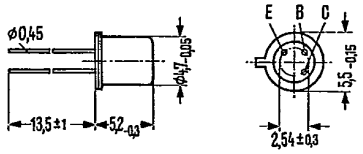
PNP Silicon Planar Transistors

2 N 2906 A
2 N 2907 A

2 N 2906 A and 2 N 2907 A are epitaxial PNP silicon planar transistors in TO 18 case (18 A 3 DIN 41876). The collector is electrically connected to the case. The transistors are particularly suitable for use as high-speed switches.

Type	Ordering code
2 N 2906 A	Q62702-F408
2 N 2907 A	Q62702-S170



Approx. weight 0.3 g Dimensions in mm

Maximum ratings		2 N 2906 A 2 N 2907 A	
Collector-emitter voltage	$-V_{CEO}$	60	V
Collector-base voltage	$-V_{CBO}$	60	V
Emitter-base voltage	$-V_{EBO}$	5	V
Collector current	$-I_C$	0.6	A
Junction temperature	T_j	200	°C
Storage temperature range	T_{stg}	−65 to +200	°C
Total power dissipation (T_{amb} = 25 °C)	P_{tot}	0.4	W
Total power dissipation (T_{case} = 25 °C)	P_{tot}	1.8	W
Thermal resistance			
Junction to ambient air	R_{thJA}	< 438	K/W
Junction to case	R_{thJC}	< 97	K/W

Static characteristics (T_{amb} = 25 °C)		2 N 2906 A	2 N 2907 A	
Collector-base breakdown voltage ($-I_C$ = 10 µA)	$-V_{(BR)CBO}$	> 60	> 60	V
Collector-emitter breakdown voltage ($-I_C$ = 10 mA)	$-V_{(BR)CEO}$	> 60	> 60	V
Emitter-base breakdown voltage ($-I_E$ = 10 µA)	$-V_{(BR)EBO}$	> 5	> 5	V
Collector-emitter saturation voltage				
($-I_B$ = 15 mA; $-I_C$ = 150 mA)	$-V_{CEsat}$	< 0.4	< 0.4	V
($-I_B$ = 50 mA; $-I_C$ = 500 mA)	$-V_{CEsat}$	< 1.6	< 1.6	V
Base-emitter saturation voltage				
($-I_C$ = 150 mA; $-I_B$ = 15 mA)	$-V_{BEsat}$	< 1.3	< 1.3	V
($-I_C$ = 500 mA; $-I_B$ = 50 mA)	$-V_{BEsat}$	< 2.6	< 2.6	V
Collector cutoff current				
($-V_{CB}$ = 50 V)	$-I_{CBO}$	< 10	< 10	nA
($-V_{CB}$ = 50 V; T_{amb} = 150 °C)	$-I_{CBO}$	< 10	< 10	µA
DC current gain				
($-V_{CE}$ = 10 V; $-I_C$ = 100 µA)	h_{FE}	> 40	> 75	–
($-V_{CE}$ = 10 V; $-I_C$ = 1 mA)	h_{FE}	> 40	> 100	–
($-V_{CE}$ = 10 V; $-I_C$ = 10 mA)	h_{FE}	> 40	> 100	–
($-V_{CE}$ = 10 V; $-I_C$ = 150 mA)	h_{FE}	40 to 120	100 to 300	–
($-V_{CE}$ = 10 V; $-I_C$ = 500 mA)	h_{FE}	> 40	> 50	–
Dynamic characteristics (T_{amb} = 25 °C)				
Collector-base capacitance ($-V_{CB}$ = 10 V; f = 100 kHz)	C_{CBO}	< 8	< 8	pF
Transition frequency ($-V_{CE}$ = 20 V; $-I_C$ = 50 mA; f = 100 MHz)	f_T	> 200	> 200	MHz
Switching times: ($-V_{CC}$ = 30 V; $-I_C$ = 150 mA; I_{B1} approx. $-I_{B2}$ approx. 15 mA				
Delay time	t_d	< 10	< 10	ns
Rise time	t_r	< 40	< 40	ns
Storage time	t_s	< 80	< 80	ns
Fall time	t_f	< 30	< 30	ns

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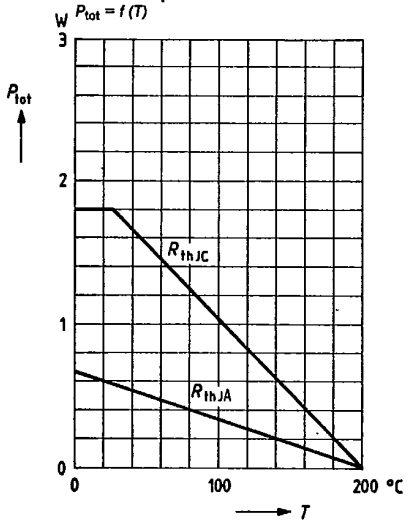
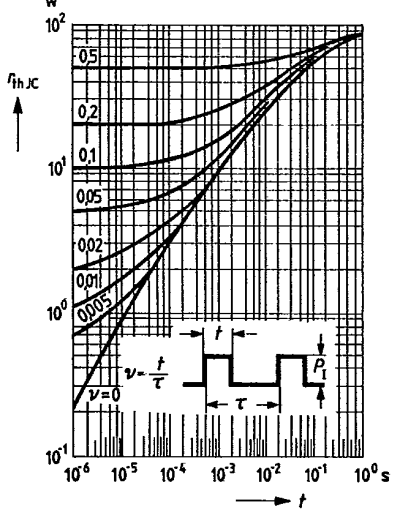
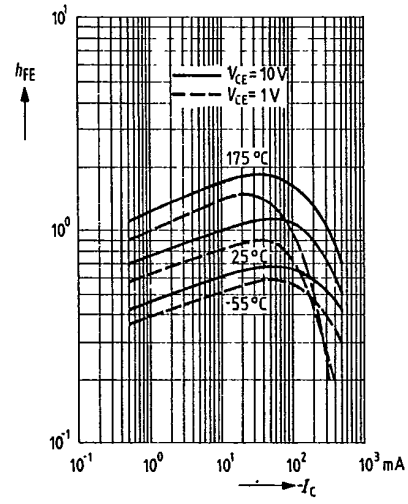
Total perm. power dissipation versus temperature
$P_{tot} = f(T)$



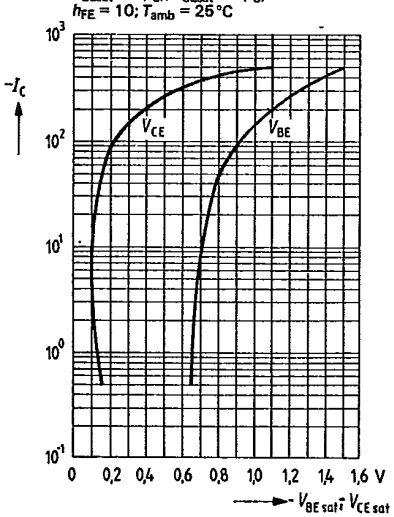
Permissible pulse load $r_{thJC} = f(t)$
ν = parameter



DC current gain $h_{FE} = f(I_C)$
$V_{CE} = 1$ V, $V_{CE} = 10$ V; $T_{amb} = 25$ °C



Saturation voltages
$V_{BEsat} = f(I_C)$, $V_{CEsat} = f(I_C)$
$h_{FE} = 10$; $T_{amb} = 25$ °C



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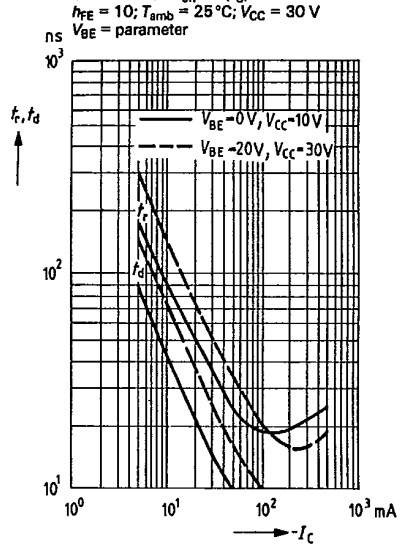
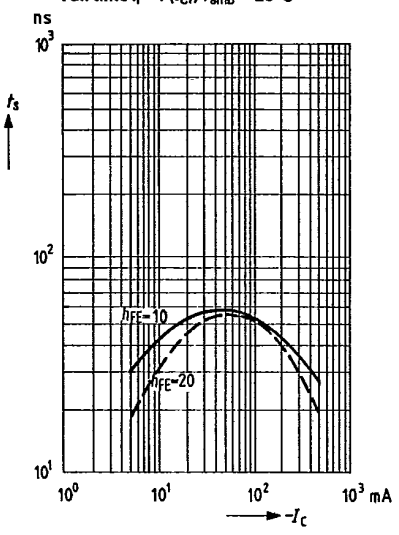
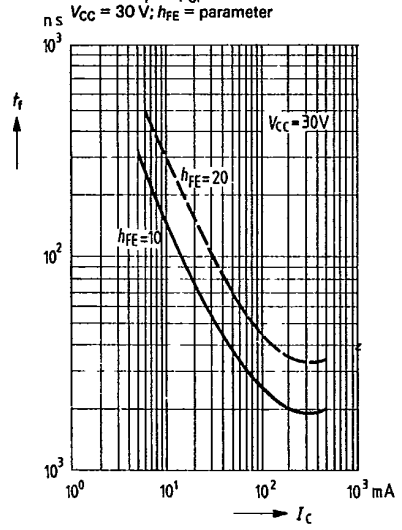
Turn-on time $t_{on} = f(I_C)$
h_{FE} = 10; T_{amb} = 25 °C; V_{CC} = 30 V
V_{BE} = parameter



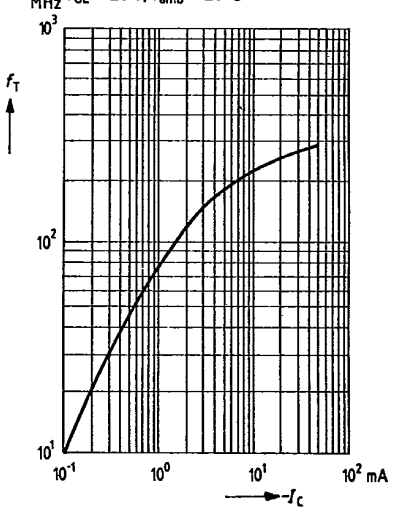
Storage time $t_s = f(I_C)$
Fall time $t_f = f(I_C)$; T_{amb} = 25 °C



Fall time $t_f = f(I_C)$
V_{CC} = 30 V; h_{FE} = parameter



Transition frequency $f_T = f(I_C)$
MHz V_{CE} = 20 V, T_{amb} = 25 °C



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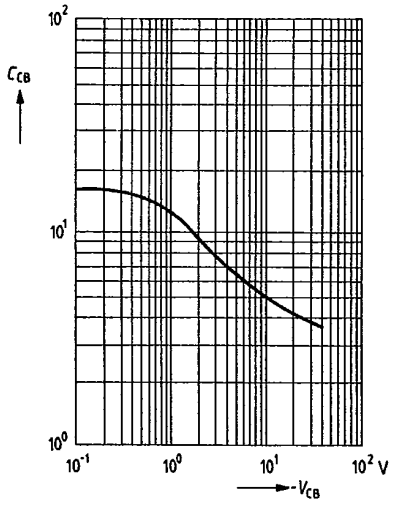
Collector-base capacitance
pf $C_{CB} = f(V_{CB})$; $T_{amb} = 25°C$



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