

BC212BRL1G Datasheet

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DiGi Electronics Part Number	BC212BRL1G-DG
Manufacturer	onsemi
Manufacturer Product Number	BC212BRL1G
Description	TRANS PNP 50V 0.1A TO92
Detailed Description	Bipolar (BJT) Transistor PNP 50 V 100 mA 280MHz 3 50 mW Through Hole TO-92 (TO-226)



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

BC212BRL1G

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

50 V

Current - Collector Cutoff (Max):

15nA (ICBO)

Power - Max:

350 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-226-3, TO-92-3 Long Body (Formed Leads)

Base Product Number:

BC212

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

100 mA

Vce Saturation (Max) @ Ib, Ic:

600mV @ 5mA, 100mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

60 @ 2mA, 5V

Frequency - Transition:

280MHz

Mounting Type:

Through Hole

Supplier Device Package:

TO-92 (TO-226)

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

BC212B

Amplifier Transistors

PNP Silicon

**ON Semiconductor®**<http://onsemi.com>**Features**

- These are Pb-Free Devices*

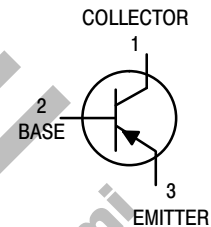
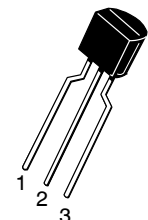
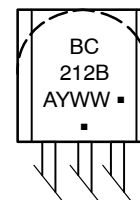
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-50	Vdc
Collector-Base Voltage	V_{CBO}	-60	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current - Continuous	I_C	-100	mA _{dc}
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0	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	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$

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.

STRAIGHT LEAD
BULK PACKBENT LEAD
TAPE & REEL
AMMO PACK**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†
BC212BG	TO-92 (Pb-Free)	5000 Units / Bulk
BC212BRL1G	TO-92 (Pb-Free)	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

BC212B**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector – Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50	-	-	Vdc
Collector – Base Breakdown Voltage	$V_{(BR)CBO}$	-60	-	-	Vdc
Emitter – Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-	-	Vdc
Collector – Emitter Leakage Current	I_{CBO}	-	-	-15	nAdc
Emitter – Base Leakage Current	I_{EBO}	-	-	-15	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = -10 \mu\text{Adc}$, $V_{CE} = -5.0 \text{ Vdc}$) ($I_C = -2.0 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$) ($I_C = -100 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$) (Note 1)	h_{FE}	40 60 -	- - 120	- - -	-
Collector – Emitter Saturation Voltage ($I_C = -10 \text{ mAdc}$, $I_B = -0.5 \text{ mAdc}$) ($I_C = -100 \text{ mAdc}$, $I_B = -5.0 \text{ mAdc}$) (Note 1)	$V_{CE(sat)}$	- -	-0.10 -0.25	- -0.6	Vdc
Base – Emitter Saturation Voltage ($I_C = -100 \text{ mAdc}$, $I_B = -5.0 \text{ mAdc}$)	$V_{BE(sat)}$	-	-1.0	-1.4	Vdc
Base – Emitter On Voltage ($I_C = -2.0 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$)	$V_{BE(on)}$	-0.6	-0.62	-0.72	Vdc

DYNAMIC CHARACTERISTICS

Current – Gain – Bandwidth Product ($I_C = -10 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $f = 100 \text{ mHz}$)	f_T	-	280	-	MHz
Common – Base Output Capacitance ($V_{CB} = -10 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ mHz}$)	C_{ob}	-	-	6.0	pF
Noise Figure ($I_C = -0.2 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $R_S = 2.0 \text{ k}\Omega$, $f = 1.0 \text{ kHz}$, $f = 200 \text{ Hz}$)	NF	-	-	10	dB
Small – Signal Current Gain ($I_C = -2.0 \text{ mAdc}$, $V_{CE} = -5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{fe}	200	-	400	-

1. Pulse Test: T_p 300 s, Duty Cycle 2.0%.

BC212B

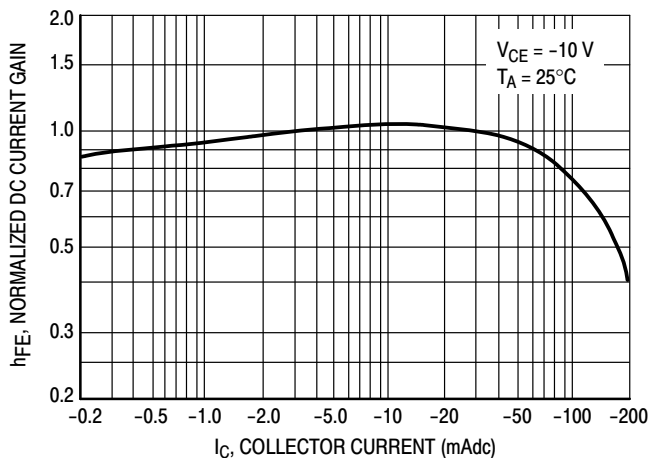


Figure 1. Normalized DC Current Gain

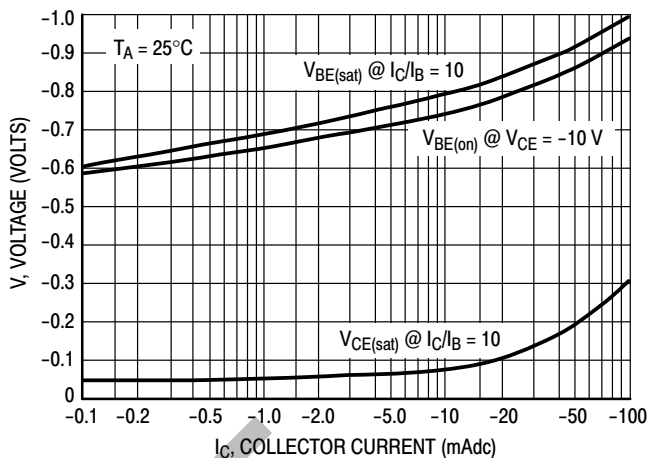


Figure 2. "Saturation" and "On" Voltages

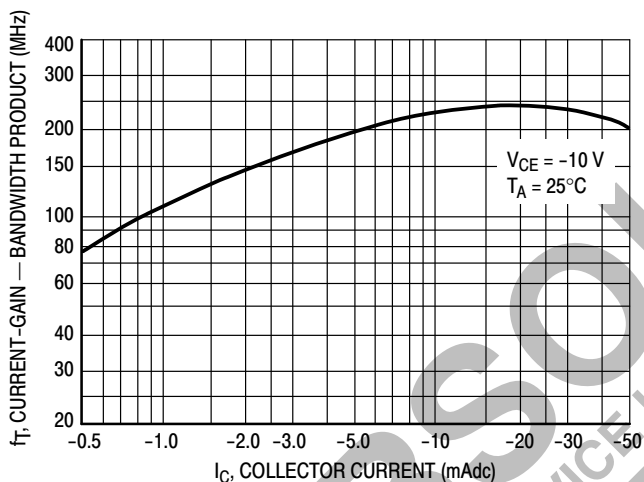


Figure 3. Current-Gain - Bandwidth Product

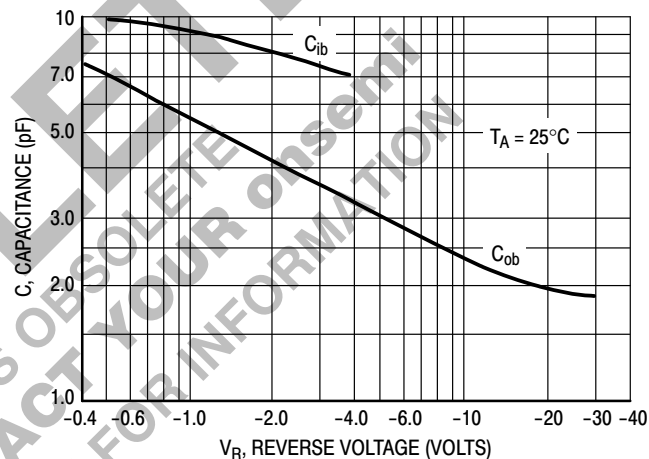


Figure 4. Capacitances

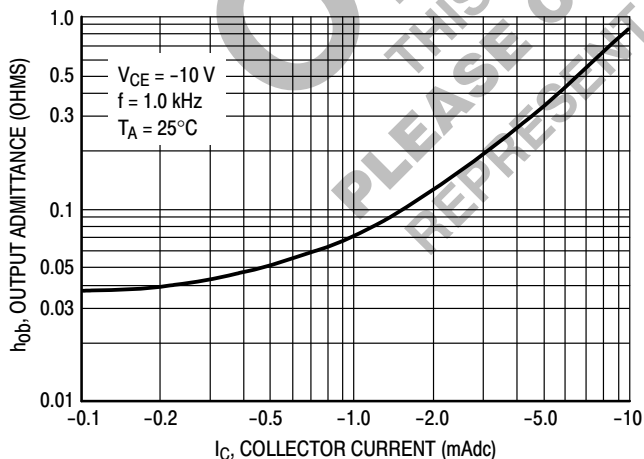


Figure 5. Output Admittance

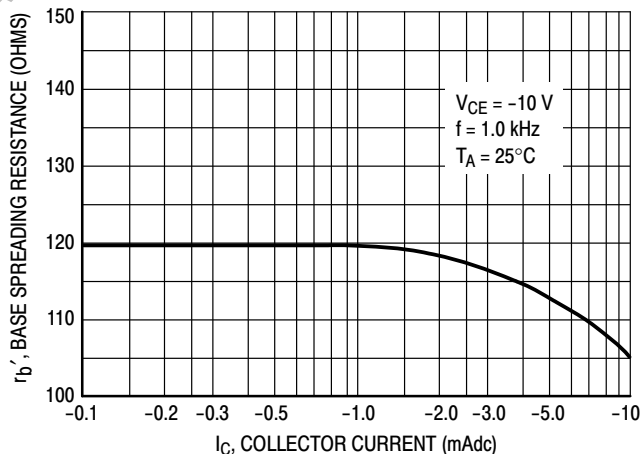
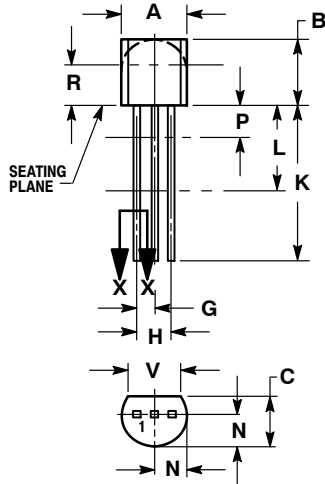


Figure 6. Base Spreading Resistance

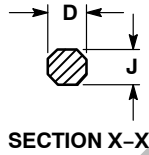
BC212B

PACKAGE DIMENSIONS

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



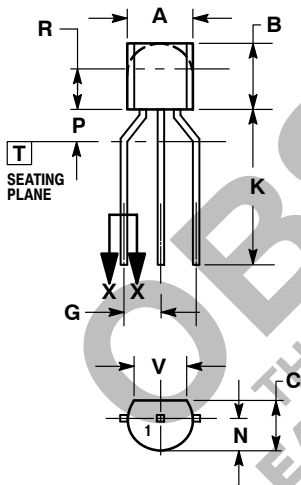
**STRAIGHT LEAD
BULK PACK**



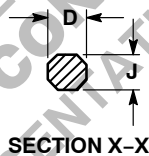
NOTES:

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:

1. COLLECTOR
2. BASE
3. EMITTER

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