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°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°C	P_D	120	Watts

THERMAL CHARACTERISTICS

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

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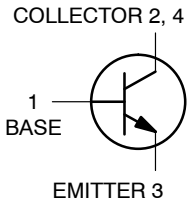
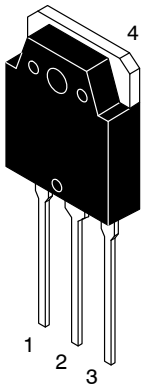
80 VOLT, 10 AMPS NPN POWER TRANSISTORS

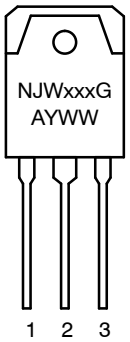
NPN





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

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

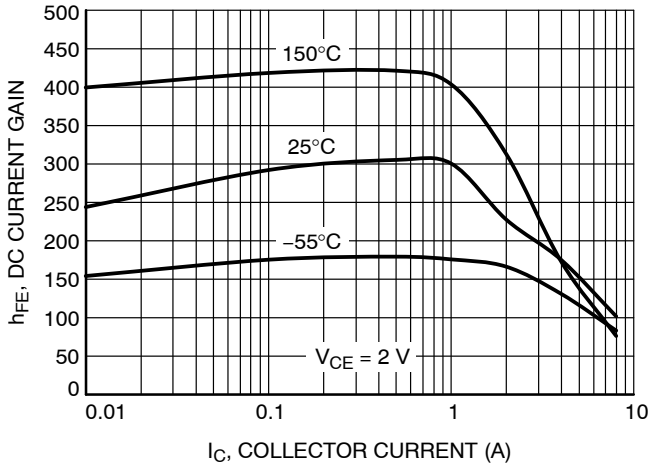


Figure 1. DC Current Gain

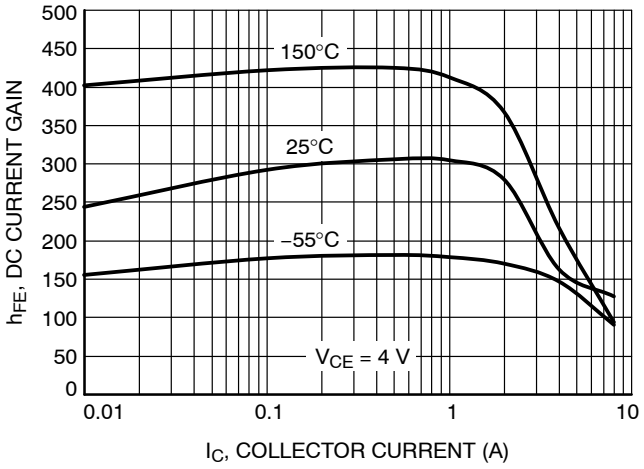


Figure 2. DC Current Gain

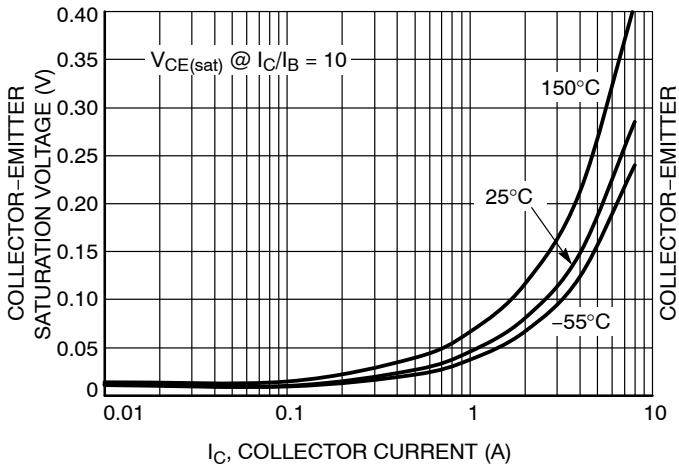


Figure 3. Collector Emitter Saturation Voltage

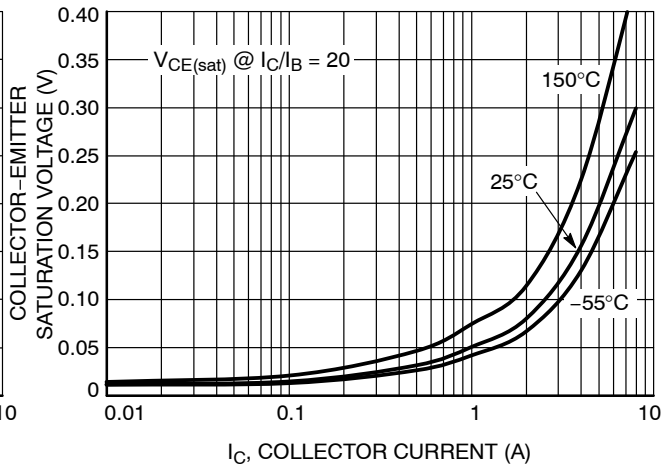


Figure 4. Collector Emitter Saturation Voltage

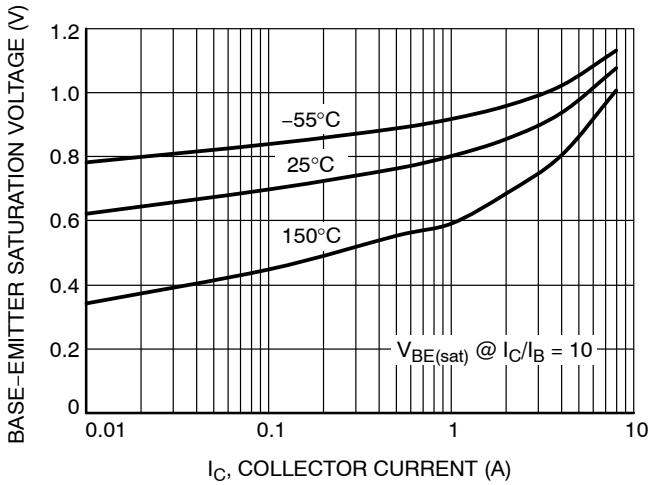


Figure 5. Base Emitter Saturation Voltage

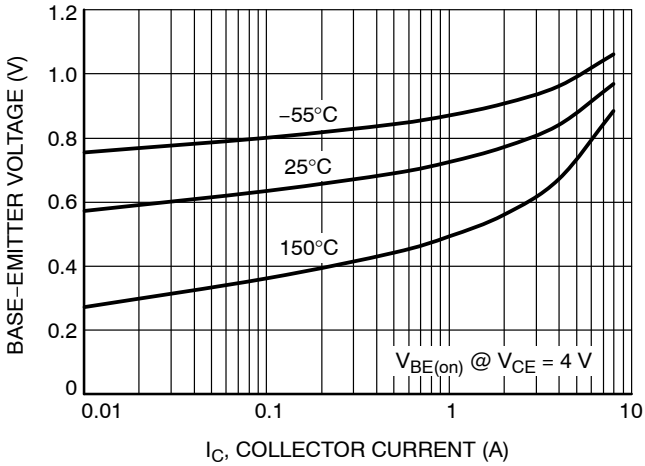


Figure 6. Base Emitter “ON” Voltage

TYPICAL CHARACTERISTICS

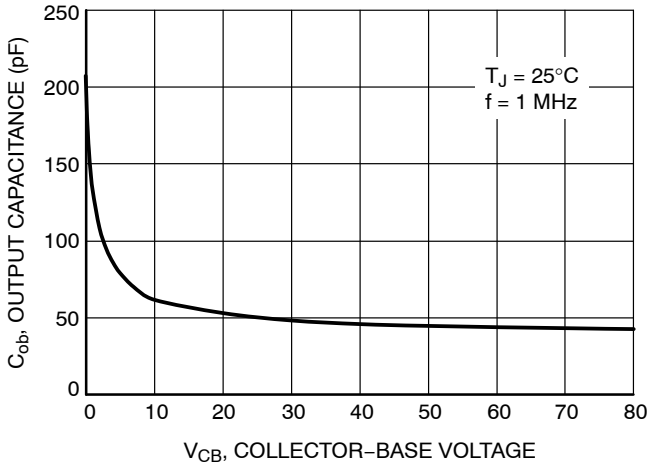


Figure 7. Output Capacitance

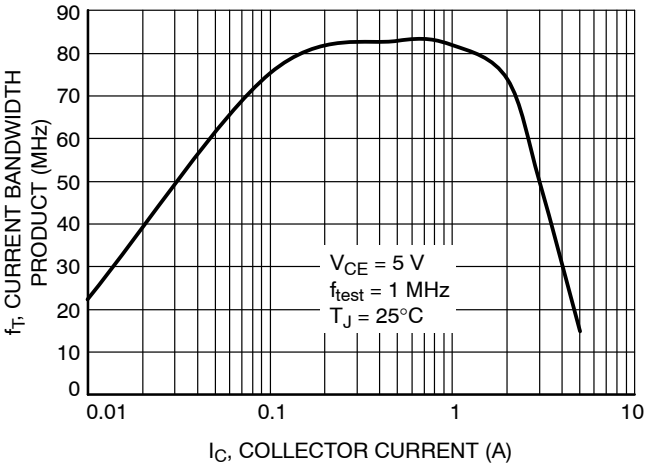


Figure 8. Current Gain Bandwidth Product

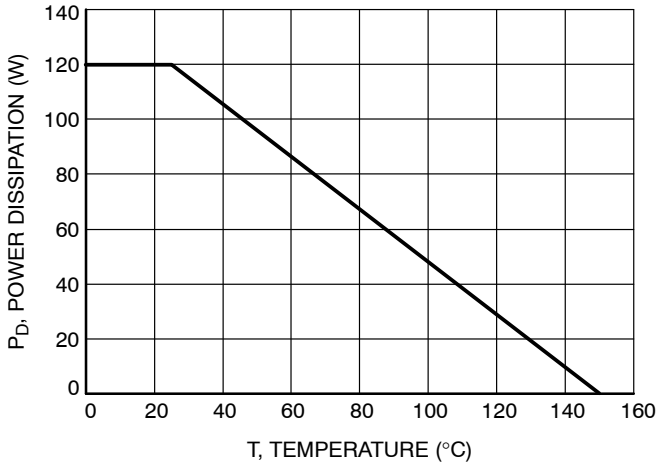


Figure 9. Power Temperature Derating

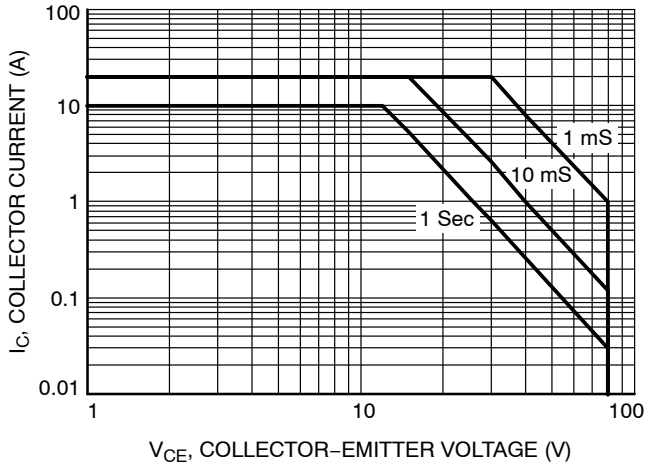


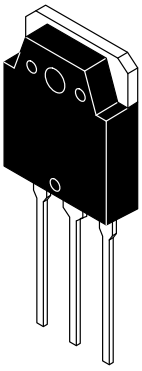
Figure 10. Safe Operating Area (SOA)

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

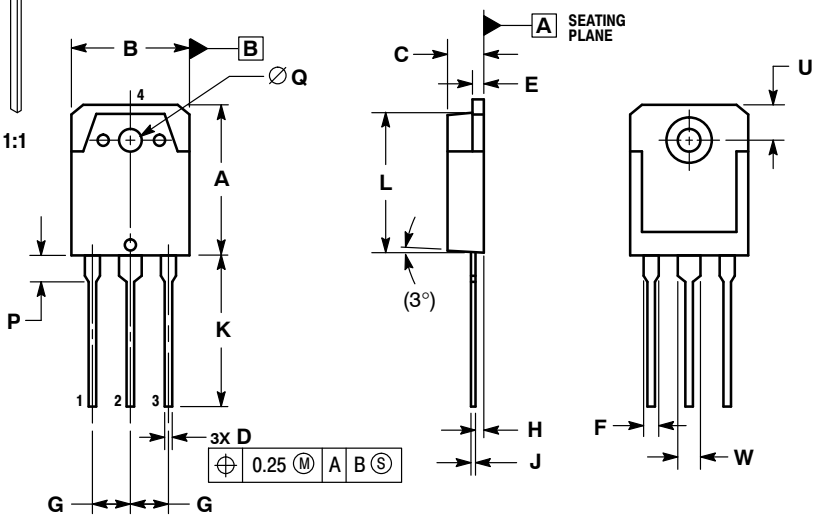
ON Semiconductor®

TO−3P−3LD
CASE 340AB−01
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.

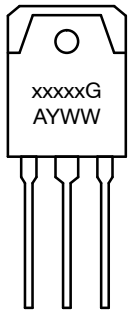
	MILLIMETERS		
DIM	MIN	NOM	MAX
A	19.70	19.90	20.10
B	15.40	15.60	15.80
C	4.60	4.80	5.00
D	0.80	1.00	1.20
E	1.45	1.50	1.65
F	1.80	2.00	2.20
G	5.45 BSC		
H	1.20	1.40	1.60
J	0.55	0.60	0.75
K	19.80	20.00	20.20
L	18.50	18.70	18.90
P	3.30	3.50	3.70
Q	3.10	3.20	3.50
U	5.00 REF		
W	2.80	3.00	3.20

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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