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BC550CG. BC550CG

EN
This Datasheet is presented by the manufacturer

DE
Dieses Datenblatt wird vom Hersteller bereitgestellt

FR
Cette fiche technique est présentée par le fabricant

BC549C, BC550C

Low Noise Transistors

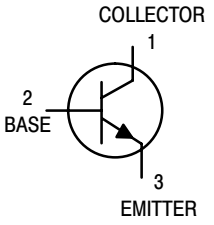
NPN Silicon

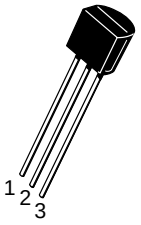
ON Semiconductor®

http://onsemi.com

Features

- These are Pb−Free Devices*





STRAIGHT LEAD
BULK PACK

TO−92
CASE 29
STYLE 17

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°C Derate above = 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ T_A = 25°C Derate above = 25°C	P_D	1.5 12	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

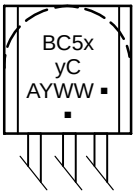
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	83.3	°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.

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

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

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

1. I_B is value for which I_C = 11 mA at V_{CE} = 1.0 V.
2. Pulse test = 300 μs − Duty cycle = 2%.

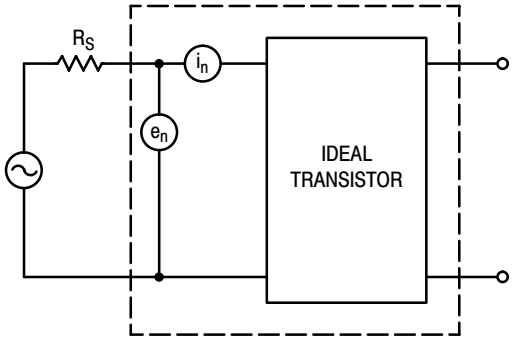


Figure 1. Transistor Noise Model

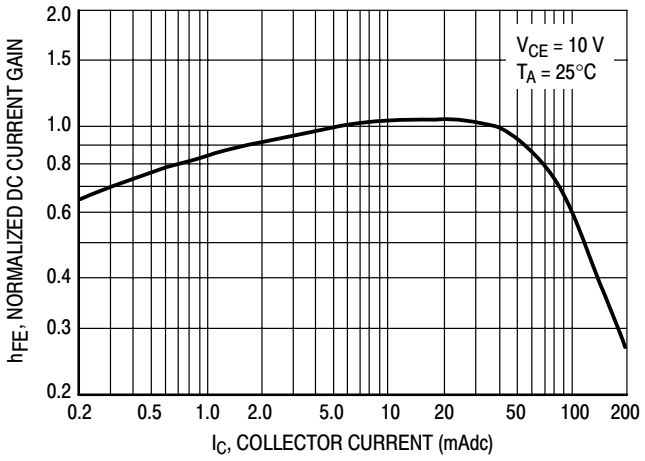


Figure 2. Normalized DC Current Gain

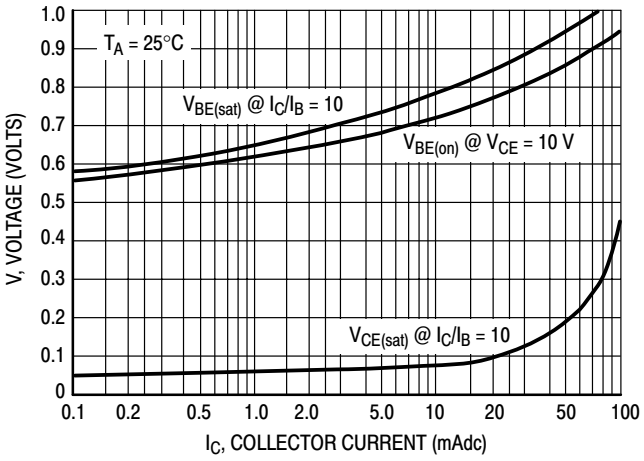


Figure 3. “Saturation” and “On” Voltages

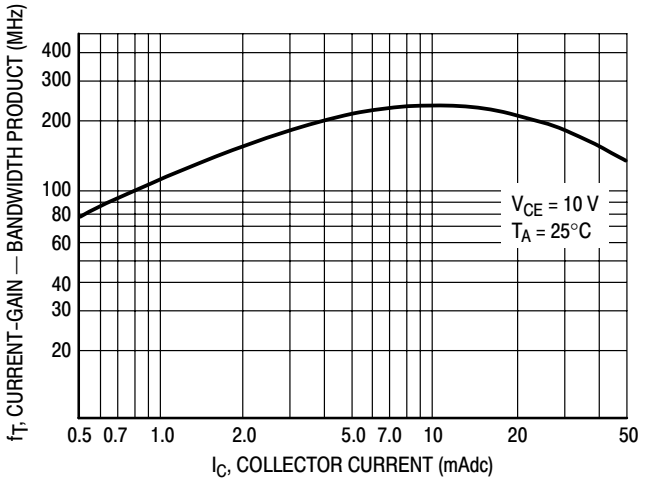


Figure 4. Current−Gain — Bandwidth Product

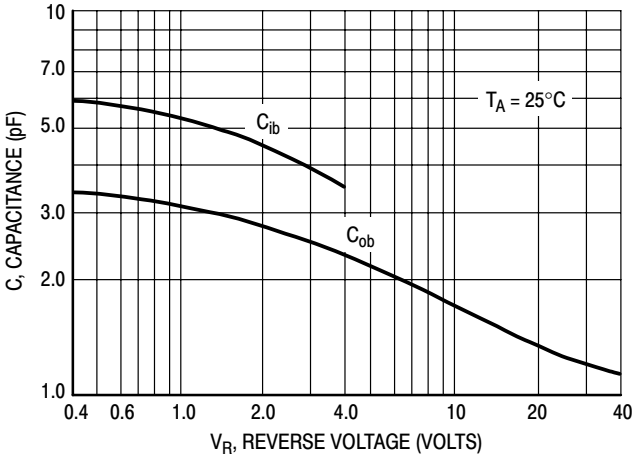


Figure 5. Capacitance

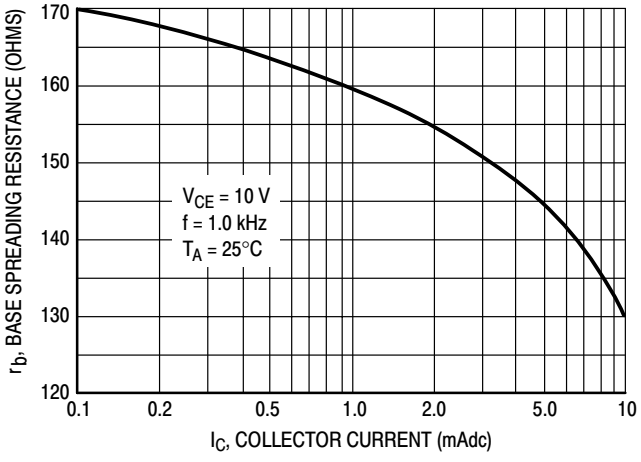
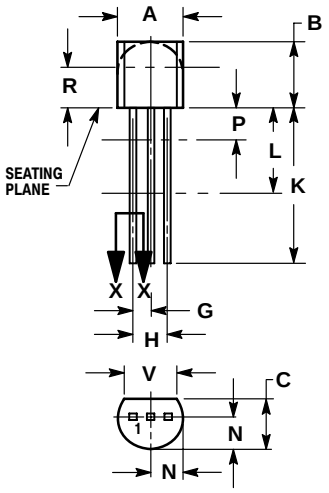


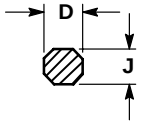
Figure 6. Base Spreading Resistance

PACKAGE DIMENSIONS

TO−92 (TO−226)
CASE 29−11
ISSUE AM



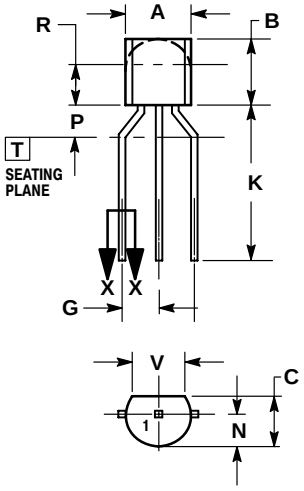
STRAIGHT LEAD
BULK PACK



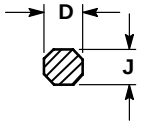
SECTION X−X

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.

	INCHES		MILLIMETERS	
DIM	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



SECTION X−X

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.

	MILLIMETERS	
DIM	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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BC550CG. BC550CG

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