

## GBC328

### PNP SILICON TRANSISTOR

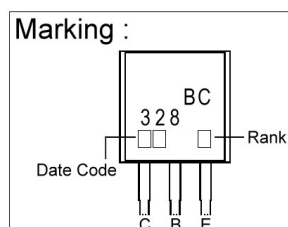
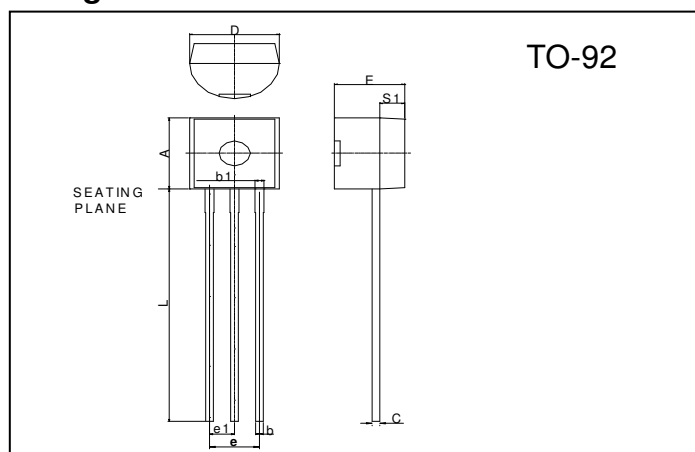
#### Description

The GBC328 is designed for drive and output-stages of audio amplifiers.

#### Features

- High DC Current Gain: 100~630 @ $V_{CE}=-1V$ ,  $I_C=-100mA$
- Complementary to GBC338

#### Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.45	4.7	D	4.44	4.7
S1	1.02	-	E	3.30	3.81
b	0.36	0.51	L	12.70	-
b1	0.36	0.76	e1	1.150	1.390
C	0.36	0.51	e	2.42	2.66

#### Absolute Maximum Ratings (TA=25°C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	$V_{CBO}$	-30	V
Collector to Emitter Voltage	$V_{CEO}$	-25	V
Emitter to Base Voltage	$V_{EBO}$	-5	V
Collector Current (continuous)	$I_C$	-800	mA
Total Device Dissipation @ $T_A = 25^\circ C$	$P_D$	625	mW
Derate above 25°C		5.0	mW/°C
Total Device Dissipation @ $T_C = 25^\circ C$	$P_D$	1.5	W
Derate above 25°C		12	mW/°C
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-55 ~ +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W

#### Electrical Characteristics (TA = 25°C unless otherwise noted)

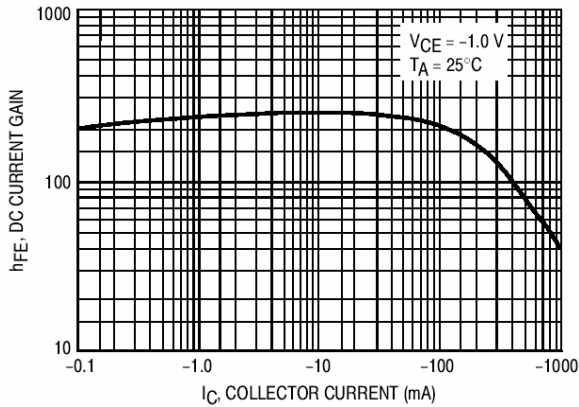
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$V_{CBO}$	-30	-	-	V	$I_C=-100\mu A, I_E=0$
$V_{CEO}$	-25	-	-	V	$I_C=-10mA, I_B=0$
$V_{CES}$	-30	-	-	V	$I_C=-100\mu A, I_E=0$
$V_{EBO}$	-5	-	-	V	$I_E=-10\mu A, I_C=0$
$I_{CBO}$	-	-	-100	nA	$V_{CB}=-20V, I_E=0$
$I_{CES}$	-	-	-100	nA	$V_{CE}=-25V, V_{BE}=0$
$I_{EBO}$	-	-	-100	nA	$V_{EB}=-4V, I_C=0$
* $V_{CE(sat)}$	-	-	-0.7	V	$I_C=-500mA, I_B=-50mA$
* $V_{BE(on)}$	-	-	-1.2	V	$V_{CE}=-1V, I_C=-300mA$
* $h_{FE1}$	100	-	630		$V_{CE}=-1V, I_C=-100mA$
* $h_{FE2}$	40	-	-		$V_{CE}=-1V, I_C=-300mA$
fT	-	260	-	MHz	$V_{CE}=-5V, I_C=-10mA, f=100MHz$
Cob	-	11	-	pF	$V_{CB}=-10V, I_E=0, f=1MHz$

\*Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$

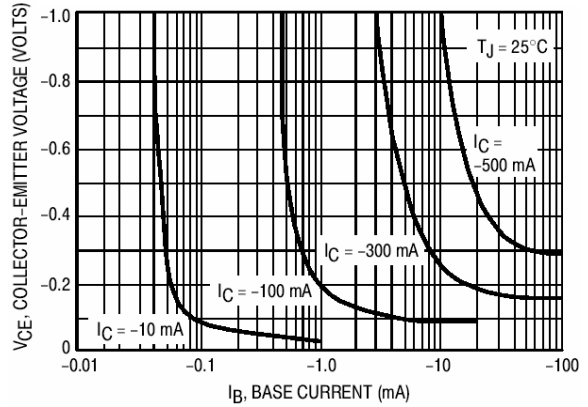
#### Classification Of $h_{FE1}$

Rank	A	B	C
Range	100 ~ 250	160 ~ 400	250 ~ 630

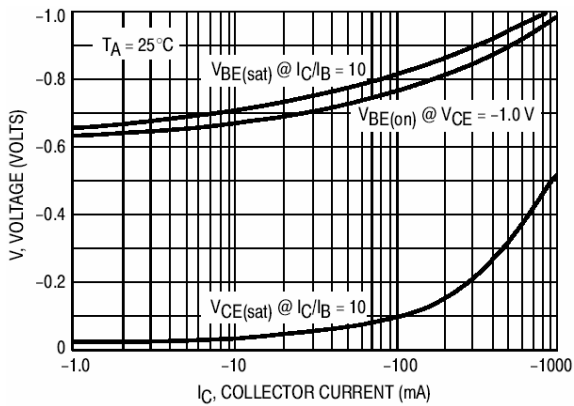
## Characteristics Curve



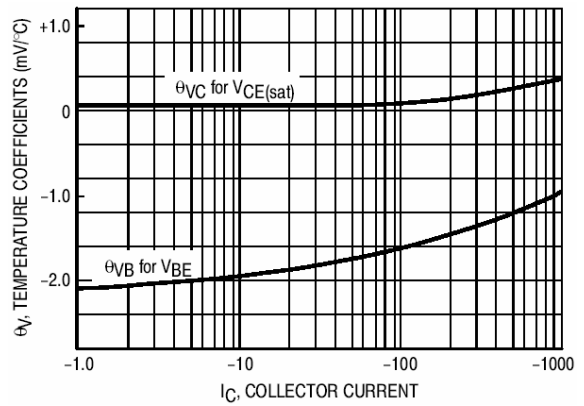
**Fig 1. DC Current Gain**



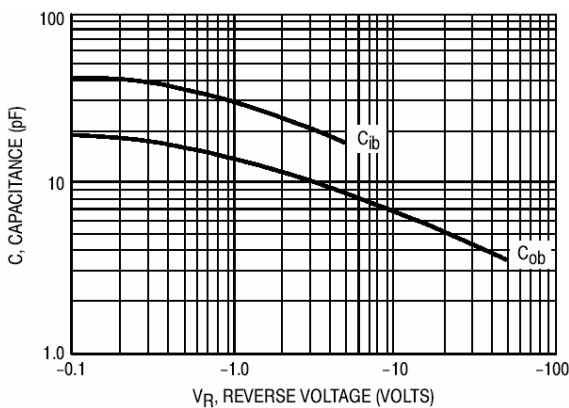
**Fig 2. Saturation Region**



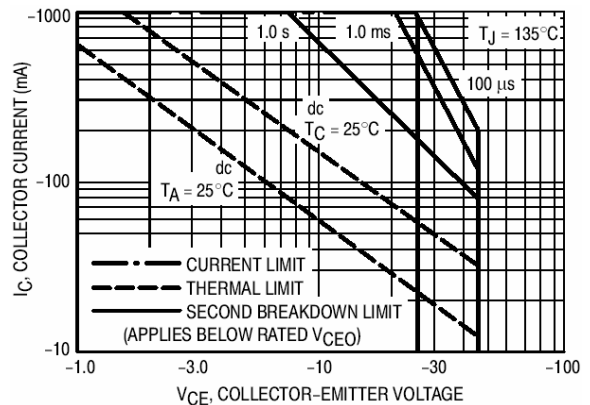
**Fig 3. "On" Voltages**



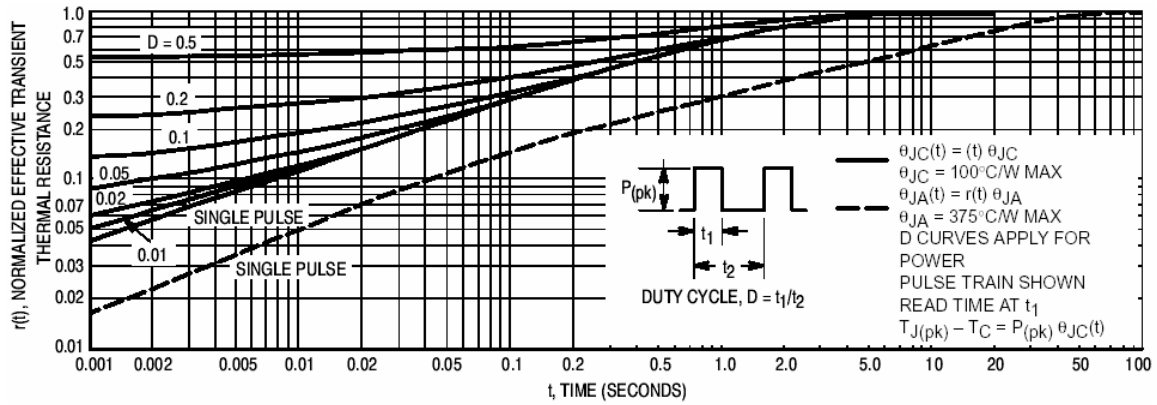
**Fig 4. Temperature Coefficients**



**Fig 5. Capacitances**



**Fig 6. Safe Operating Area**



**Fig 7. Thermal Response**

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