

Transistors PNP germanium

PNP germanium transistors

* **2N 1305**

* **2N 1307**

* **2N 1309**

* Dispositif recommandé
Preferred device

- Usage général et commutation

General purpose and switching

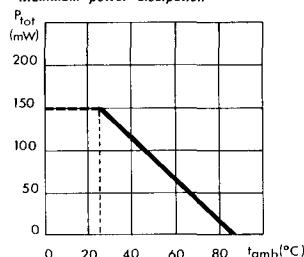
- Transistors complémentaires

Complementary transistors

PNP	NPN
2N 1305	2N 1304
2N 1307	2N 1306
2N 1309	2N 1308

Dissipation de puissance maximale

Maximum power dissipation



Données principales

Principal features

V _{CEO}	30	V
I _C	300	mA
V _{CEsat} (10 mA)	0,2	V max.
<i>h</i> _{21E} (10 mA)	{ 2N 1305	40–200
	{ 2N 1307	60–300
	{ 2N 1309	80 min.

Boîtier TO-39
Case



Valeurs limites absolues d'utilisation à t_{amb}=25°C

Absolute ratings (limiting values)

Paramètre				
Tension collecteur-base <i>Collector-base voltage</i>	V _{CBO}	-30		V
Tension émetteur-base <i>Emitter-base voltage</i>	V _{EBO}	-25		V
Courant collecteur <i>Collector current</i>	I _C	-300		mA
Dissipation de puissance <i>Power dissipation</i>	P _{tot}	150		W
Température de jonction <i>Junction temperature</i>	max	t _j	85	°C
Température de stockage <i>Storage temperature</i>	min max	t _{stg}	- 65 100	°C

2N 1305 *

2N 1307 *

2N 1309 *

Caractéristiques générales à $t_{amb} = 25^\circ\text{C}$

General characteristics

Caractéristiques statiques

Static characteristics

Paramètre <i>Parameter</i>	Conditions de mesure <i>Test conditions</i>			Min. <i>Min.</i>	Typ. <i>Typ.</i>	Max. <i>Max.</i>	
Courant résiduel collecteur-base <i>Collector-base cut-off current</i>	$I_E = 0$ $V_{CB} = -25 \text{ V}$		I_{CBO}		-3	-6	μA
Courant résiduel émetteur-base <i>Emitter-base cut-off current</i>	$I_C = 0$ $V_{EB} = -25 \text{ V}$		I_{EBO}		-2	-6	μA
Tension de pénétration <i>Punch-through voltage</i>		2N 1305	V_{pt}	-20			V
		2N 1307		-15			
		2N 1309		-15			
Valeur statique du rapport du transfert direct du courant <i>Static forward current transfer ratio</i>	$I_C = -10 \text{ mA}$ $V_{CE} = -1 \text{ V}$	2N 1305	h_{21E}	40		200	V
		2N 1307		60		300	
		2N 1309		80	150		
		2N 1305		15			
	$I_C = -200 \text{ mA}$ $V_{CE} = -1 \text{ V}$	2N 1307		20			
		2N 1309		20			
		2N 1305					
		2N 1307					
Tension de saturation collecteur-émetteur <i>Collector-emitter saturation voltage</i>	$I_C = -10 \text{ mA}$ $I_B = -0,25 \text{ mA}$	2N 1305	V_{CEsat}		-0,1	-0,2	V
		2N 1307			-0,1	-0,2	
	$I_C = -10 \text{ mA}$ $I_B = -0,17 \text{ mA}$	2N 1309			-0,1	-0,2	
		2N 1305					
Tension de saturation base-émetteur <i>Base-emitter saturation voltage</i>	$I_C = -10 \text{ mA}$ $I_B = -0,5 \text{ mA}$		V_{BEsat}	-0,15		-0,35	V

Caractéristiques dynamiques (pour petits signaux)

Dynamic characteristics (for small signals)

Fréquence de coupure <i>Cut-off frequency</i>	$I_E = 1 \text{ mA}$	2N 1305	f_{h21b}	5	10		MHz
	$V_{CB} = -5 \text{ V}$	2N 1307		10	15		
		2N 1309		15	20		
Capacité de sortie <i>Output capacitance</i>	$V_{CB} = -5 \text{ V}$		C_{22b}		9	20	pF
	$I_E = 0$						
	$f = 1 \text{ MHz}$						

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Caractéristiques générales à $t_{amb} = 25^\circ\text{C}$

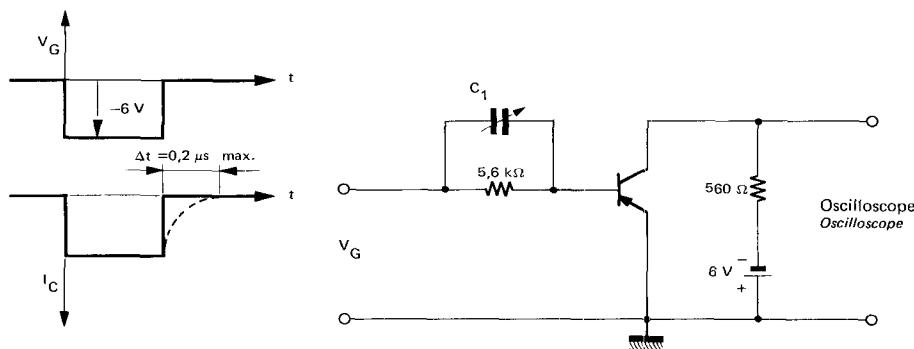
General characteristics

Caractéristiques de commutation

Switching characteristics

Paramètre <i>Parameter</i>	Conditions de mesure <i>Test conditions</i>			Min. <i>Min.</i>	Typ. <i>Typ.</i>	Max. <i>Max.</i>	
Charge stockée <i>Stored charge</i>	Suivant schéma <i>See circuit</i>	2N 1305 2N 1307 2N 1309	Q_s		1000 700 700		pC

Schéma de mesure de la charge stockée
Stored charge test circuit



Mesure : C_1 est augmenté jusqu'à ce que $\Delta t = 0,2 \mu\text{s}$. Alors $Q_s = C_1 \cdot V_G$
Measure : C_1 is increased till $\Delta t = 0,2 \mu\text{s}$. Then $Q_s = C_1 \cdot V_G$

2N 1305 *

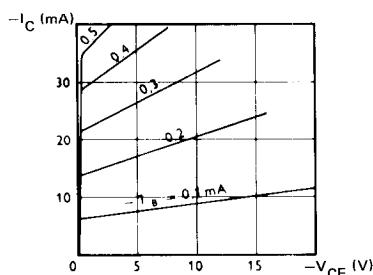
2N 1307 *

2N 1309 *

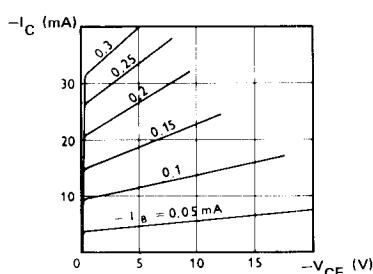
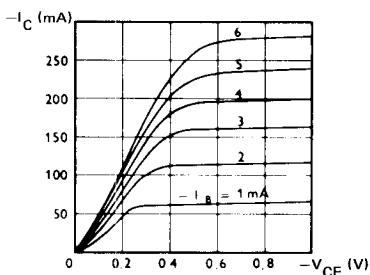
Caractéristiques statiques
Static characteristics

Montage en émetteur commun (mesures en impulsions)
Common emitter circuit
(pulse tests)

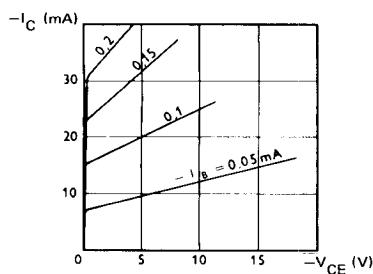
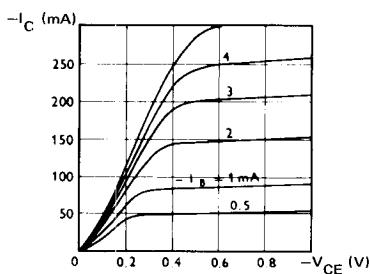
$t_{amb} = 25^\circ C$



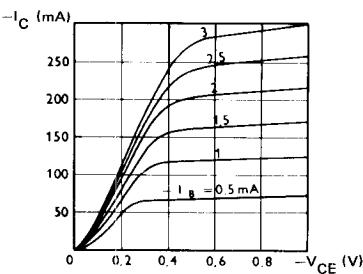
2N 1305



2N 1307



2N 1309



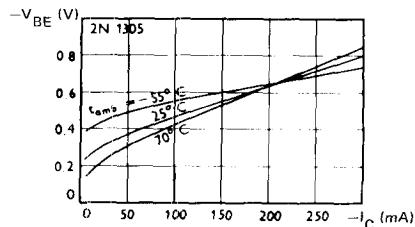
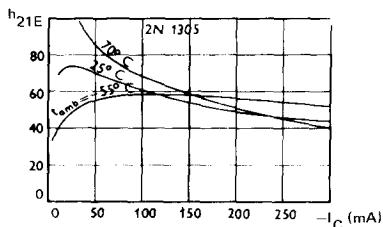
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Caractéristiques statiques
Static characteristics

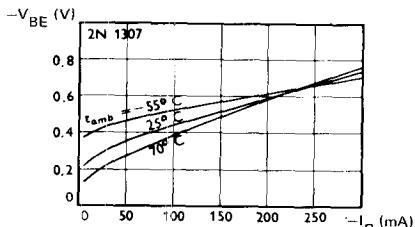
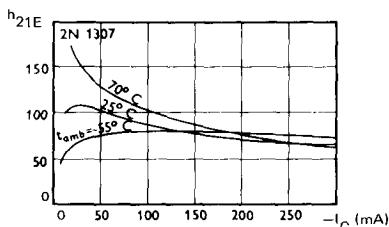
Montage en émetteur commun (mesures en impulsions)
*Common emitter circuit
 (pulse tests)*

$$V_{CE} = -1 \text{ V}$$

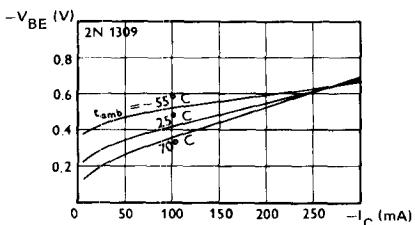
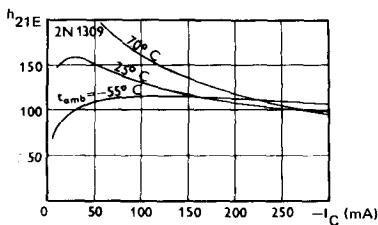
2N 1305



2N 1307



2N 1309



2N 1305 *

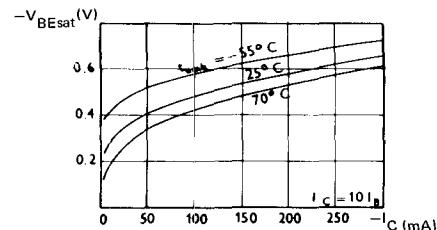
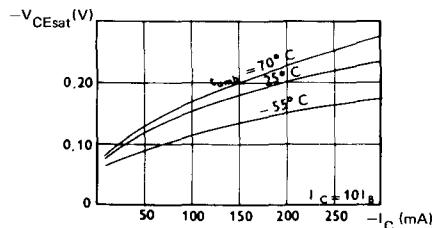
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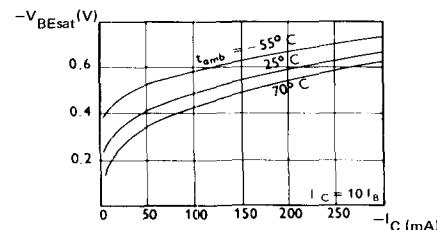
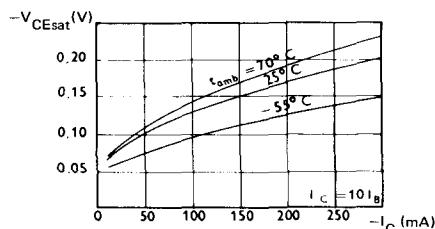
Caractéristiques statiques
Static characteristics

(mesures en impulsions)
(pulse tests)

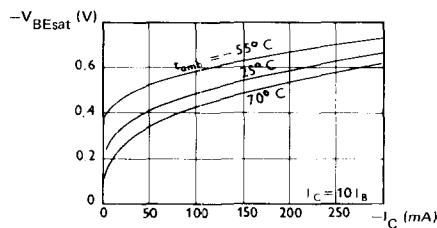
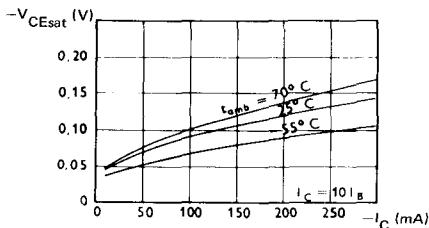
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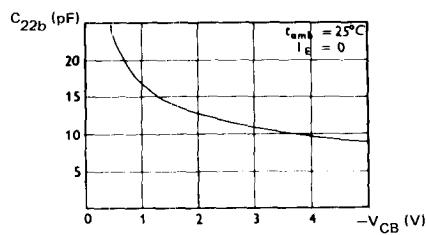
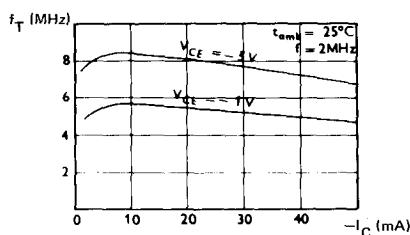


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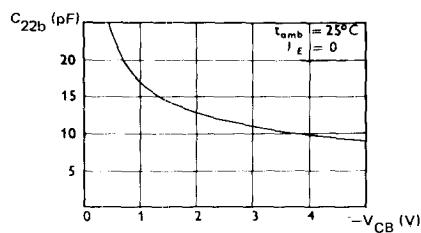
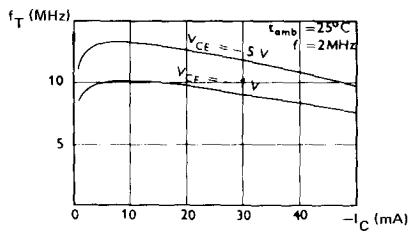
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Dynamic characteristics (for small signals)

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2N 1305



2N 1307



2N 1309

