

SC 207

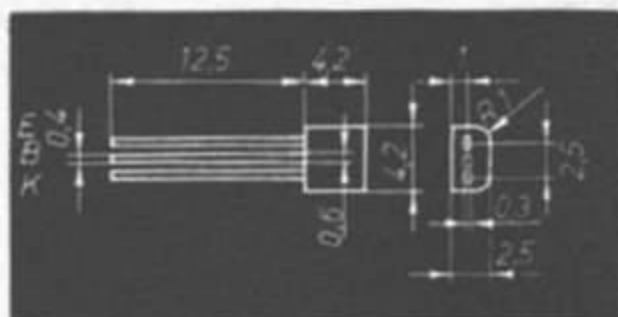
Verwendung: Silizium-npn-Planar-Transistor im Plastikgehäuse für rauscharme Vor- und Treiberstufen bei Umgebungstemperaturen θ_a von $-40\text{ }^\circ\text{C}$ bis $+100\text{ }^\circ\text{C}$

Abmessungen: Plastikgehäuse

Masse ca. 0,1 g

Zulässige Höchstwerte gültig bis $\theta_{j\text{max}}$

$U_{\text{CBO}} = 20\text{ V}$	$I_{\text{B}} = 10\text{ mA}$
$U_{\text{CEO}} = 15\text{ V}$	$P_{\text{tot}} = 200\text{ mW}$
$U_{\text{EBO}} = 5\text{ V}$	bei $\theta_a = 25\text{ }^\circ\text{C}$
$I_{\text{C}} = 100\text{ mA}$	$\theta_j = 125\text{ }^\circ\text{C}$
	$\theta_a = 100\text{ }^\circ\text{C}$



Wärmewiderstand $R_{\text{th}} \leq 0,5 \frac{\text{grad}}{\text{mW}}$

Kennwerte für $\theta_a = 25\text{ }^\circ\text{C} - 5\text{ grad}$

	Min.	Typ	Max.	Meßbedingungen	Stromverstärkungsgruppen
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Restströme

I_{CBO}		1 nA	100 nA	$U_{\text{CB}} = 20\text{ V}$	
I_{EBO}		1 nA	1 μA	$U_{\text{EB}} = 5\text{ V}$	

Durchbruchspannungen

$U_{(\text{BR})\text{CEO}}$		40 V		$I_{\text{C}} = 100\text{ } \mu\text{A}$	
$U_{(\text{BR})\text{CBO}}$	20 V	40 V		$I_{\text{C}} = 10\text{ } \mu\text{A}$	
$U_{(\text{BR})\text{EBO}}$	5 V	8 V		$I_{\text{E}} = 10\text{ } \mu\text{A}$	

Sättigungsspannung

U_{CEsat}		0,35 V	0,6 V	$I_{\text{C}} = 10\text{ mA}, I_{\text{B}} = 1\text{ mA}$	
U_{BEsat}		0,85 V	1,1 V	$I_{\text{C}} = 10\text{ mA}, I_{\text{B}} = 1\text{ mA}$	

Basis-Emitter-Spannung

U_{BE}		0,73 V	0,85 V	$U_{\text{CE}} = 6\text{ V}, I_{\text{C}} = 10\text{ mA}$	
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Stromverstärkung

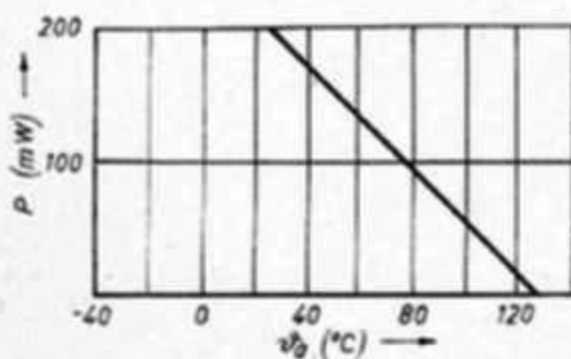
B	20	70		$U_{\text{CE}} = 6\text{ V}, I_{\text{C}} = 10\text{ mA}$	
h_{21e}	28		71	$U_{\text{CE}} = 6\text{ V}, I_{\text{C}} = 2\text{ mA}$	b
	56		140	$f = 1\text{ kHz}$	c
	112		280		d
	224		560		e
	450		1120		f

	Min.	Typ	Max.	Meßbedingungen	Stromverstärkungsgruppen
Übergangsfrequenz					
f_T	300 MHz			$U_{CE} = 6 \text{ V}, I_C = 10 \text{ mA},$ $f = 100 \text{ MHz}$	
Rauschfaktor					
F		5,6 dB	8 dB	$U_{CE} = 6 \text{ V}, I_C = 100 \mu\text{A},$ $R_G = 500 \Omega, \Delta f = 850 \text{ Hz},$ $f = 1 \text{ kHz}$	
Vierpolparameter					
h_{11}	1,4 k Ω	2,3 k Ω		$U_{CE} = 6 \text{ V}, I_C = 2 \text{ mA},$ $f = 1 \text{ kHz}$	
h_{12}		$3,8 \cdot 10^{-4}$	$9,5 \cdot 10^{-4}$		
h_{21}	29				
h_{22}		48 μS	80 μS		

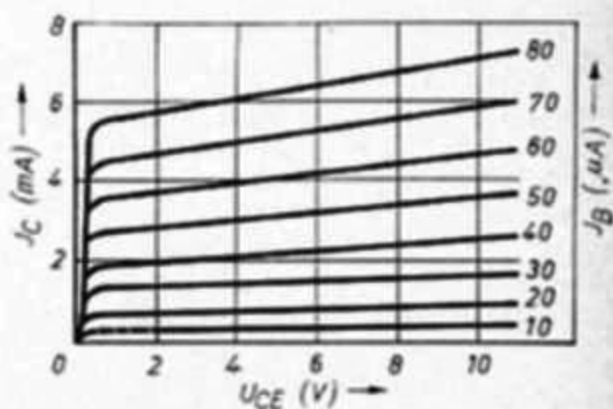
Bestellbeispiel für einen Transistor
der Stromverstärkungsgruppe f

Transistor SC 207 f

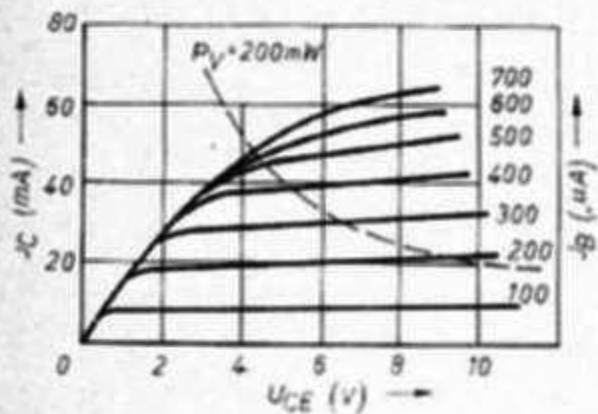
$P = f(\vartheta_a)$
(freitragende Montage)



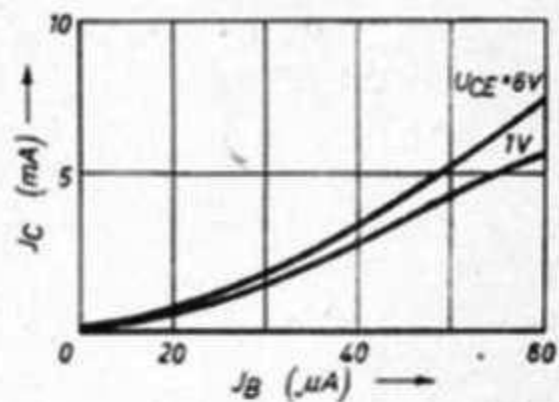
$I_C = f(U_{CE}; I_B)$



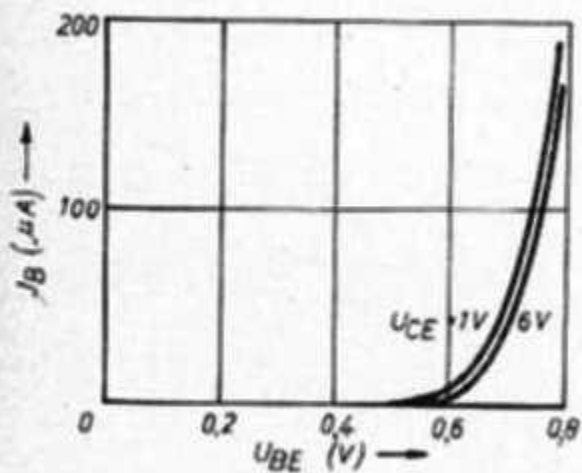
$$I_C = f(U_{CE}; I_B)$$



$$I_C = f(I_B)$$

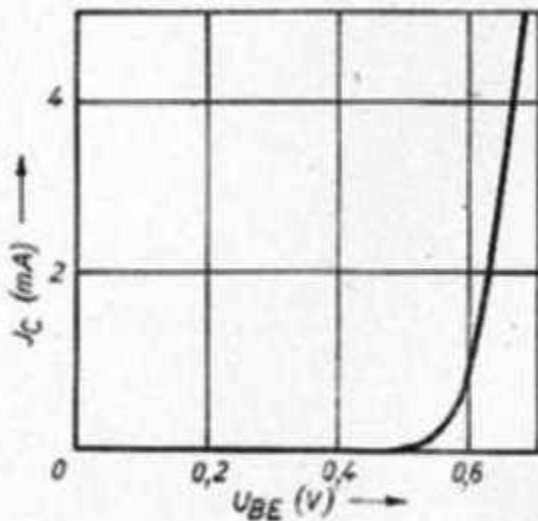


$$I_B = f(U_{BE})$$

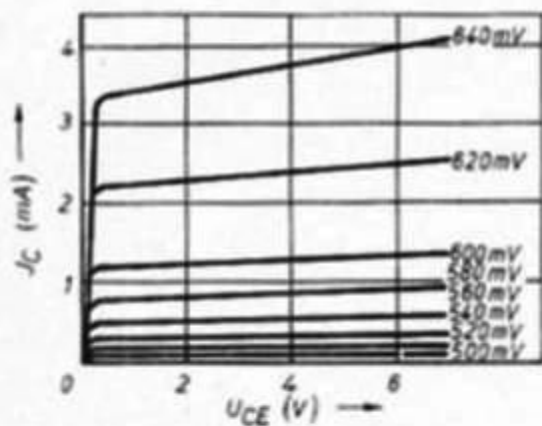


$$I_C = f(U_{BE})$$

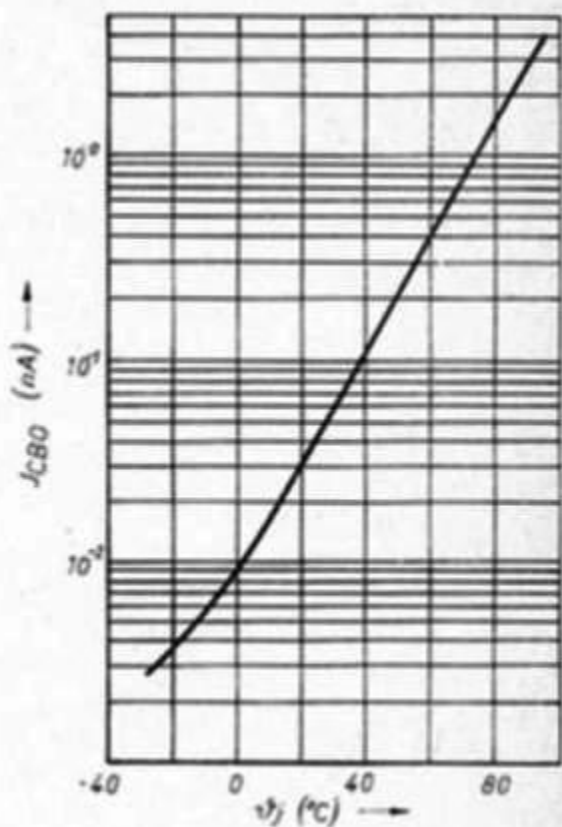
$$U_{CE} = 6V$$



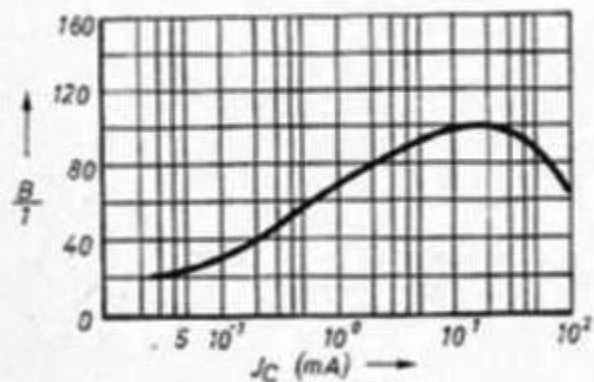
$J_C = f(U_{CE})$
Parameter U_{BE}



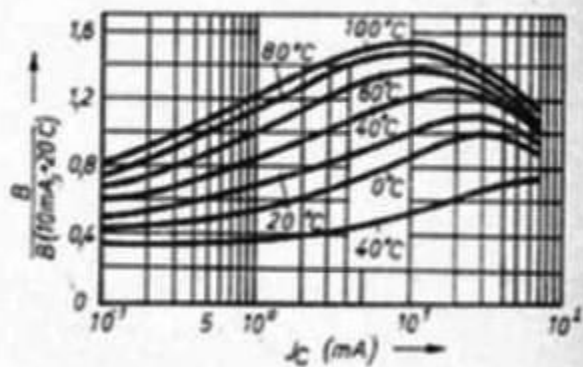
$J_{CBO} = f(\vartheta_j)$
 $U_{CB} = 20V$



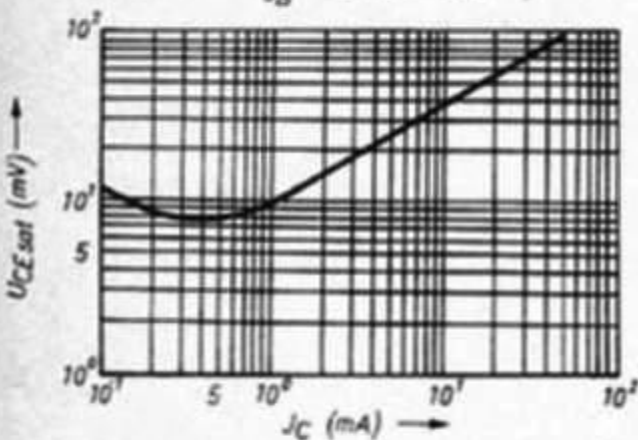
$B = f(J_C)$
 $U_{CE} = 8V$



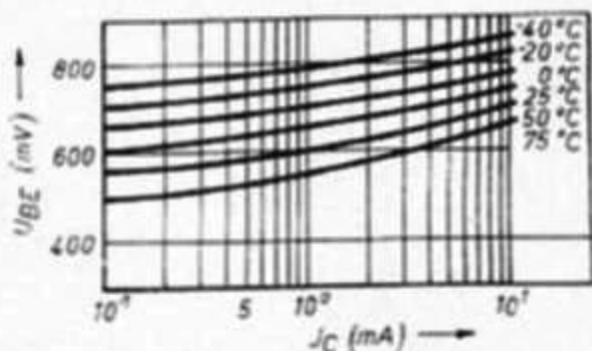
$B_{normiert} = f(J_C, \vartheta_j)$
 $U_{CE} = 8V$



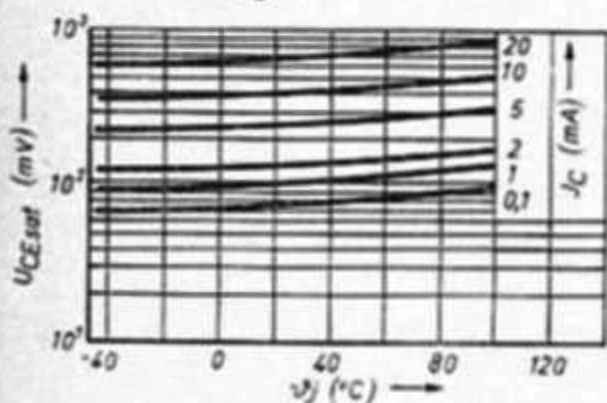
$U_{CEsat} = f(J_C)$
 $\frac{J_C}{J_B} = 10; \psi_j = 25^\circ\text{C}$



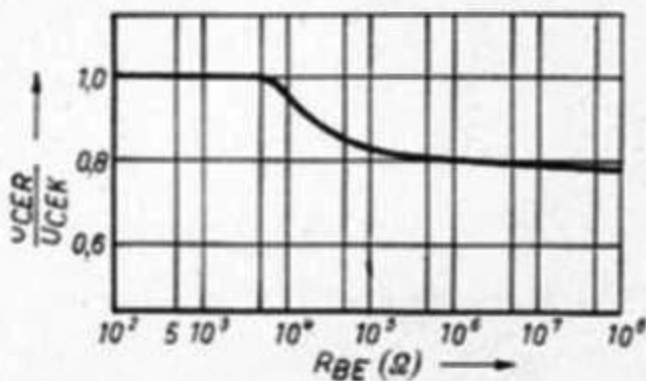
$U_{BE} = f(J_C; \psi_j)$
 $U_{CE} = 8\text{V}$



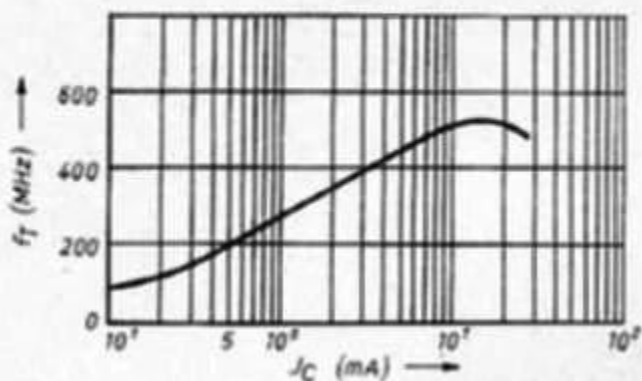
$U_{CEsat} = f(J_C; \psi_j)$
 $\frac{J_C}{J_B} = 10$



$U_{CERnormiert} = f(R_{BE})$
 $J_C = 100 \mu\text{A}$



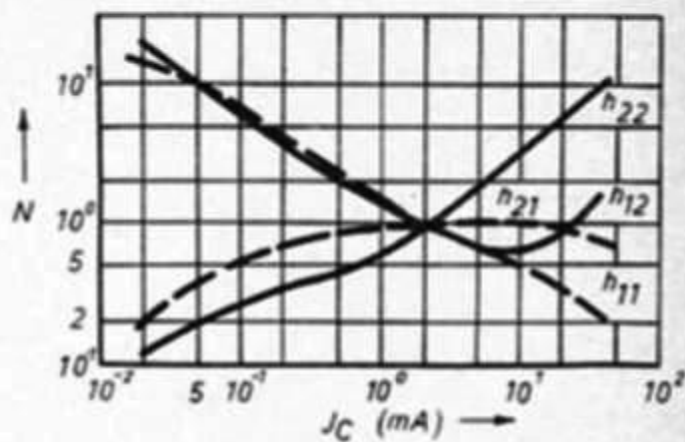
$f_T = f(J_C)$
 $U_{CE} = 8\text{V}; f = 100\text{MHz}$



h_e Parameter normiert

$$N = \frac{h(J_C)}{h(J_C = 2\text{mA})}$$

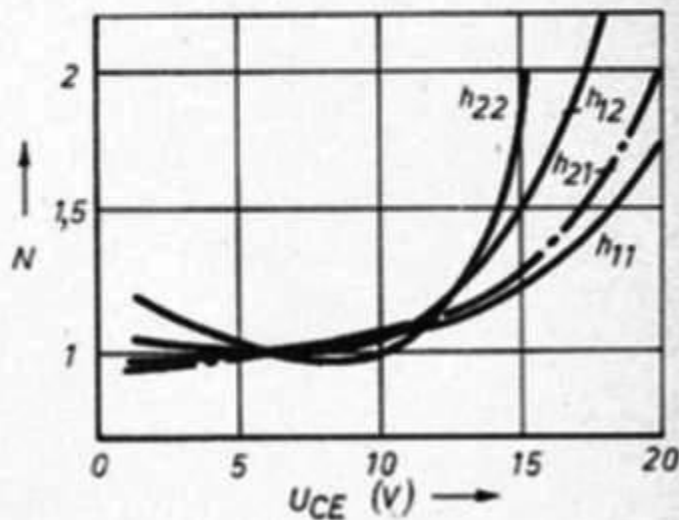
$$U_{CE} = 6\text{V}; f = 1\text{kHz}$$



h_e Parameter normiert

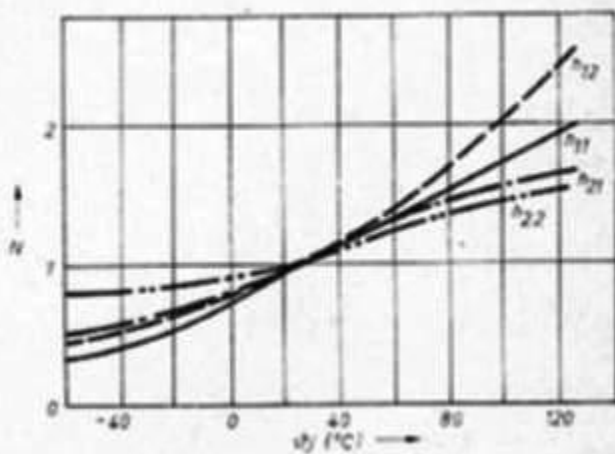
$$N = \frac{h(U_{CE})}{h(U_{CE} = 6\text{V})}$$

$$J_C = 2\text{mA}; f = 1\text{kHz}$$



h -Parameter normiert als $f(\vartheta_j)$

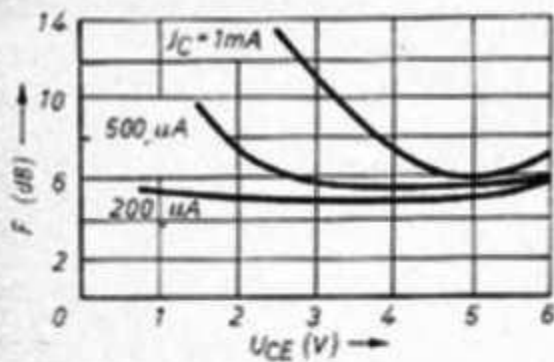
$$N = \frac{h(\vartheta_j)}{h(\vartheta_j = 25^\circ\text{C})}$$



$$F = f(U_{CE})$$

$$\frac{\Delta f}{f} = 0,6 \quad R_G = 500\Omega$$

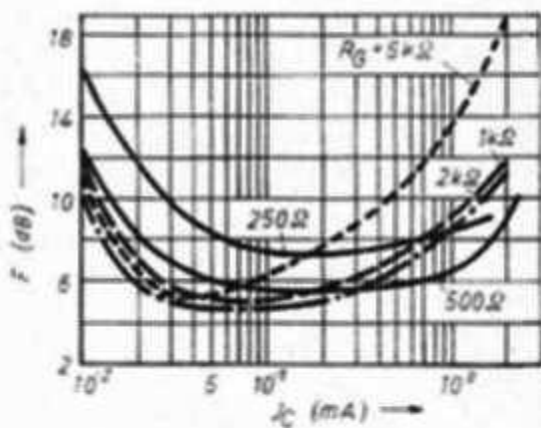
$$f = 1\text{kHz}$$



$$F = f(I_C; R_G)$$

$$f = 1\text{kHz} \quad \Delta f = 800\text{Hz}$$

$$U_{CE} = 5\text{V}$$



$$F = f(f)$$

$$\frac{\Delta f}{f} = 0,6 \quad R_G = 500\Omega$$

$$U_{CE} = 5\text{V}$$

