

Silicon NPN Transistor

BC107

50V / 100mA

DATASHEET

OEM – Telefunken

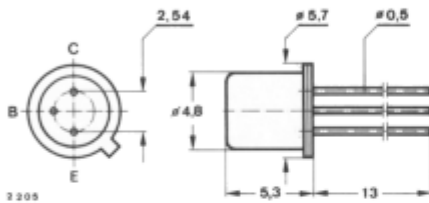
Source: Telefunken Databook 1985

BC 107 · BC 108 · BC 109**Silizium-NPN-Epitaxial-Planar-NF-Transistoren**

Anwendungen: NF-Vor- und Treiberstufen

Besondere Merkmale:

- BC 109 für rauscharme Vorstufen
- Verlustleistung 300 mW
- In Gruppen sortiert
- BC 107, BC 108, BC 109 sind komplementär zu BC 177, BC 178, BC 179

Abmessungen in mm

Kollektor mit Gehäuse verbunden

Normgehäuse
18 A 3 DIN 41876
JEDEC TO 18
Gewicht max. 0.5 g

Absolute Grenzdaten

		BC 107	BC 108	BC 109	
Kollektor-Basis-Sperrspannung	U_{CBO}	50	30	30	V
Kollektor-Emitter-Sperrspannung	U_{CEO}	45	20	20	V
Emitter-Basis-Sperrspannung	U_{EBO}	6	5	5	V
Kollektorstrom	I_C		100		mA
Kollektorspitzenstrom	I_{CM}		200		mA
Basisstrom	I_B		50		mA
Gesamtverlustleistung $T_{amb} \leq 25\text{ °C}$	P_{tot}		300		mW
Sperrschichttemperatur	T_j		175		°C
Lagerungstemperaturbereich	T_{stg}		-55...+175		°C

BC 107 · BC 108 · BC 109

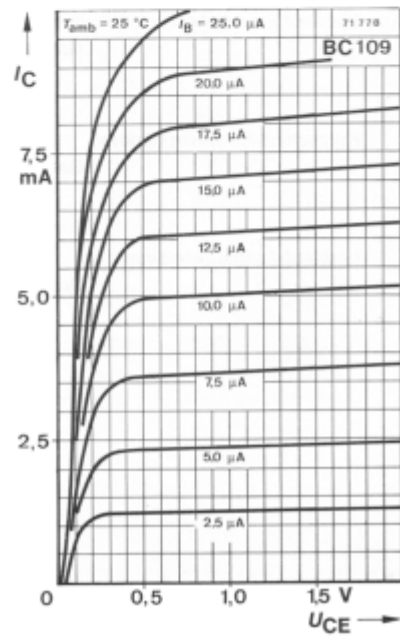
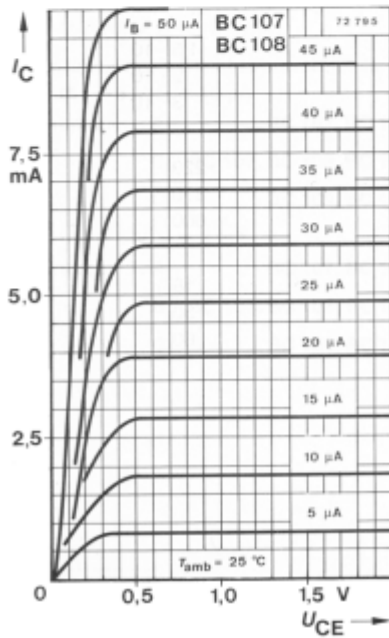
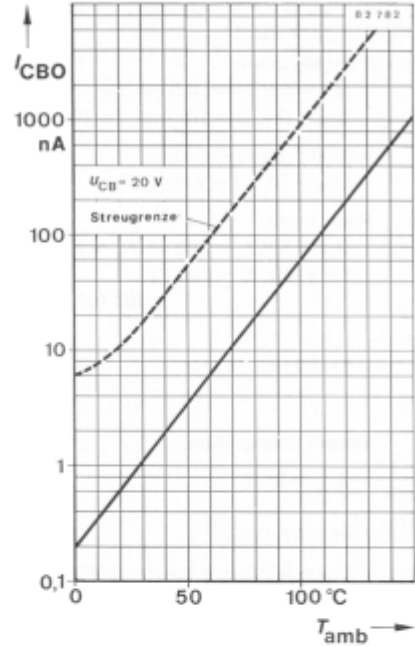
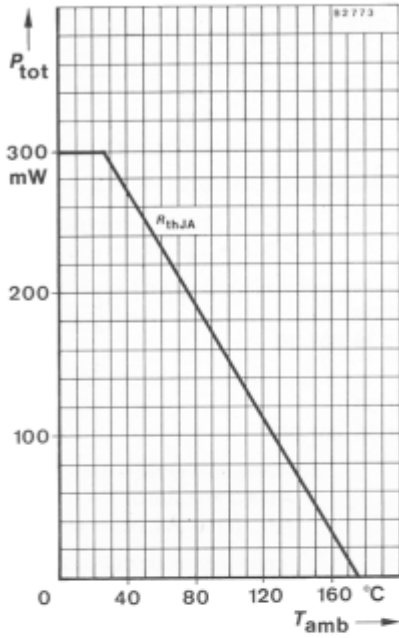
Wärmewiderstände		Min.	Typ.	Max.	
Sperrschicht-Umgebung	R_{thJA}			500	K/W
Sperrschicht-Gehäuse	R_{thJC}			200	K/W
Statische Kenngrößen					
$T_{amb} = 25\text{ °C}$, falls nicht anders angegeben					
Kollektorreststrom				15	μA
$U_{CB} = 20\text{ V}$, $T_{amb} = 150\text{ °C}$	I_{CBO}				
Kollektor-Emitter-Durchbruchspannung					
$I_C = 2\text{ mA}$	BC 107	$U_{(BR)CEO}^{1)}$	45		V
	BC 108, BC 109	$U_{(BR)CEO}^{1)}$	20		V
Emitter-Basis-Durchbruchspannung					
$I_E = 1\text{ }\mu\text{A}$	BC 107	$U_{(BR)EBO}$	6		V
	BC 108, BC 109	$U_{(BR)EBO}$	5		V
Kollektor-Sättigungsspannung					
$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$		U_{CEsat}	90	250	mV
$I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$		$U_{CEsat}^{1)}$	200		mV
Basis-Sättigungsspannung					
$I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$		U_{BEsat}	700		mV
$I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$		$U_{BEsat}^{1)}$	900		mV
Basis-Emitter-Spannung					
$U_{CE} = 5\text{ V}$, $I_C = 0.1\text{ mA}$		U_{BE}	550		mV
$U_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$		U_{BE}	620	700	mV
$U_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$		U_{BE}	675		mV
Kollektor-Basis-Gleichstromverhältnis					
$U_{CE} = 5\text{ V}$, $I_C = 10\text{ }\mu\text{A}$					
Gruppe: A	BC 107, BC 108	h_{FE}		90	
B	BC 107, BC 108, BC 109	h_{FE}	40	150	
C	BC 108, BC 109	h_{FE}	100	270	
$U_{CE} = 5\text{ V}$, $I_C = 2\text{ mA}$					
Gruppe: A	BC 107, BC 108	h_{FE}	110	180	220
B	BC 107, BC 108, BC 109	h_{FE}	200	290	450
C	BC 108, BC 109	h_{FE}	420	520	800

¹⁾ $\frac{t_p}{T} = 0.01$, $t_p = 0.3\text{ ms}$

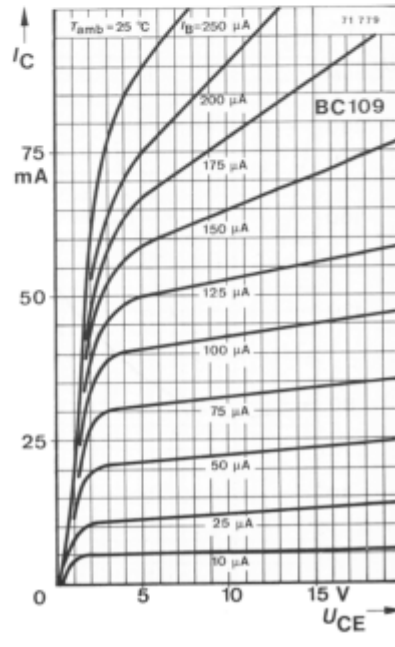
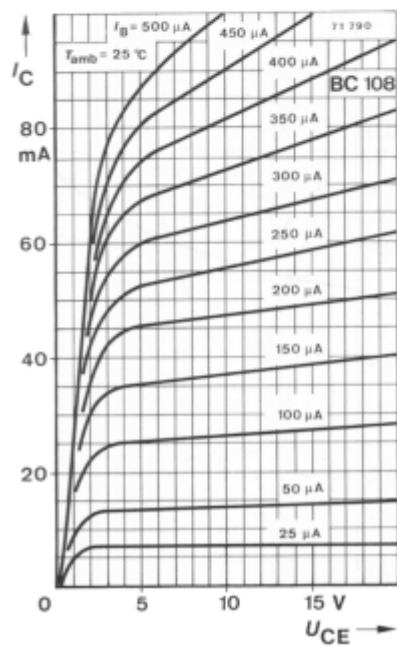
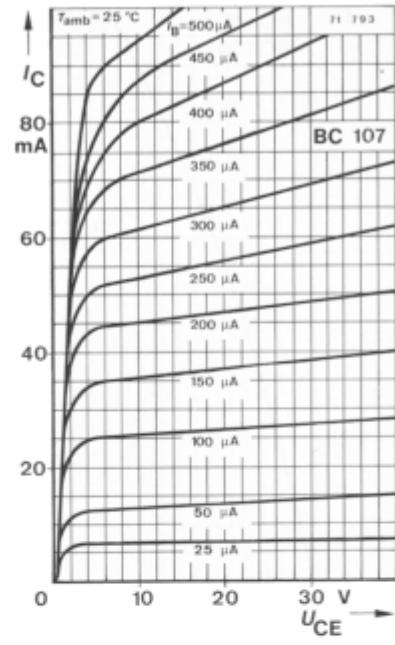
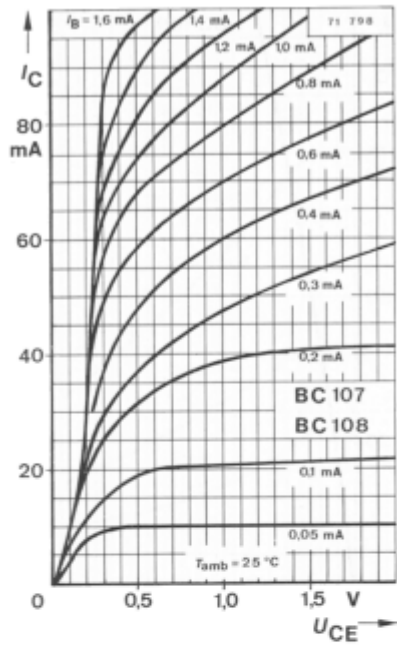
BC 107 · BC 108 · BC 109

Dynamische Kenngrößen		Min.	Typ.	Max.		
$T_{amb} = 25\text{ °C}$						
Transitfrequenz						
$U_{CE} = 5\text{ V}, I_C = 0.5\text{ mA}, f = 30\text{ MHz}$	f_T		85		MHz	
$U_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	f_T		300		MHz	
Kollektor-Basis-Kapazität						
$U_{CB} = 10\text{ V}, f = 1\text{ MHz}$	C_{CBO}		2.5	4.5	pF	
Rauschmaß						
$U_{CE} = 5\text{ V}, I_C = 200\text{ }\mu\text{A}, R_G = 2\text{ k}\Omega,$						
$f = 1\text{ kHz}, \Delta f = 200\text{ Hz}$						
	BC 107, BC 108	F	3	10	dB	
	BC 109	F		4	dB	
$f = 30\text{ Hz} \dots 15\text{ kHz}$	BC 109	F		4	dB	
Vierpol Kenngrößen						
$T_{amb} = 25\text{ °C}$						
Emitterschaltung						
$U_{CE} = 5\text{ V}, I_C = 2\text{ mA}, f = 1\text{ kHz}$						
Kurzschluß-Eingangswiderstand						
	Gruppe: A	h_{ie}	1.6	2.7	4.5	k Ω
	B	h_{ie}	3.2	4.5	8.5	k Ω
	C	h_{ie}	6	8.7	15	k Ω
Leerlauf-Spannungsrückwirkung						
	Gruppe: A	h_{re}		$1.5 \cdot 10^{-4}$		
	B	h_{re}		$2 \cdot 10^{-4}$		
	C	h_{re}		$3 \cdot 10^{-4}$		
Kurzschluß-Stromverstärkung						
	Gruppe: A	h_{fe}		220		
	B	h_{fe}		330		
	C	h_{fe}		600		
Leerlauf-Ausgangsleitwert						
	Gruppe: A	h_{oe}		18	μS	
	B	h_{oe}		30	μS	
	C	h_{oe}		60	μS	

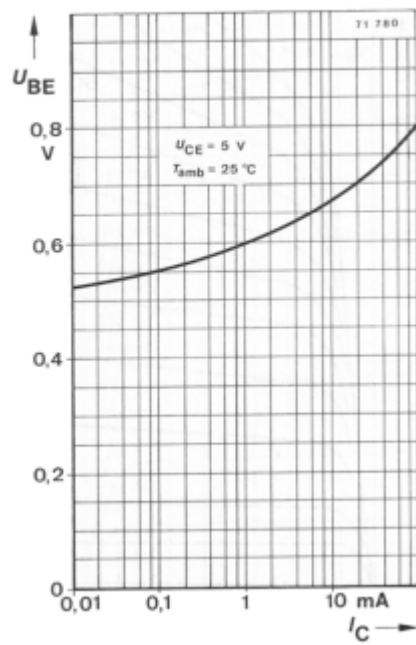
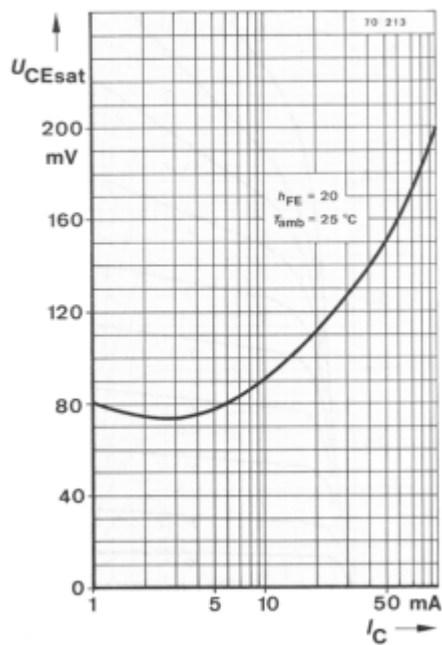
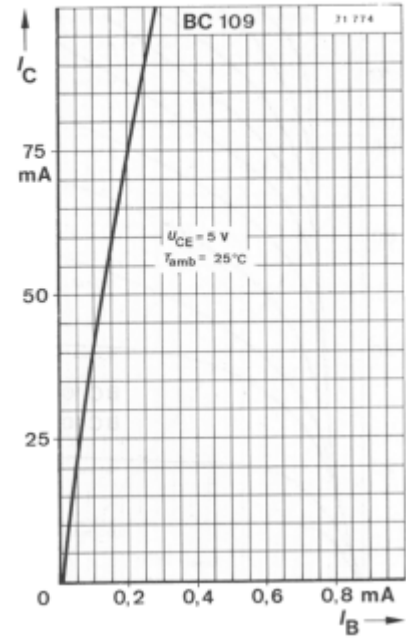
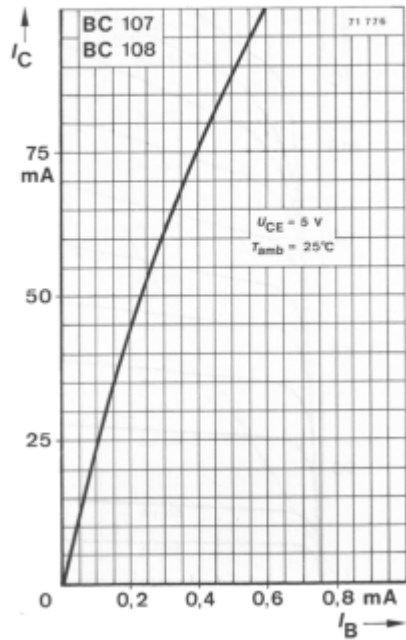
BC 107 · BC 108 · BC 109



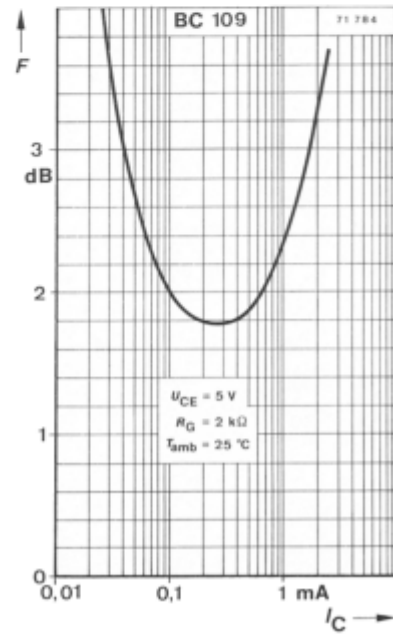
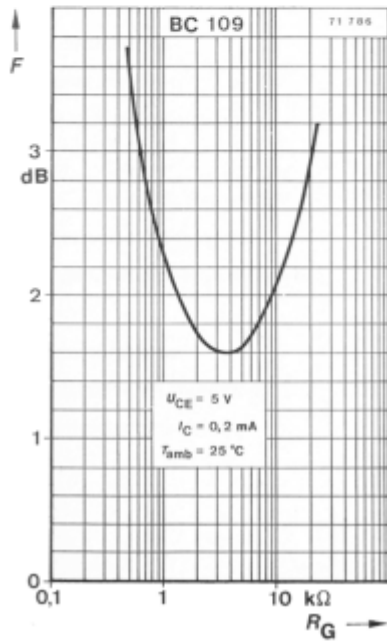
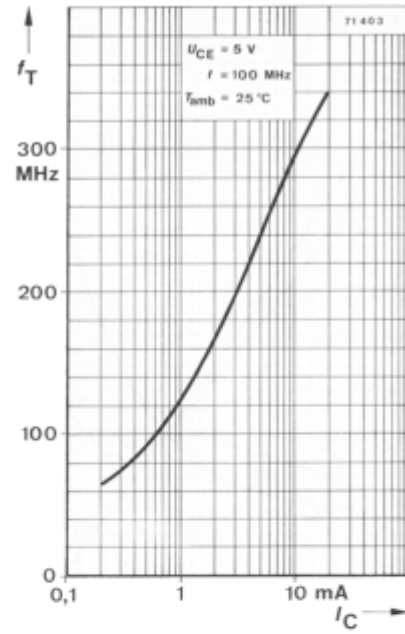
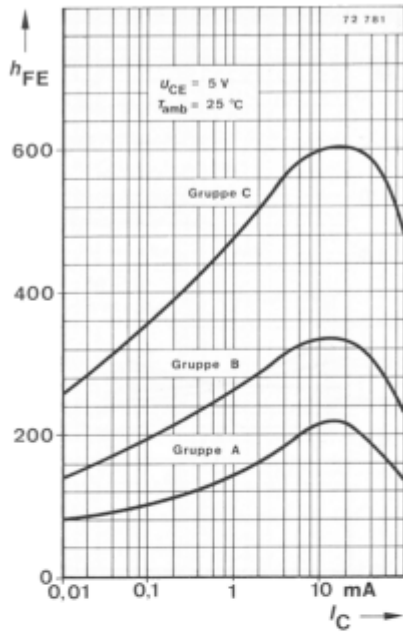
BC 107 · BC 108 · BC 109



BC 107 · BC 108 · BC 109



BC 107 · BC 108 · BC 109



BC 107 · BC 108 · BC 109

