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[BC550CG.](#)

[BC550CG](#)

**EN**

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**DE**

Dieses Datenblatt wird vom  
Hersteller bereitgestellt

**FR**

Cette fiche technique est  
présentée par le fabricant

# BC549C, BC550C

## Low Noise Transistors

### NPN Silicon

#### Features

- These are Pb-Free Devices\*

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage BC549C BC550C	$V_{CEO}$	30 45	Vdc
Collector-Base Voltage BC549C BC550C	$V_{CBO}$	30 50	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current - Continuous	$I_C$	100	Vdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above = $25^\circ\text{C}$	$P_D$	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above = $25^\circ\text{C}$	$P_D$	1.5 12	W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

#### THERMAL CHARACTERISTICS

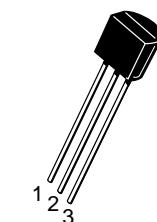
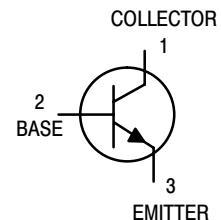
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



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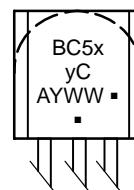
<http://onsemi.com>



STRAIGHT LEAD  
BULK PACK

TO-92  
CASE 29  
STYLE 17

#### MARKING DIAGRAM



BC5xyC = Device Code

x = 4 or 5

y = 9 or 0

A = Assembly Location

Y = Year

WW = Work Week

▪ = Pb-Free Package

(Note: Microdot may be in either location)

#### ORDERING INFORMATION

Device	Package	Shipping
BC549CG	TO-92 (Pb-Free)	5000 Units / Bulk
BC550CG	TO-92 (Pb-Free)	5000 Units / Bulk

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

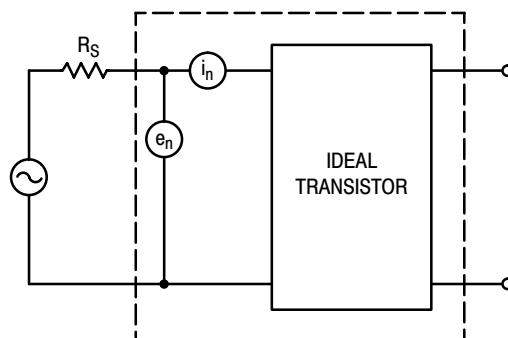
# BC549C, BC550C

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Emitter Breakdown Voltage ( $I_C = 10 \text{ mA}_\text{dc}$ , $I_B = 0$ )	$V_{(\text{BR})\text{CEO}}$	45	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 10 \mu\text{A}_\text{dc}$ , $I_E = 0$ )	$V_{(\text{BR})\text{CBO}}$	50	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10 \mu\text{A}_\text{dc}$ , $I_C = 0$ )	$V_{(\text{BR})\text{EBO}}$	5.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 30 \text{ V}$ , $I_E = 0$ ) ( $V_{CB} = 30 \text{ V}$ , $I_E = 0$ , $T_A = +125^\circ\text{C}$ )	$I_{\text{CBO}}$	— —	— —	15 5.0	$\text{nA}_\text{dc}$ $\mu\text{A}_\text{dc}$
Emitter Cutoff Current ( $V_{EB} = 4.0 \text{ Vdc}$ , $I_C = 0$ )	$I_{\text{EBO}}$	—	—	15	$\text{nA}_\text{dc}$
<b>ON CHARACTERISTICS</b>					
DC Current Gain ( $I_C = 10 \mu\text{A}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 2.0 \text{ mA}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$h_{\text{FE}}$	100 420	270 500	— 800	—
Collector-Emitter Saturation Voltage ( $I_C = 10 \text{ mA}_\text{dc}$ , $I_B = 0.5 \text{ mA}_\text{dc}$ ) ( $I_C = 10 \text{ mA}_\text{dc}$ , $I_B = \text{see note 1}$ ) ( $I_C = 100 \text{ mA}_\text{dc}$ , $I_B = 5.0 \text{ mA}_\text{dc}$ , see note 2)	$V_{CE(\text{sat})}$	— — —	0.075 0.3 0.25	0.25 0.6 0.6	Vdc
Base-Emitter Saturation Voltage ( $I_C = 100 \text{ mA}_\text{dc}$ , $I_B = 5.0 \text{ mA}_\text{dc}$ )	$V_{BE(\text{sat})}$	—	1.1	—	Vdc
Base-Emitter On Voltage ( $I_C = 10 \mu\text{A}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 100 \mu\text{A}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ ) ( $I_C = 2.0 \text{ mA}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ )	$V_{BE(\text{on})}$	— — 0.55	0.52 0.55 0.62	— — 0.7	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
Current-Gain — Bandwidth Product ( $I_C = 10 \text{ mA}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $f = 100 \text{ MHz}$ )	$f_T$	—	250	—	MHz
Collector-Base Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{\text{cbo}}$	—	2.5	—	pF
Small-Signal Current Gain ( $I_C = 2.0 \text{ mA}_\text{dc}$ , $V_{CE} = 5.0 \text{ V}$ , $f = 1.0 \text{ kHz}$ )	$h_{\text{fe}}$	450	600	900	—
Noise Figure ( $I_C = 200 \mu\text{A}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $R_S = 2.0 \text{ k}\Omega$ , $f = 1.0 \text{ kHz}$ ) ( $I_C = 200 \mu\text{A}_\text{dc}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $R_S = 100 \text{ k}\Omega$ , $f = 1.0 \text{ kHz}$ )	$NF_1$ $NF_2$	— —	0.6 —	2.5 10	dB

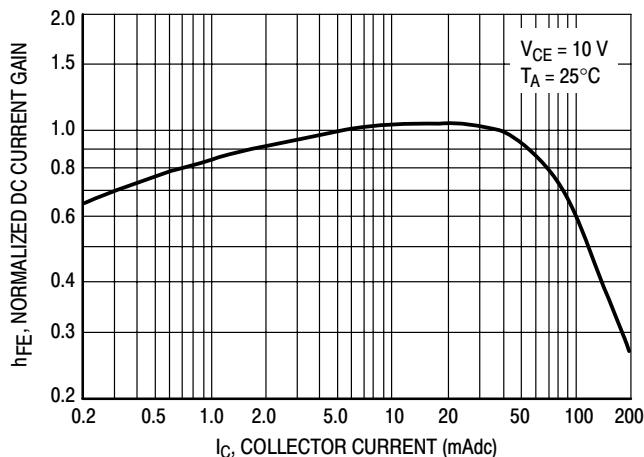
1.  $I_B$  is value for which  $I_C = 11 \text{ mA}$  at  $V_{CE} = 1.0 \text{ V}$ .

2. Pulse test = 300  $\mu\text{s}$  – Duty cycle = 2%.

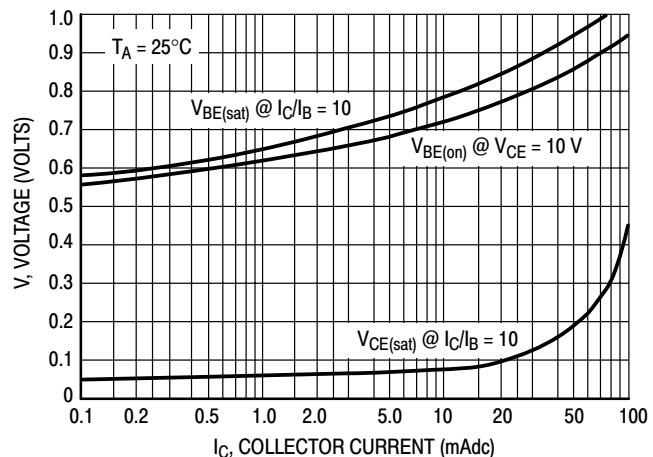


**Figure 1. Transistor Noise Model**

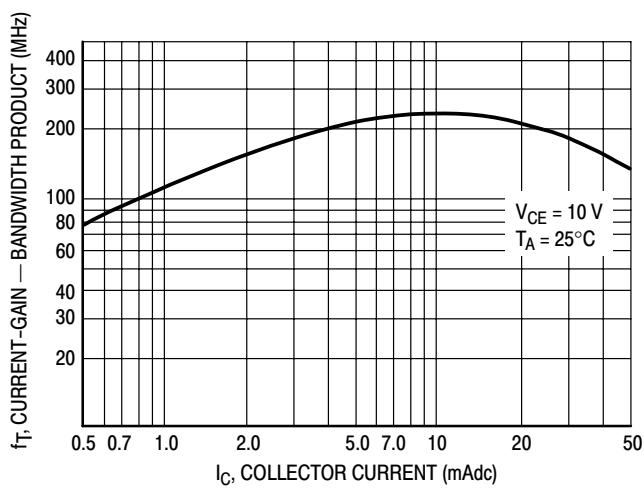
## BC549C, BC550C



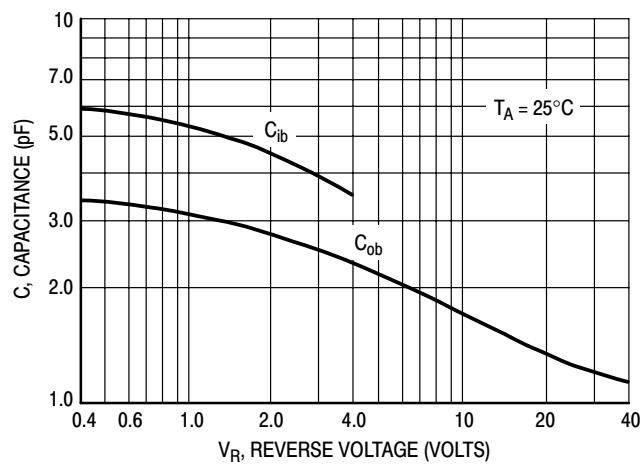
**Figure 2. Normalized DC Current Gain**



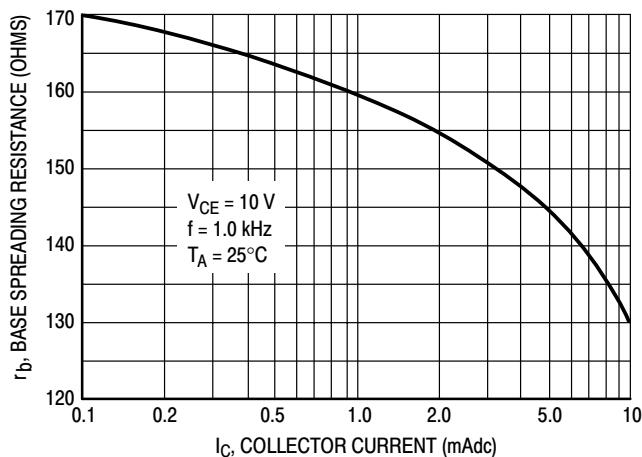
**Figure 3. "Saturation" and "On" Voltages**



**Figure 4. Current-Gain — Bandwidth Product**



**Figure 5. Capacitance**

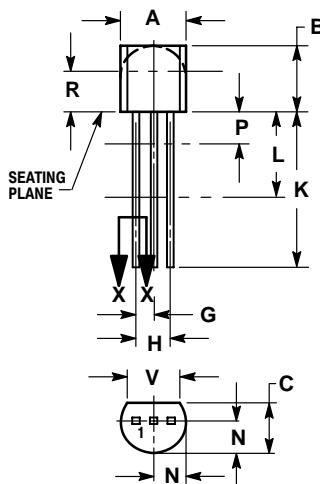


**Figure 6. Base Spreading Resistance**

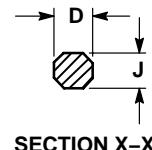
# BC549C, BC550C

## PACKAGE DIMENSIONS

### TO-92 (TO-226) CASE 29-11 ISSUE AM



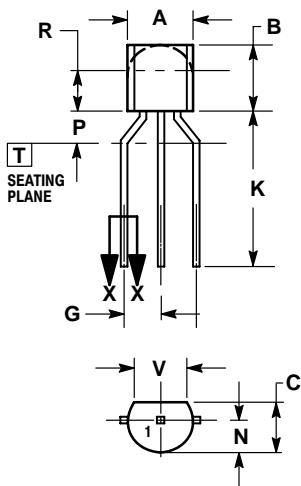
STRAIGHT LEAD  
BULK PACK



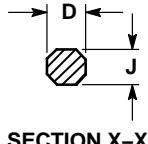
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---



BENT LEAD  
TAPE & REEL  
AMMO PACK



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	MILLIMETERS	
	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

STYLE 17:  
PIN 1. COLLECTOR  
2. BASE  
3. Emitter

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