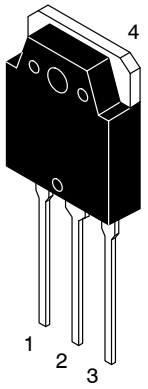
Complementary NPN-PNP Power Bipolar Transistors

NJW0281G (NPN), NJW0302G (PNP)

15 AMPERES
COMPLEMENTARY SILICON
POWER TRANSISTORS
250 VOLTS, 150 WATTS



TO-3P
CASE 340AB
STYLES 1,2,3

These complementary devices are lower power versions of the popular NJW3281G and NJW1302G audio output transistors. With superior gain linearity and safe operating area performance, these transistors are ideal for high fidelity audio amplifier output stages and other linear applications.

Features

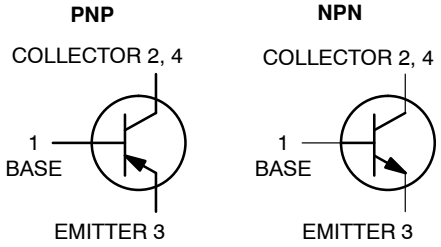
- Exceptional Safe Operating Area
- NPN/PNP Gain Matching within 10% from 50 mA to 3 A
- Excellent Gain Linearity
- High BVCEO
- High Frequency
- These Devices are Pb-Free and are RoHS Compliant

Benefits

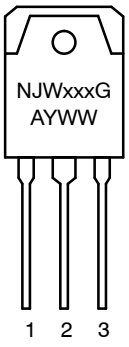
- Reliable Performance at Higher Powers
- Symmetrical Characteristics in Complementary Configurations
- Accurate Reproduction of Input Signal
- Greater Dynamic Range
- High Amplifier Bandwidth

Applications

- High-End Consumer Audio Products
  - Home Amplifiers
  - Home Receivers
- Professional Audio Amplifiers
  - Theater and Stadium Sound Systems
  - Public Address Systems (PAs)



MARKING DIAGRAM



xxxx = 0281 or 0302
G = Pb-Free Package
A = Assembly Location
Y = Year
WW = Work Week

MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V_{CEO}	Collector-Emitter Voltage	250	Vdc
V_{CBO}	Collector-Base Voltage	250	Vdc
V_{EBO}	Emitter-Base Voltage	5.0	Vdc
V_{CEX}	Collector-Emitter Voltage - 1.5 V	250	Vdc
I_C	Collector Current - Continuous	15	Adc
I_{CM}	Collector Current - Peak (Note 1)	30	Adc
I_B	Base Current - Continuous	1.5	Adc
P_D	Total Power Dissipation @ T_C = 25 °C	150	Watts
T_J, T_{stg}	Operating and Storage Junction Temperature Range	− 65 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.
1. Pulse Test: Pulse Width = 5.0 ms, Duty Cycle < 10%.

ORDERING INFORMATION

Device	Package	Shipping
NJW0281G	TO-3P (Pb-Free)	30 Units/Rail
NJW0302G	TO-3P (Pb-Free)	30 Units/Rail

© Semiconductor Components Industries, LLC, 2013

Downloaded from Arrow.com.

THERMAL CHARACTERISTICS

Symbol	Characteristic	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.83	°C/W

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

Symbol	Characteristic	Min	Max	Unit
OFF CHARACTERISTICS				
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage (I_C = 30 mA, I_B = 0)	250	–	V
I_{CBO}	Collector Cutoff Current (V_{CB} = 250 V, I_E = 0)	–	10	μA
I_{EBO}	Emitter Cutoff Current (V_{EB} = 5.0 V, I_C = 0)	–	5.0	μA
ON CHARACTERISTICS				
h_{FE}	DC Current Gain (I_C = 0.5 A, V_{CE} = 5.0 V) (I_C = 1.0 A, V_{CE} = 5.0 V) (I_C = 3.0 A, V_{CE} = 5.0 V)	 75 75 75	 150 150 150	–
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C = 5.0 A, I_B = 0.5 A)	–	1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage (I_C = 5.0 A, V_{CE} = 5.0 V)	–	1.2	V
DYNAMIC CHARACTERISTICS				
f_T	Current-Gain - Bandwidth Product (I_C = 1.0 A, V_{CE} = 5.0 V, f_{test} = 1.0 MHz)	30	–	MHz
C_{ob}	Output Capacitance (V_{CB} = 10 V, I_E = 0, f_{test} = 1.0 MHz)	–	400	pF

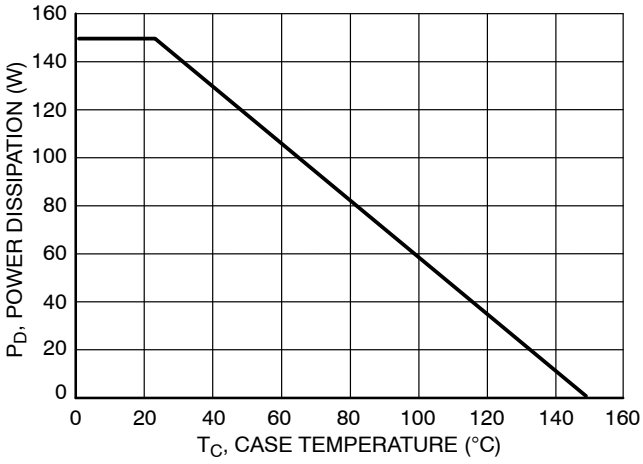


Figure 1. Power Derating

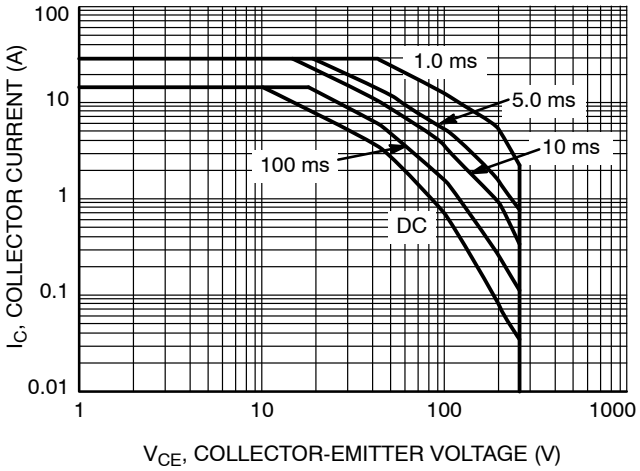


Figure 2. Safe Operating Area

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

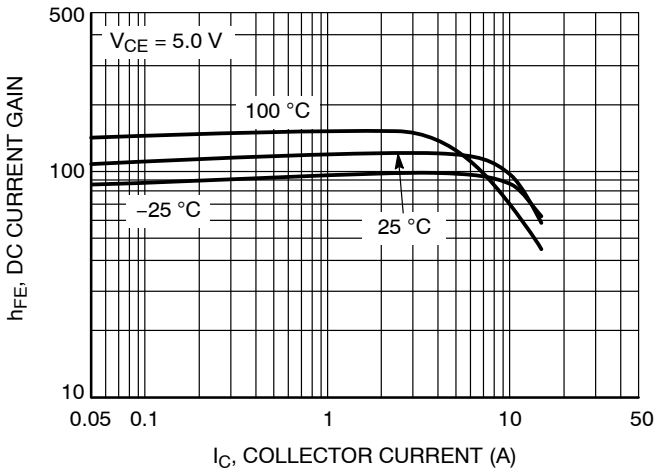


Figure 3. NJW0281G DC Current Gain

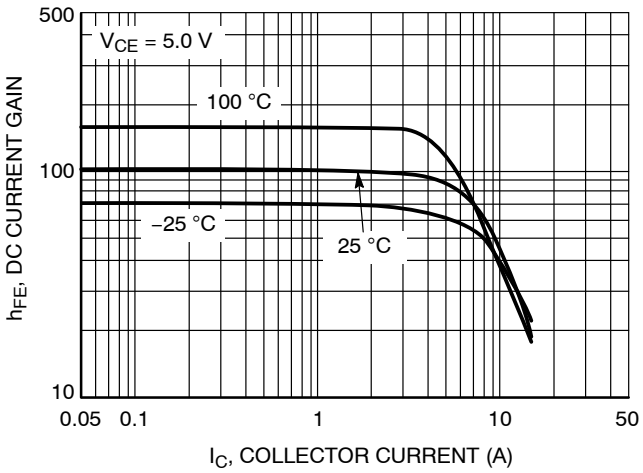


Figure 4. NJW0302G DC Current Gain

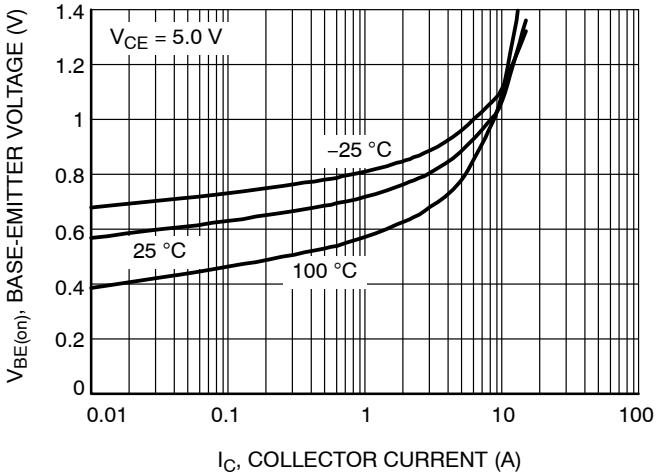


Figure 5. NJW0281G Base-Emitter Voltage

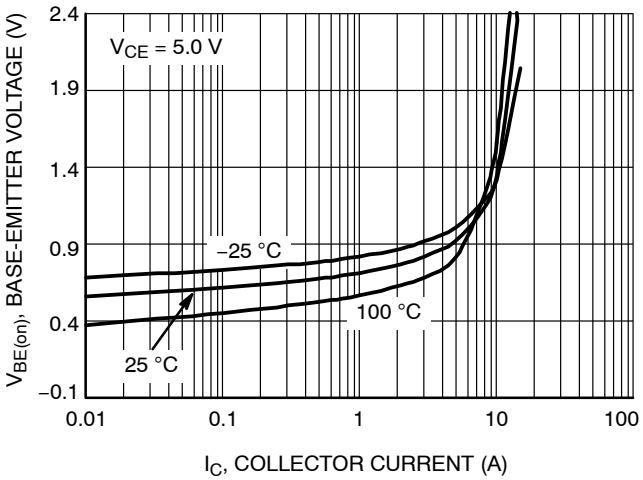


Figure 6. NJW0302G Base-Emitter Voltage

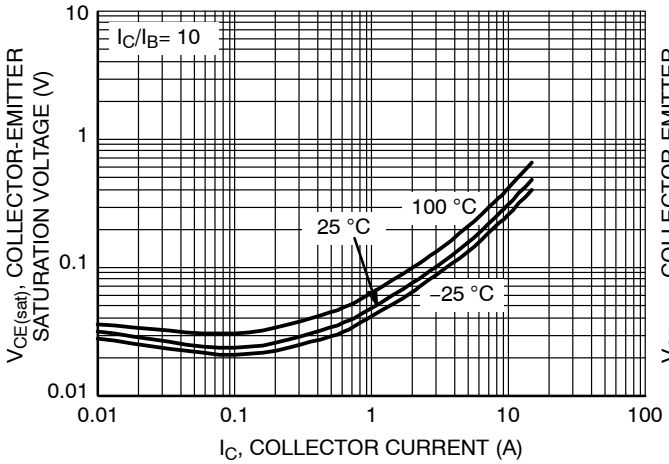


Figure 7. NJW0281G Saturation Voltage

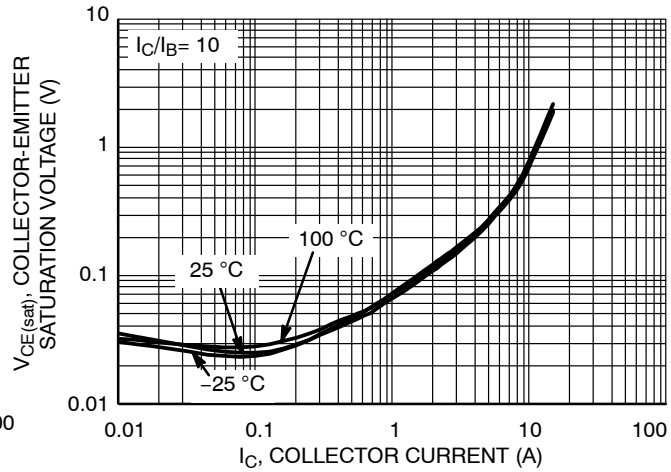


Figure 8. NJW0302G Saturation Voltage

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

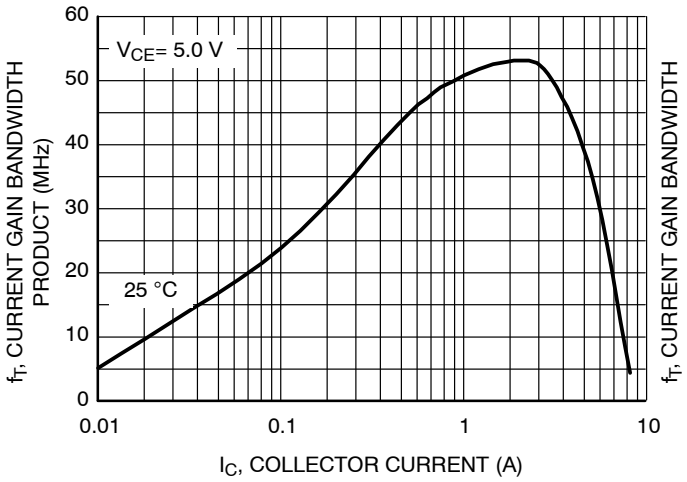


Figure 9. NJW0281G Current Gain Bandwidth Product

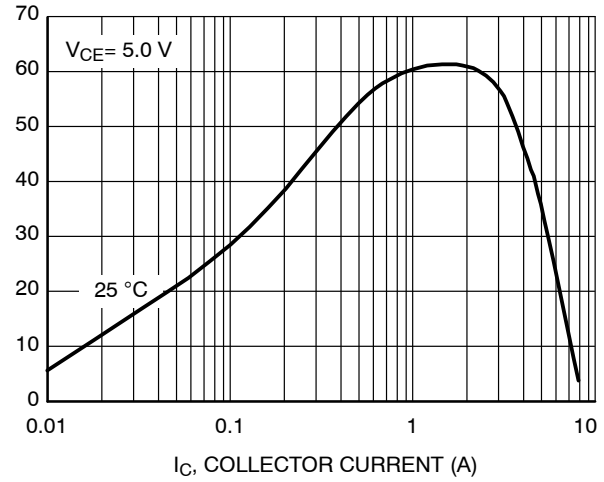


Figure 10. NJW0302G Current Gain Bandwidth Product

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

REVISION HISTORY

Revision	Description of Changes	Date
2	Rebranded the Data Sheet to **onsemi** format.	6/26/2025

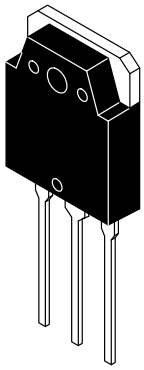
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

Share Feedback
Your Opinion Matters

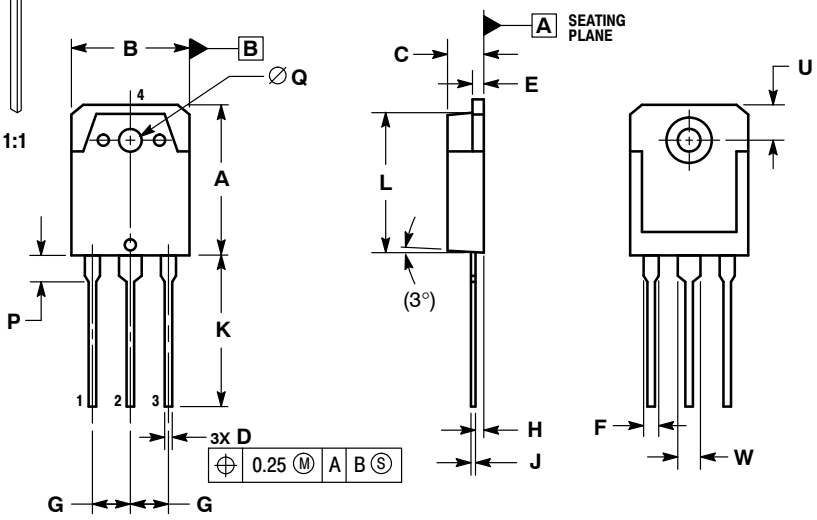
Downloaded from Arrow.com.

TO−3P−3LD
CASE 340AB
ISSUE A

DATE 30 OCT 2007



SCALE 1:1



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30mm FROM THE TERMINAL TIP.
4. DIMENSION A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

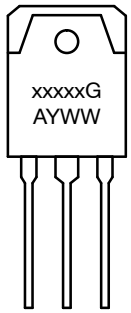
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	19.70	19.90	20.10
B	15.40	15.60	15.80
C	4.60	4.80	5.00
D	0.80	1.00	1.20
E	1.45	1.50	1.65
F	1.80	2.00	2.20
G	5.45 BSC		
H	1.20	1.40	1.60
J	0.55	0.60	0.75
K	19.80	20.00	20.20
L	18.50	18.70	18.90
P	3.30	3.50	3.70
Q	3.10	3.20	3.50
U	5.00 REF		
W	2.80	3.00	3.20

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 3:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

GENERIC MARKING DIAGRAM*



xxxxx = Specific Device Code
G = Pb−Free Package
A = Assembly Location
Y = Year
WW = Work Week

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G”, may or not be present.

DOCUMENT NUMBER:	**98AON25095D**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red.
DESCRIPTION:	**TO−3P−3LD**	**PAGE 1 OF 1**

onsemi and onsemi are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. **onsemi** does not convey any license under its patent rights nor the rights of others.

Downloaded from Arrow.com.

onsemi, ONSEMI , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent−Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as−is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

◊

Downloaded from Arrow.com.