE})$
I_B = parameter



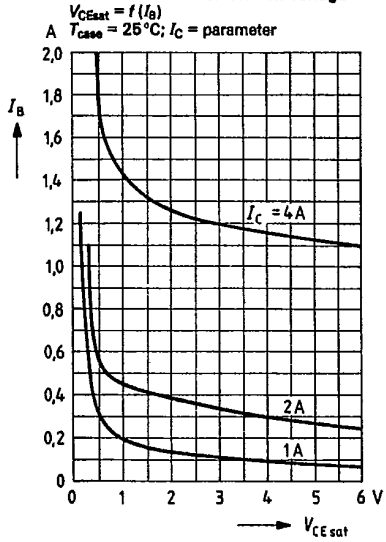
Collector-emitter saturation voltage
$V_{CEsat} = f(I_C)$
$h_{FE} = 3$; T_{case} = parameter



Base-emitter saturation voltage
$V_{BEsat} = f(I_C)$
$h_{FE} = 3$; T_{case} = parameter



Collector-emitter saturation voltage
$V_{CEsat} = f(I_B)$
T_{case} = 25 °C; I_C = parameter



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