

NJW44H11G

80 V NPN, 10 A Power Transistor

These series of plastic, silicon NPN power transistors can be used as general purpose power amplification and switching such as output or driver stages in applications such as switching regulators, converters and power amplifiers.

Features

- Fast Switching Speeds
- High Frequency
- These Devices are Pb-Free, Halogen Free/BFR 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

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current - Continuous	I_C	10	A
Collector Current - Peak (Note 1)	I_{CM}	20	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	P_D	120	Watts

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.04	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

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.

1. Pulse Test: Pulse Width = 5 ms, Duty Cycle $\leq 10\%$.

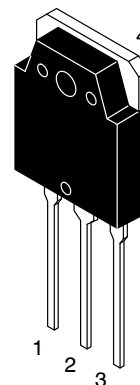
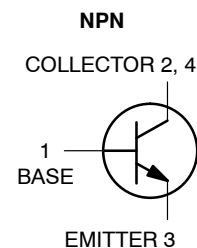
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



ON Semiconductor®

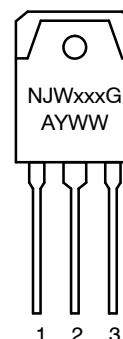
<http://onsemi.com>

80 VOLT, 10 AMPS NPN POWER TRANSISTORS



TO-3P
PLASTIC
CASE 340AB

MARKING DIAGRAM



xxx = TBD
G = Pb-Free Package
A = Assembly Location
Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
NJW44H11G	TO-3P (Pb-Free)	30 Units/Rail

NJW44H11G

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

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Collector–Emitter Sustaining Voltage (I _C = 30 mAdc, I _B = 0)	V _{CEO}	80	–	–	Vdc
Collector–Cutoff Current (V _{CE} = Rated V _{CEO} , V _{BE} = 0)	I _{CES}	–	–	10	μAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc)	I _{EBO}	–	–	10	μAdc

ON CHARACTERISTICS

DC Current Gain (I _C = 2 A, V _{CE} = 2 V) (I _C = 4 A, V _{CE} = 2 V)	h _{FE}	100 80	– –	400 320	–
Collector–Emitter Saturation Voltage (I _C = 8 A, I _B = 400 mA)	V _{CE(sat)}	–	–	1.0	V
Base–Emitter Turn-on Voltage (I _C = 8 A, V _{CE} = 2.0 V)	V _{BE(on)}	–	–	1.5	V

DYNAMIC CHARACTERISTICS

Output Capacitance (V _{CB} = 10 V, f = 1.0 MHz)	C _{obo}	–	65	–	pF
Cutoff Frequency (I _C = 500 mA, V _{CE} = 5 V, f = 1.0 MHz)	f _T	–	85	–	MHz

SWITCHING TIMES

Delay and Rise Times (I _C = 5.0 Adc, I _{B1} = 0.5 A)	t _d + t _r	–	300	–	ns
Storage Time (I _C = 5.0 Adc, I _{B1} = I _{B2} = 0.5 A)	t _s	–	500	–	ns
Fall Time (I _C = 5.0 Adc, I _{B1} = I _{B2} = 0.5 A)	t _f	–	140	–	ns

TYPICAL CHARACTERISTICS

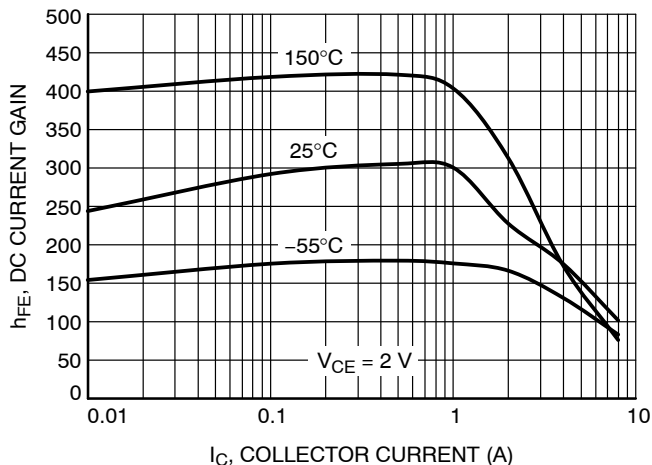


Figure 1. DC Current Gain

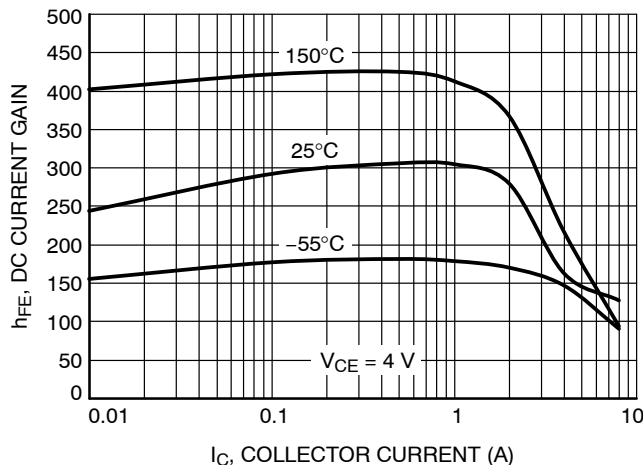


Figure 2. DC Current Gain

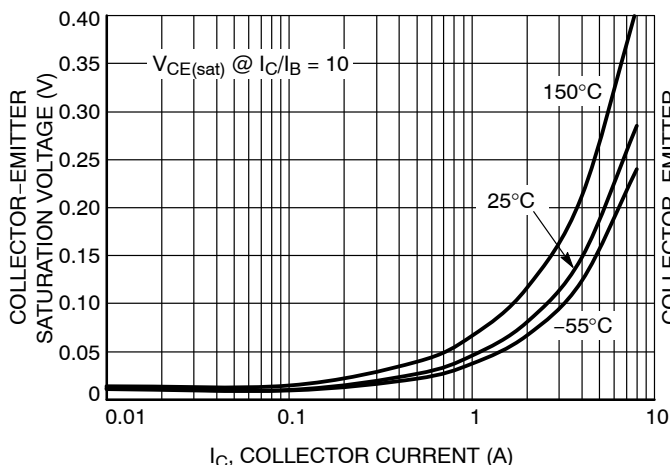


Figure 3. Collector Emitter Saturation Voltage

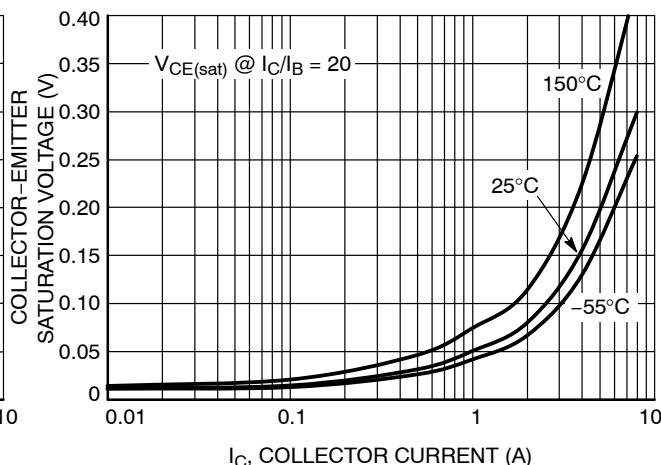


Figure 4. Collector Emitter Saturation Voltage

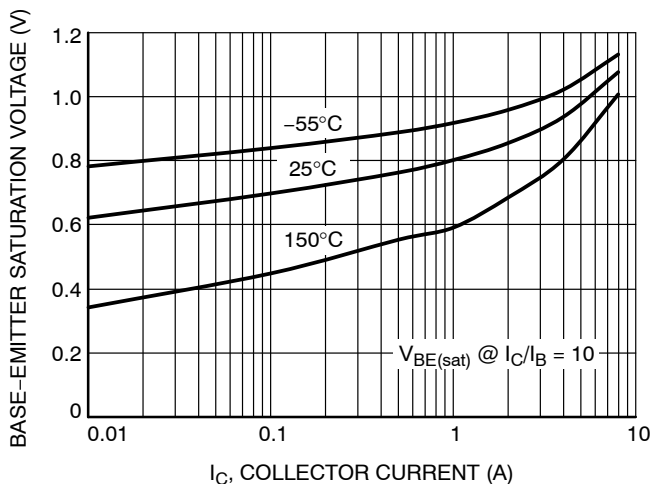


Figure 5. Base Emitter Saturation Voltage

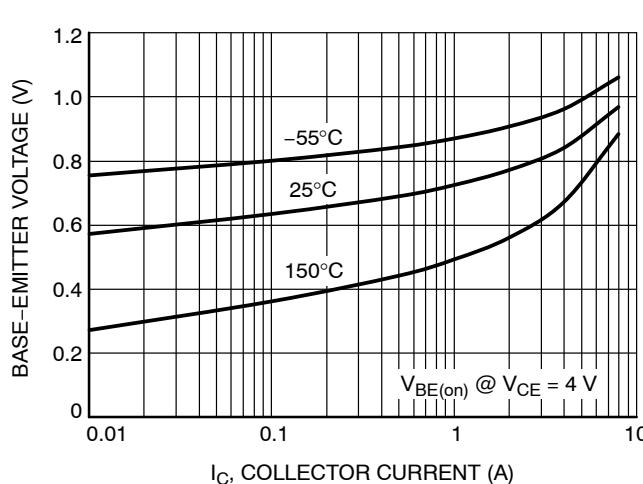


Figure 6. Base Emitter "ON" Voltage

NJW44H11G

TYPICAL CHARACTERISTICS

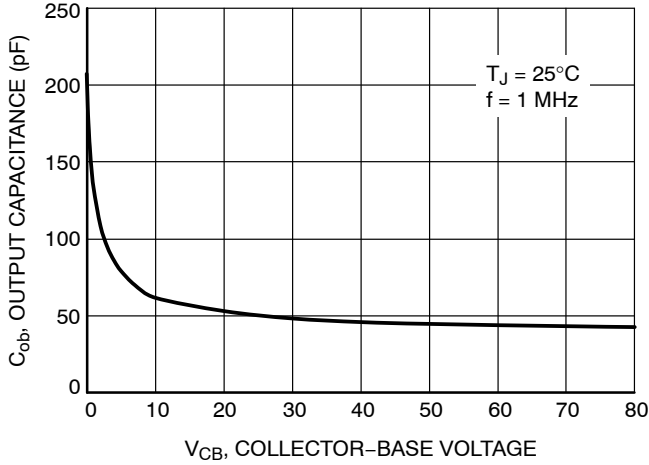


Figure 7. Output Capacitance

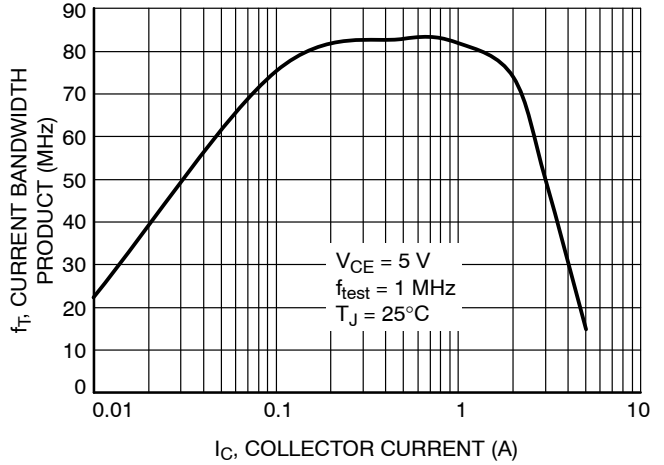


Figure 8. Current Gain Bandwidth Product

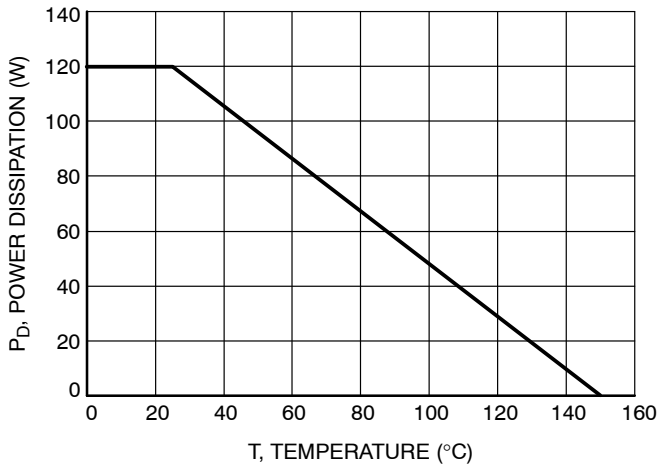


Figure 9. Power Temperature Derating

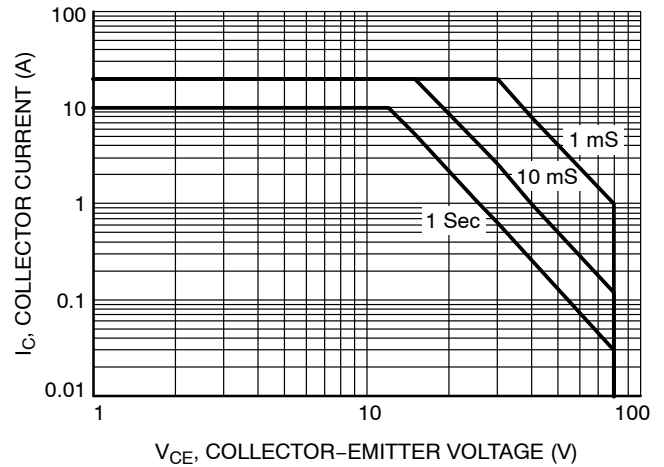
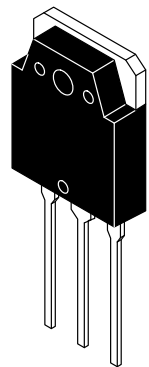


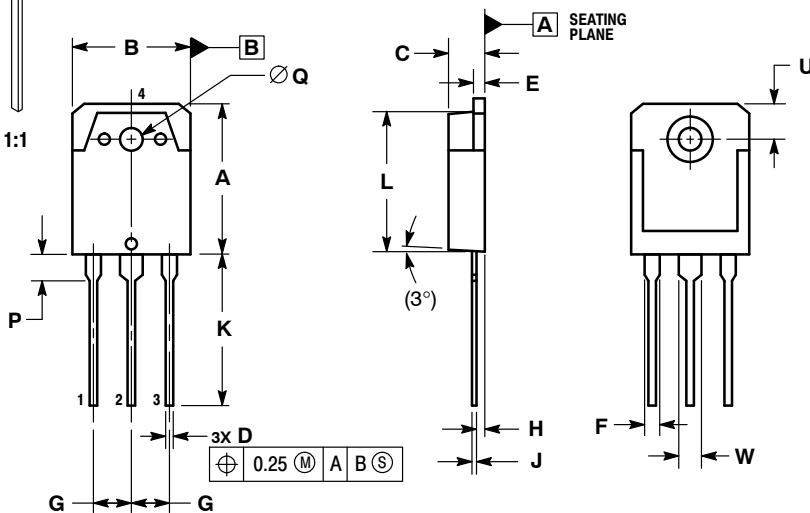
Figure 10. Safe Operating Area (SOA)

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.

DIM	MILLIMETERS		
	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

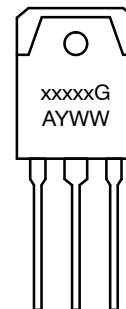
STYLE 2:

- 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.

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