

BC560C

Low Noise Transistors

PNP Silicon

Features

- Pb-Free Packages are Available*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-45	Vdc
Collector-Base Voltage	V_{CEB}	-50	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current - Continuous	I_C	-100	mA _{dc}
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $T_A = 25^\circ\text{C}$	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $T_A = 25^\circ\text{C}$	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

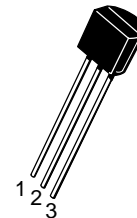
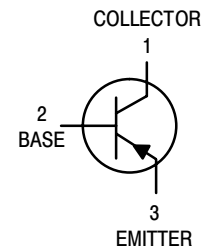
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C}/\text{W}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



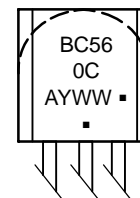
ON Semiconductor®

<http://onsemi.com>



TO-92
CASE 29
STYLE 17

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping
BC560C	TO-92	5000 Units / Bulk
BC560CG	TO-92 (Pb-Free)	5000 Units / Bulk
BC560CZL1	TO-92	2000 / Ammo Pack
BC560CZL1G	TO-92 (Pb-Free)	2000 / Ammo Pack

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

BC560C

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ($I_C = -10\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	-45	-	-	Vdc
Collector–Base Breakdown Voltage ($I_C = -10\text{ }\mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	-50	-	-	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10\text{ }\mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	12	-	-	Vdc
Collector Cutoff Current ($V_{CB} = -30\text{ Vdc}$, $I_E = 0$) ($V_{CB} = -30\text{ Vdc}$, $I_E = 0$, $T_A = +125^\circ\text{C}$)	I_{CBO}	-	-	-15 -5.0	nAdc μAdc
Emitter Cutoff Current ($V_{EB} = -4.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	-	-	-15	nAdc
ON CHARACTERISTICS					
DC Current Gain ($I_C = -10\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$) ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	h_{FE}	100 380	270 500	- 800	-
Collector–Emitter Saturation Voltage ($I_C = -10\text{ mA}$, $I_B = -0.5\text{ mA}$) ($I_C = -10\text{ mA}$, $I_B =$ (Note 1)) ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$, (Note 2))	$V_{CE(sat)}$	- - -	-0.075 -0.3 -0.25	-0.25 -0.6 -	Vdc
Base–Emitter Saturation Voltage ($I_C = -100\text{ mA}$, $I_B = -5.0\text{ mA}$)	$V_{BE(sat)}$	-	-1.1	-	Vdc
Base–Emitter On Voltage ($I_C = -10\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$) ($I_C = -100\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$) ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$)	$V_{BE(on)}$	- - -0.55	-0.52 -0.55 -0.62	- - -0.7	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain – Bandwidth Product ($I_C = -10\text{ mA}$, $V_{CE} = -5.0\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	-	250	-	MHz
Collector–Base Capacitance ($V_{CB} = -10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{cbo}	-	2.5	-	pF
Small–Signal Current Gain ($I_C = -2.0\text{ mA}$, $V_{CE} = -5.0\text{ V}$, $f = 1.0\text{ kHz}$)	h_{fe}	450	600	900	pF
Noise Figure ($I_C = -200\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$, $R_S = 2.0\text{ k}\Omega$, $f = 1.0\text{ kHz}$) ($I_C = -200\text{ }\mu\text{A}$, $V_{CE} = -5.0\text{ Vdc}$, $R_S = 100\text{ k}\Omega$, $f = 1.0\text{ kHz}$, $\Delta f = 200\text{ kHz}$)	NF_1 NF_2	- -	0.5 -	2.0 10	dB

- I_B is value for which $I_C = -11\text{ mA}$ at $V_{CE} = -1.0\text{ V}$.
- Pulse test = $300\text{ }\mu\text{s}$ – Duty cycle = 2%.

BC560C

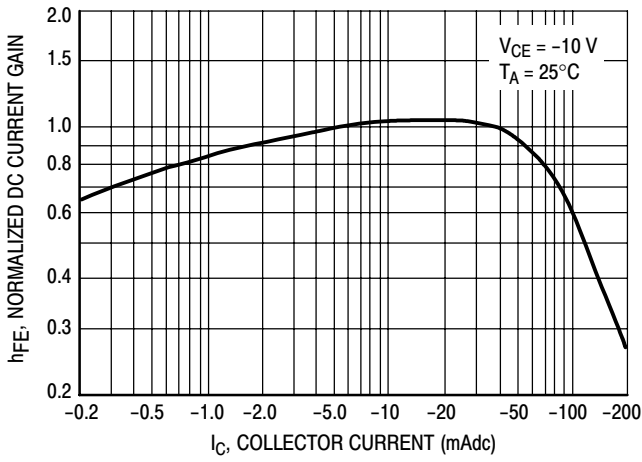


Figure 1. Normalized DC Current Gain

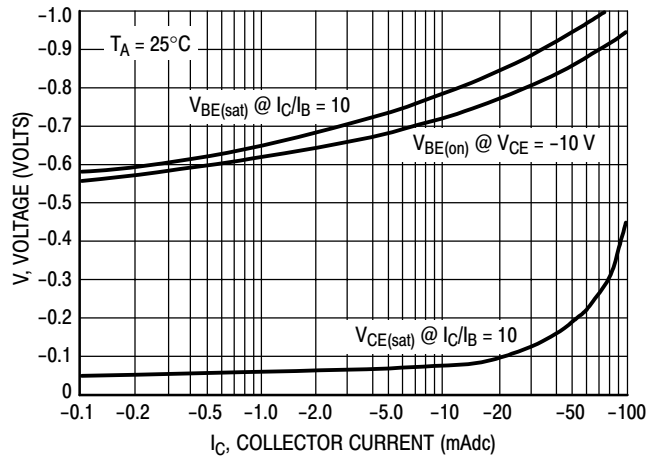


Figure 2. "Saturation" and "On" Voltages

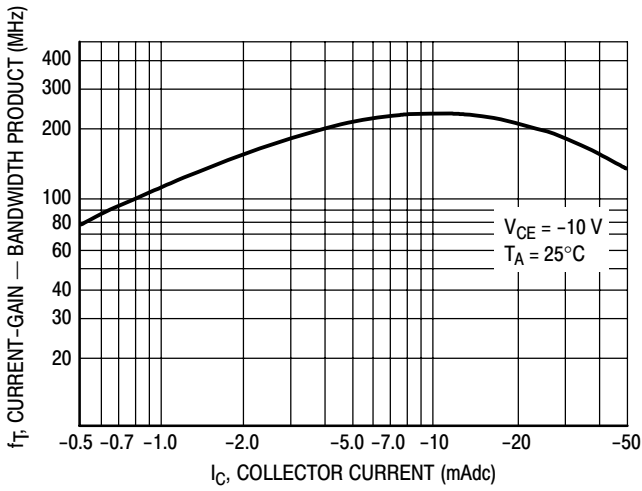


Figure 3. Current-Gain — Bandwidth Product

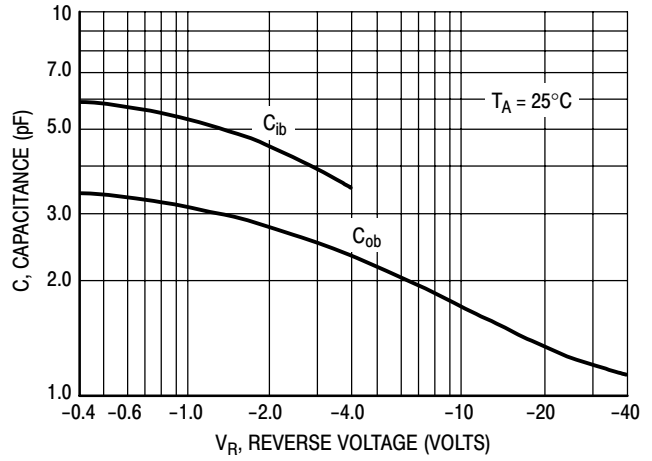


Figure 4. Capacitance

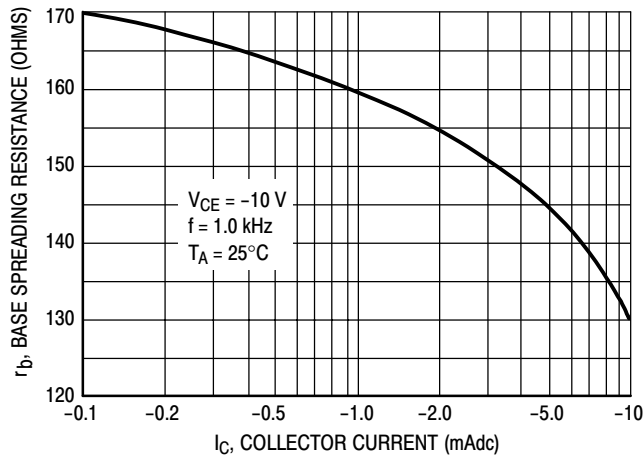
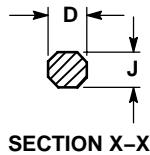
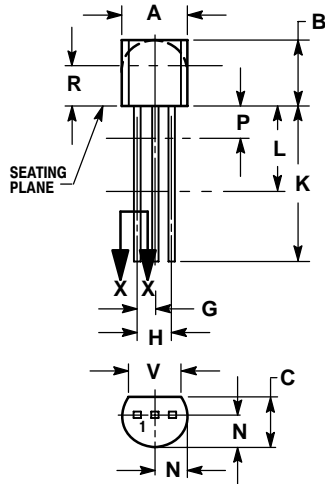


Figure 5. Base Spreading Resistance

BC560C

PACKAGE DIMENSIONS

TO-92 (TO-226)
CASE 29-11
ISSUE AL



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	---

STYLE 17:

- PIN 1. COLLECTOR
- BASE
- EMITTER

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