80 V NPN, 10 A Power Transistor

NJW44H11G

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 °C)

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

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.

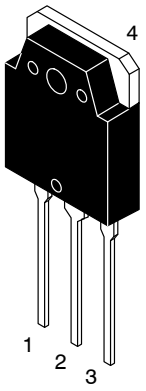
1. Pulse Test: Pulse Width = 5 ms, Duty Cycle ≤ 10%.

THERMAL CHARACTERISTICS

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

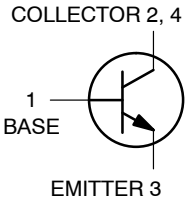
* For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

80 VOLT, 10 AMPS NPN POWER TRANSISTORS

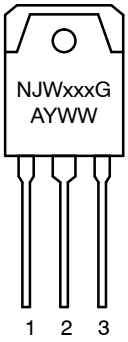


TO-3P PLASTIC CASE 340AB

NPN



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

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

Symbol	Characteristic	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
V_{CEO}	Collector-Emitter Sustaining Voltage (I_C = 30 mAdc, I_B = 0)	80	–	–	Vdc
I_{CES}	Collector-Cutoff Current (V_{CE} = Rated V_{CEO}, V_{BE} = 0)	–	–	10	μAdc
I_{EBO}	Emitter Cutoff Current (V_{BE} = 5.0 Vdc)	–	–	10	μAdc
ON CHARACTERISTICS					
h_{FE}	DC Current Gain (I_C = 2 A, V_{CE} = 2 V) (I_C = 4 A, V_{CE} = 2 V)	 100 80	 – –	 400 320	–
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C = 8 A, I_B = 400 mA)	–	–	1.0	V
$V_{BE(on)}$	Base-Emitter Turn-on Voltage (I_C = 8 A, V_{CE} = 2.0 V)	–	–	1.5	V
DYNAMIC CHARACTERISTICS					
C_{obo}	Output Capacitance (V_{CB} = 10 V, f = 1.0 MHz)	–	65	–	pF
f_T	Cutoff Frequency (I_C = 500 mA, V_{CE} = 5 V, f = 1.0 MHz)	–	85	–	MHz
SWITCHING TIMES					
$t_d + t_r$	Delay and Rise Times (I_C = 5.0 Adc, I_{B1} = 0.5 A)	–	300	–	ns
t_s	Storage Time (I_C = 5.0 Adc, I_{B1} = I_{B2} = 0.5 A)	–	500	–	ns
t_f	Fall Time (I_C = 5.0 Adc, I_{B1} = I_{B2} = 0.5 A)	–	140	–	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

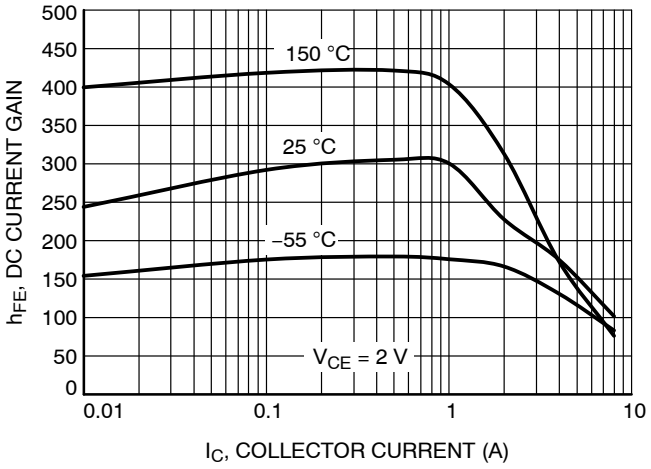


Figure 1. DC Current Gain

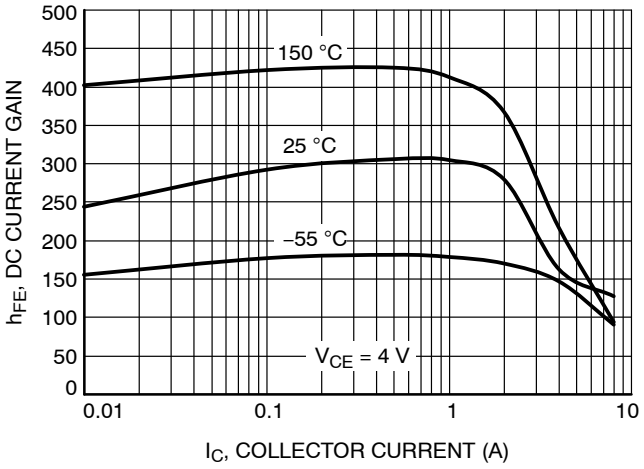


Figure 2. DC Current Gain

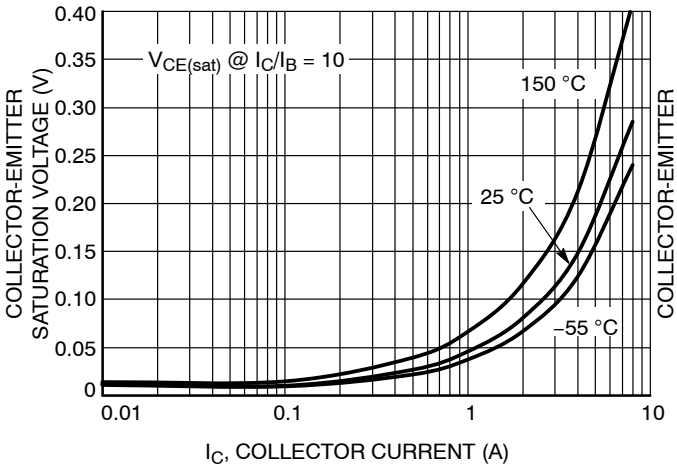


Figure 3. Collector Emitter Saturation Voltage

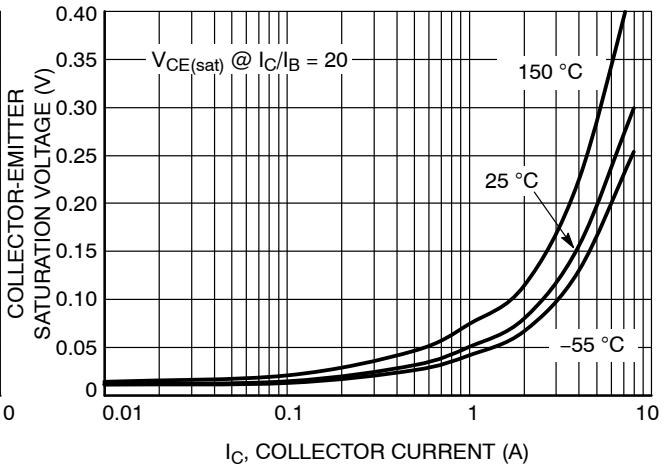


Figure 4. Collector Emitter Saturation Voltage

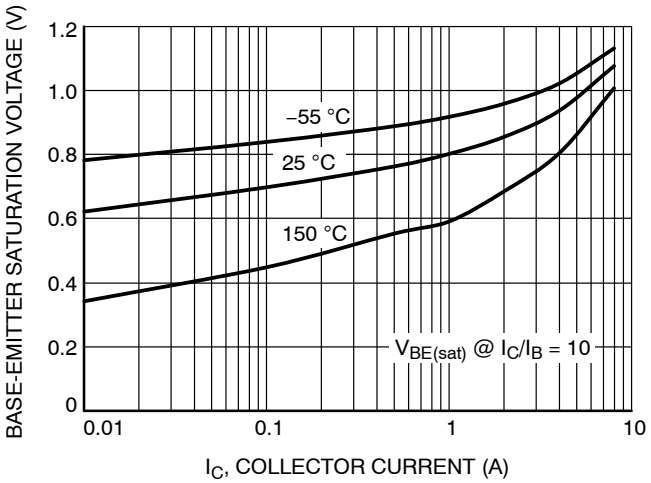


Figure 5. Base Emitter Saturation Voltage

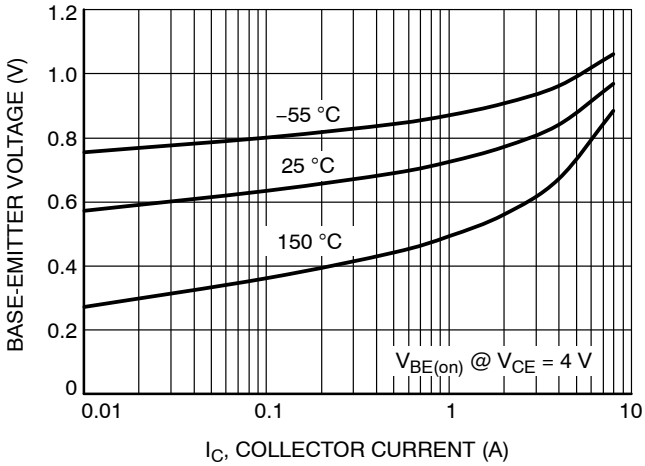


Figure 6. Base Emitter “ON” Voltage

TYPICAL CHARACTERISTICS (continued)

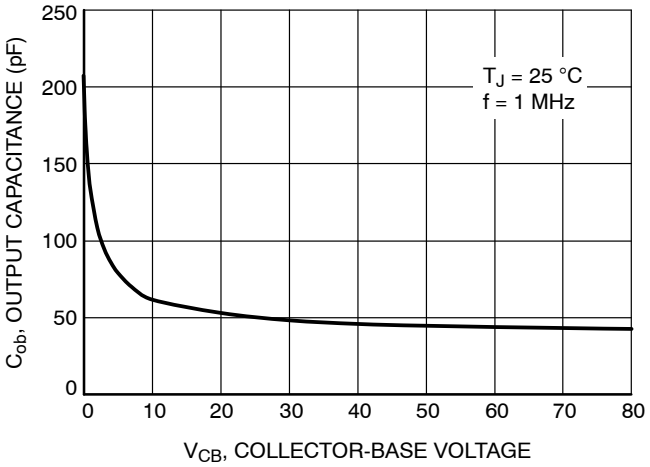


Figure 7. Output Capacitance

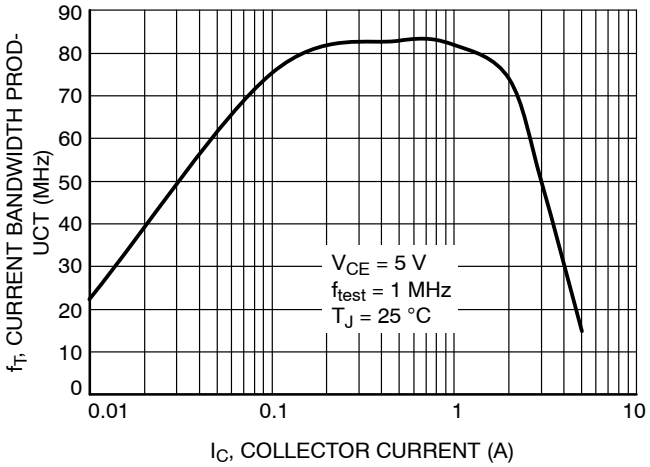


Figure 8. Current Gain Bandwidth Product

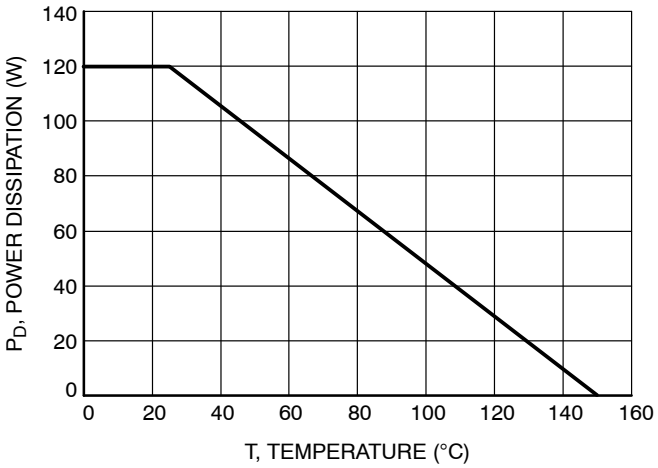


Figure 9. Power Temperature Derating

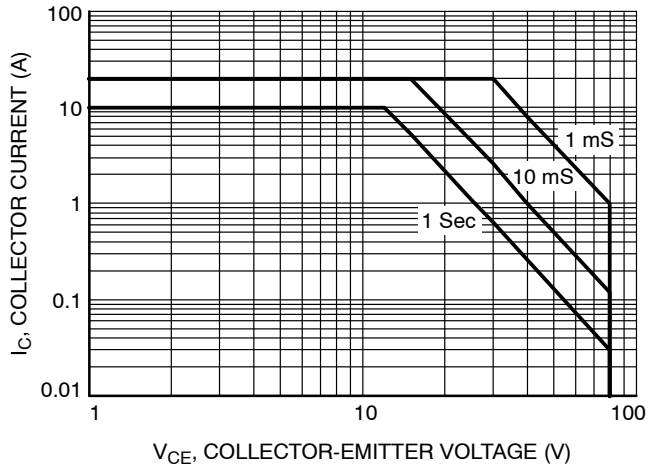


Figure 10. Safe Operating Area (SOA)

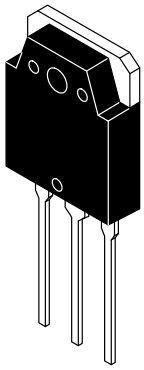
REVISION HISTORY

Revision	Description of Changes	Date
1	Rebranded the Data Sheet to **onsemi** format.	7/8/2025

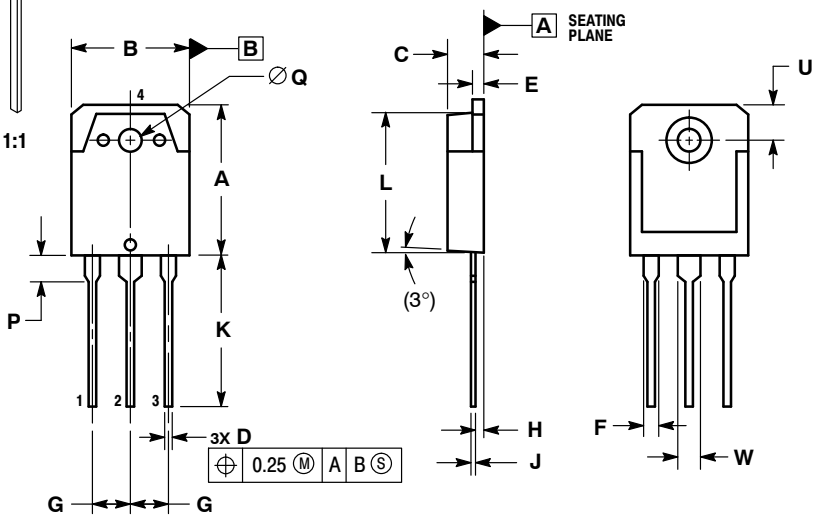
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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.

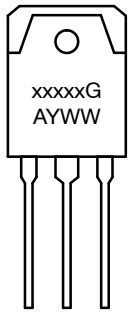
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	19.70	19.90	20.10
B	15.40	15.60	15.80
C	4.60	4.80	5.00
D	0.80	1.00	1.20
E	1.45	1.50	1.65
F	1.80	2.00	2.20
G	5.45 BSC		
H	1.20	1.40	1.60
J	0.55	0.60	0.75
K	19.80	20.00	20.20
L	18.50	18.70	18.90
P	3.30	3.50	3.70
Q	3.10	3.20	3.50
U	5.00 REF		
W	2.80	3.00	3.20

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.

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DESCRIPTION:	**TO−3P−3LD**	**PAGE 1 OF 1**

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