Small Signal Transistors (PNP)

TO-226AA (TO-92)

0.181 (4.6)

0.142 (3.6)

min. 0.492 (12.5) 0.181 (4.6)

max. ⌀ 0.022 (0.55)

0.098 (2.5)

Dimensions in inches and (millimeters)

C E

B

Bottom View
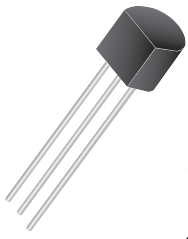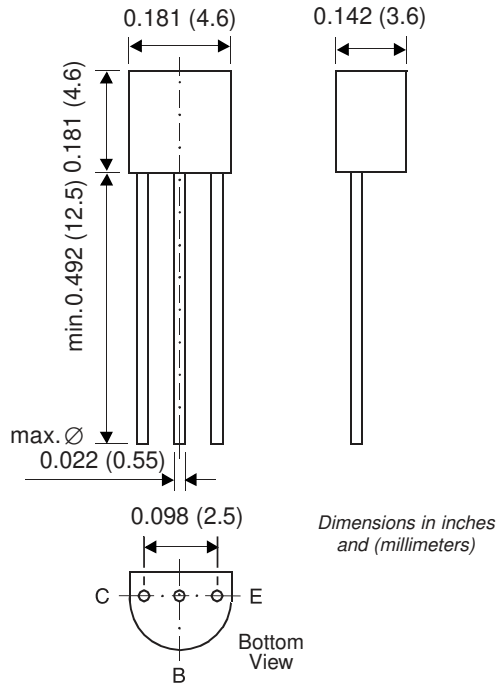
Features

- PNP Silicon Epitaxial Planar Transistors for switching and amplifier applications. Especially suitable for AF-driver stages and low-power output stages.
- These types are also available subdivided into three groups, -16, -25, and -40, according to their DC current gain. As complementary types, the NPN transistors BC327 and BC338 are recommended.
- On special request, these transistors are also manufactured in the pin configuration TO-18.

Mechanical Data

Case: TO-92 Plastic Package

Weight: approx. 0.18g

Packaging Codes/Options:

E6/Bulk – 5K per container, 20K/box

E7/4K per Ammo mag., 20K/box

Maximum Ratings & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter		Symbol	Value	Unit
Collector-Emitter Voltage	BC327 BC328	$-V_{CES}$	50 30	V
Collector-Emitter Voltage	BC327 BC328	$-V_{CEO}$	45 25	V
Emitter-Base Voltage		$-V_{EBO}$	5	V
Collector Current		$-I_C$	800	mA
Peak Collector Current		$-I_{CM}$	1	A
Base Current		$-I_B$	100	mA
Power Dissipation at Tamb = 25°C		P_{tot}	625[1]	mW
Thermal Resistance Junction to Ambient Air		$R_{\Theta JA}$	200[1]	°C/W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_S	−65 to +150	°C

Note: (1) Valid provided that leads are kept at ambient temperature at a distance of 2mm from case.

Electrical Characteristics (T_J = 25°C unless otherwise noted)

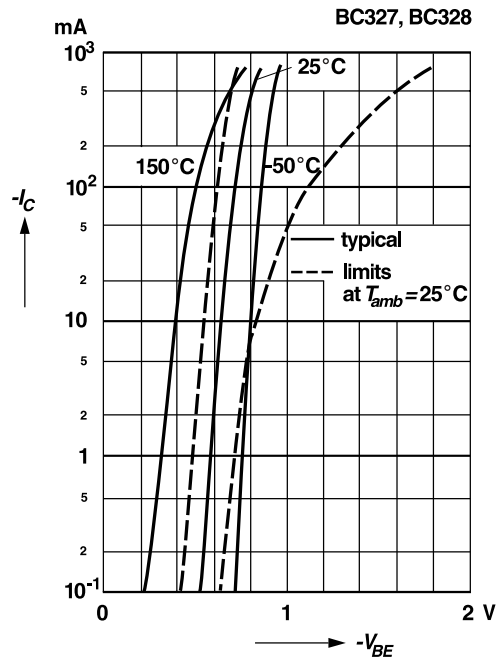| Parameter			Symbol	Test Condition	Min	Typ	Max	Unit
DC Current Gain	Current Gain Group	-16	h_{FE}	$-V_{CE}$ = 1 V, $-I_C$ = 100 mA	100	160	250	—
		-25			160	250	400	
		-40			250	400	630	
	Current Gain Group	-16		$-V_{CE}$ = 1 V, $-I_C$ = 300 mA	60	130	—	
		-25			100	200	—	
		-40			170	320	—	
Collector-Emitter Cutoff Current	BC327		$-I_{CES}$	$-V_{CE}$ = 45 V	—	2	100	nA
	BC328			$-V_{CE}$ = 25 V	—	2	100	nA
	BC327			$-V_{CE}$ = 45 V, T_{amb} = 125°C	—	—	10	µA
	BC328			$-V_{CE}$ = 25 V, T_{amb} = 125°C	—	—	10	µA
Collector Saturation Voltage			$-V_{CEsat}$	$-I_C$ = 500 mA, $-I_B$ = 50 mA	—	—	0.7	V
Base-Emitter Voltage			$-V_{BE}$	$-V_{CE}$ = 1 V, $-I_C$ = 300 mA	—	—	1.2	V
Collector-Emitter Breakdown Voltage	BC327		$-V_{(BR)CEO}$	$-I_C$ = 10 mA	45	—	—	V
	BC328				25	—	—	
Collector-Emitter Breakdown Voltage	BC327		$-V_{(BR)CES}$	$-I_C$ = 0.1 mA	50	—	—	V
	BC328				30	—	—	
Emitter-Base Breakdown Voltage			$-V_{(BR)EBO}$	$-I_E$ = 0.1 mA	5	—	—	V
Gain-Bandwidth Product			f_T	$-V_{CE}$ = 5 V, $-I_C$ = 10 mA, f = 50 MHz	—	100	—	MHz
Collector-Base Capacitance			C_{CBO}	$-V_{CB}$ = 10 V, f = 1 MHz	—	12	—	pF

Ratings and Characteristic Curves (T$_A$ = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

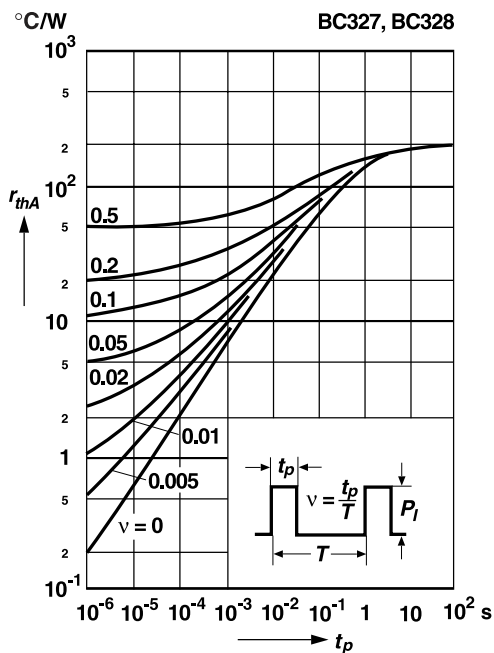Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

BC327, BC328

W / P$_{tot}$ vs T$_{amb}$ (°C)
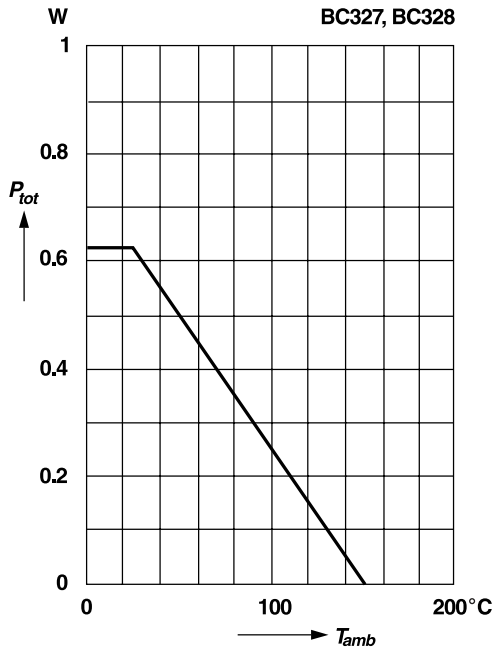
Collector current versus base-emitter voltage

BC327, BC328

mA / -I$_C$ vs -V$_{BE}$ (V)
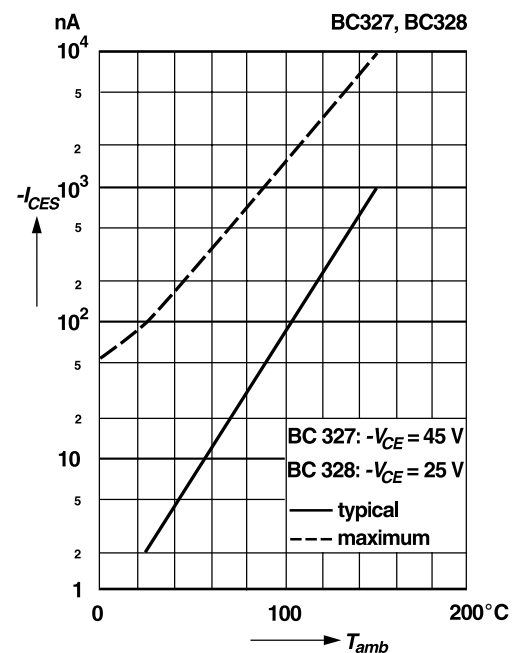
150°C, 25°C, -50°C

typical
limits
at T$_{amb}$ = 25°C

Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

°C/W / BC327, BC328

r$_{thA}$ vs t$_p$ (s)

0.5
0.2
0.1
0.05
0.02
0.01
0.005
ν = 0

$\nu = \dfrac{t_p}{T}$

Collector-emitter cutoff current versus ambient temperature

nA / BC327, BC328

-I$_{CES}$ vs T$_{amb}$ (°C)

BC 327: -V$_{CE}$ = 45 V
BC 328: -V$_{CE}$ = 25 V

typical
maximum

Ratings and
Characteristic Curves (T$_A$ = 25°C unless otherwise noted)

**DC current gain
versus collector current**
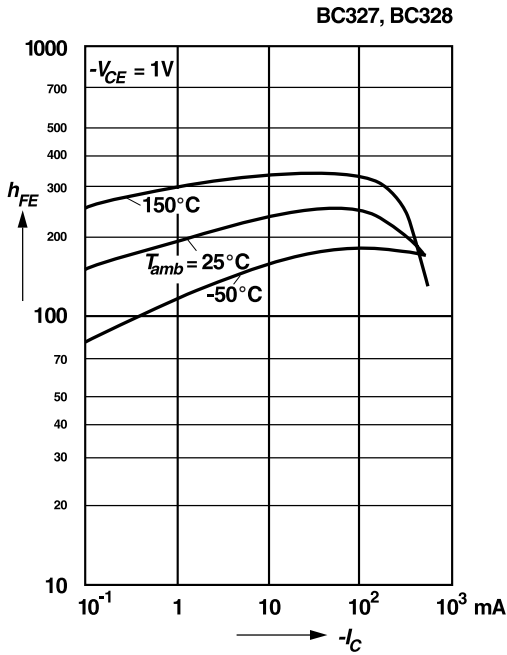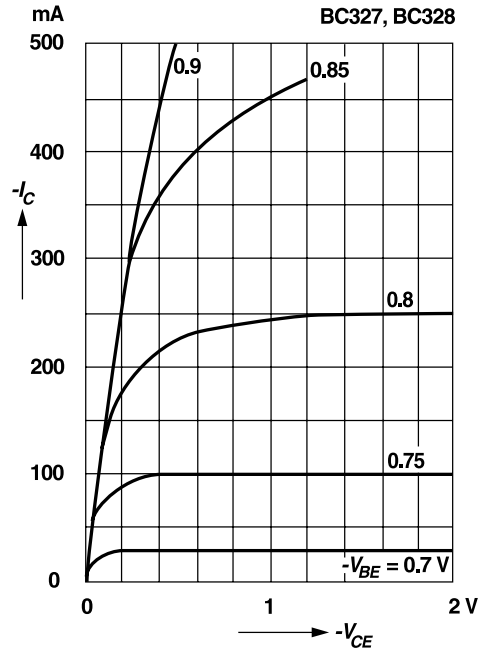
BC327, BC328

$-V_{CE}$ = 1V

h_{FE}

150°C

T_{amb} = 25°C

$-50°C$

$-I_C$

**Common emitter
collector characteristics**

mA

BC327, BC328

0.9   0.85

0.8

0.75

$-I_C$

$-V_{BE}$ = 0.7 V

$-V_{CE}$

**Common emitter
collector characteristics**

mA

BC327, BC328

3.2   2.8

2.4

2
1.8

1.6

1.4

1.2

1

0.8

0.6

0.4

$-I_C$

$-I_B$ = 0.2 mA

$-V_{CE}$

**Common emitter
collector characteristics**

mA

BC327, BC328

0.35

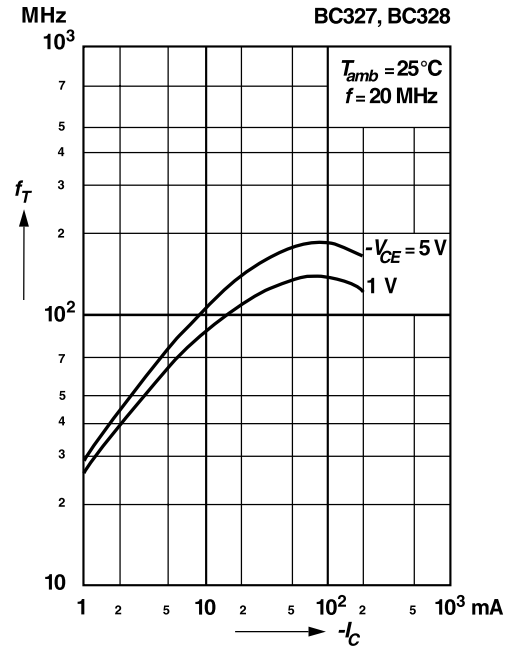0.3

0.25

0.2

0.15

0.1

$-I_C$

$-I_B$ = 0.05 mA

$-V_{CE}$

VISHAY
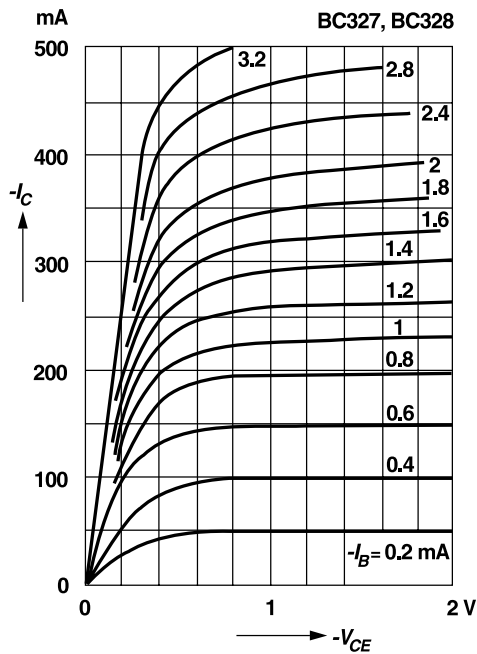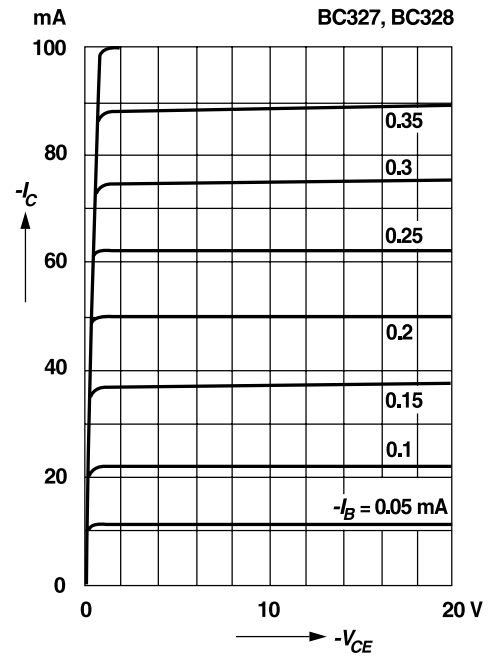
Ratings and
Characteristic Curves (T$_A$ = 25°C unless otherwise noted)

**Collector saturation voltage
versus collector current**

BC327, BC328

typical
limits
at T_{amb} = 25°C
$\frac{-I_C}{-I_B}$ = 10

$-V_{CEsat}$

150°C   25°C   -50°C

-I_C
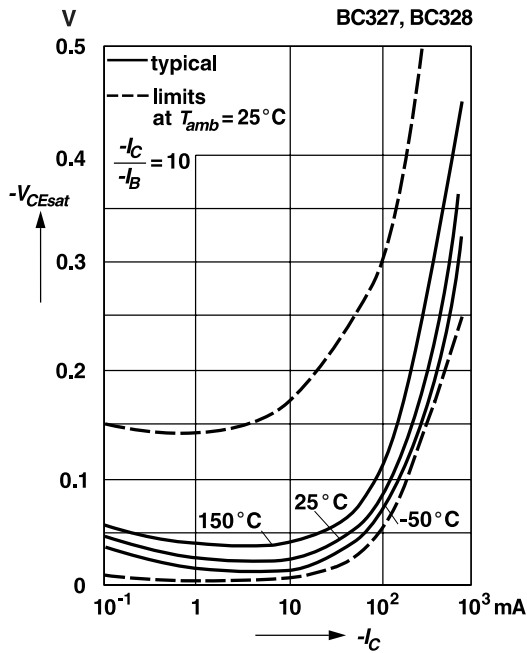
**Gain-bandwidth product
versus collector current**

BC327, BC328

T_{amb} = 25°C
f = 20 MHz

f_T

$-V_{CE}$ = 5 V
1 V

-I_C

**Base saturation voltage
versus collector current**

BC327, BC328

typical
limits
at T_{amb} = 25°C
$\frac{-I_C}{-I_B}$ = 10

$-V_{BEsat}$

-50°C
25°C
150°C

-I_C