

Power Transistors

NPN Silicon DPAK For Surface Mount Applications

NJD2873

Designed for high-gain audio amplifier applications.

Features

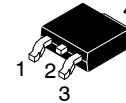
- High DC Current Gain
- Low Collector-Emitter Saturation Voltage
- High Current-Gain - Bandwidth Product
- Epoxy Meets UL 94 V-0 @ 0.125 in
- NJV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

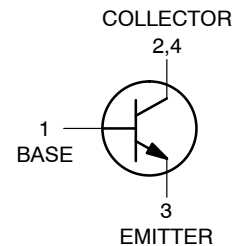
Symbol	Rating	Value	Unit
V_{CB}	Collector-Base Voltage	50	Vdc
V_{CEO}	Collector-Emitter Voltage	50	Vdc
V_{EB}	Emitter-Base Voltage	5	Vdc
I_C	Collector Current – Continuous	2	Adc
I_{CM}	Collector Current – Peak	3	Adc
I_B	Base Current	0.4	Adc
P_D	Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	15 0.1	W W/ $^\circ\text{C}$
P_D	Total Device Dissipation @ $T_A = 25^\circ\text{C}^*$ Derate above 25°C	1.68 0.011	W W/ $^\circ\text{C}$
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-65 to +175	$^\circ\text{C}$
HBM	ESD – Human Body Model	3B	V
MM	ESD – Machine Model	C	V

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.

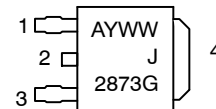
SILICON POWER TRANSISTORS 2 AMPERES 50 VOLTS 15 WATTS



DPAK
CASE 369C
STYLE 1



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Device

ORDERING INFORMATION

Device	Package	Shipping†
NJD2873T4G	DPAK (Pb-Free)	2,500 Units / Reel
NJVNJD2873T4G	DPAK (Pb-Free)	2,500 Units / Reel

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](http://www.onsemi.com/BRD8011/D).

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
$R_{\theta JC}$ $R_{\theta JA}$	Thermal Resistance Junction-to-Case Junction-to-Ambient (Note 1)	10 89.3	°C/W

1. These ratings are applicable when surface mounted on the minimum pad sizes recommended.

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

Symbol	Characteristic	Min	Max	Unit
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OFF CHARACTERISTICS

$V_{CE(sus)}$	Collector-Emitter Sustaining Voltage (Note 2) ($I_C = 10\text{ mAdc}$, $I_B = 0$)	50	–	Vdc
I_{CBO}	Collector Cutoff Current ($V_{CB} = 50\text{ Vdc}$, $I_E = 0$)	–	100	nAdc
I_{EBO}	Emitter Cutoff Current ($V_{BE} = 5\text{ Vdc}$, $I_C = 0$)	–	100	nAdc

ON CHARACTERISTICS

h_{FE}	DC Current Gain (Note 2) ($I_C = 0.5\text{ A}$, $V_{CE} = 2\text{ V}$) ($I_C = 2\text{ Adc}$, $V_{CE} = 2\text{ Vdc}$) ($I_C = 0.75\text{ Adc}$, $V_{CE} = 1.6\text{ Vdc}$, $-40\text{ }^{\circ}\text{C} \leq T_J \leq 150\text{ }^{\circ}\text{C}$)	120 40 80	360 – 360	–
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (Note 2) ($I_C = 1\text{ A}$, $I_B = 0.05\text{ A}$)	–	0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (Note 2) ($I_C = 1\text{ A}$, $I_B = 0.05\text{ Adc}$)	–	1.2	Vdc
$V_{BE(on)}$	Base-Emitter On Voltage (Note 2) ($I_C = 1\text{ Adc}$, $V_{CE} = 2\text{ Vdc}$) ($I_C = 0.75\text{ Adc}$, $V_{CE} = 1.6\text{ Vdc}$, $-40\text{ }^{\circ}\text{C} \leq T_J \leq 150\text{ }^{\circ}\text{C}$)	– –	1.2 0.95	Vdc

DYNAMIC CHARACTERISTICS

f_T	Current-Gain – Bandwidth Product (Note 3) ($I_C = 100\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f_{test} = 10\text{ MHz}$)	65	–	MHz
C_{ob}	Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 0.1\text{ MHz}$)	–	80	pF

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.

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\approx 2\%$.

3. $f_T = |h_{fe}| \cdot f_{test}$.

TYPICAL CHARACTERISTICS

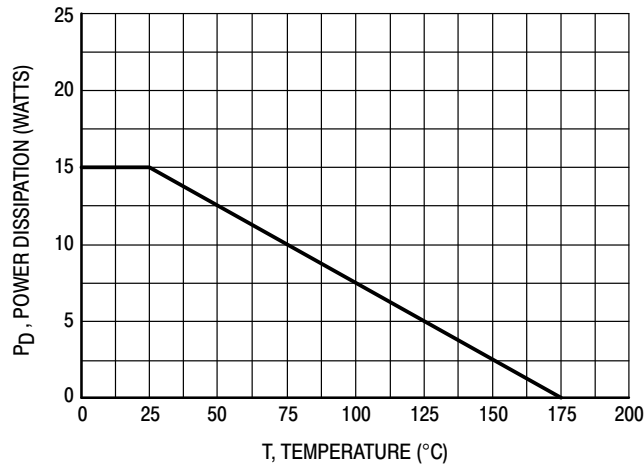


Figure 1. Power Derating

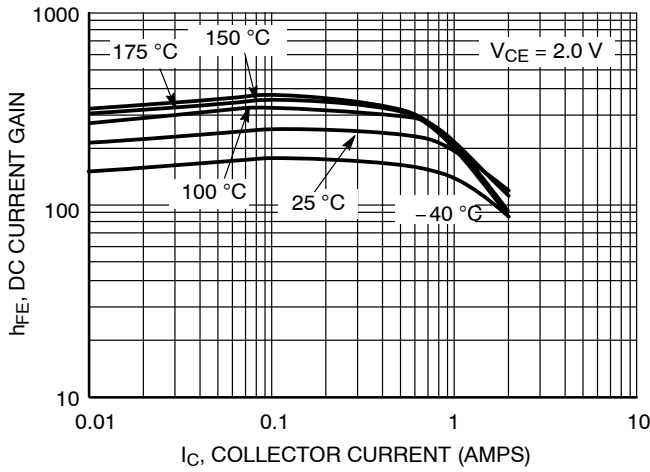


Figure 2. DC Current Gain

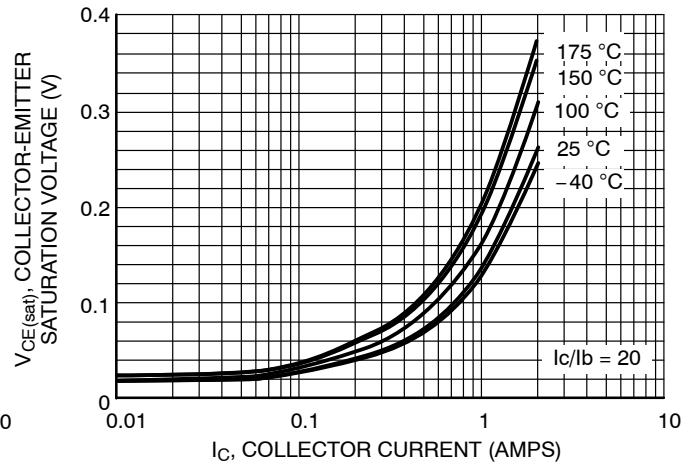


Figure 3. Collector-Emitter Saturation Voltage

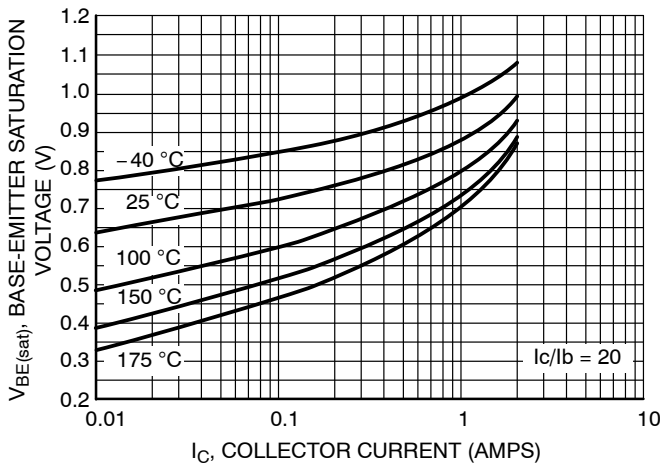


Figure 4. Base-Emitter Saturation Voltage

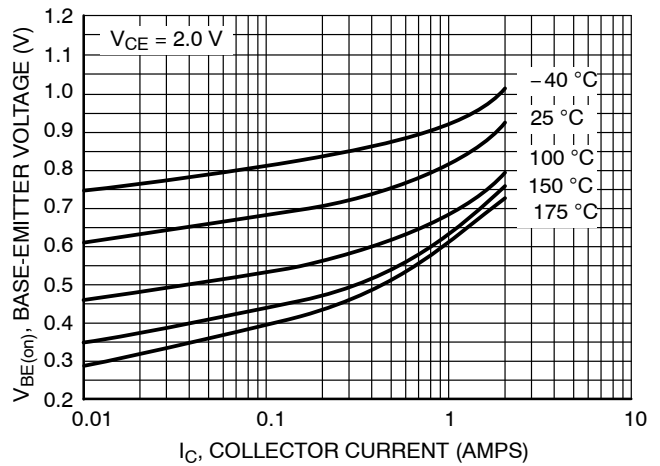


Figure 5. Base-Emitter Voltage

TYPICAL CHARACTERISTICS (continued)

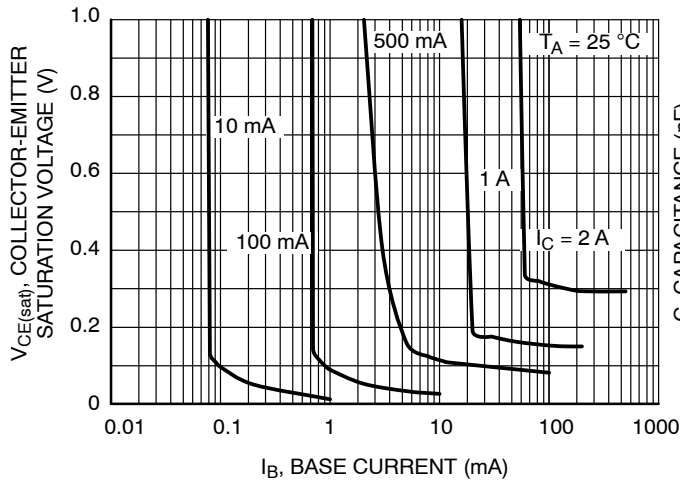


Figure 6. Saturation Region

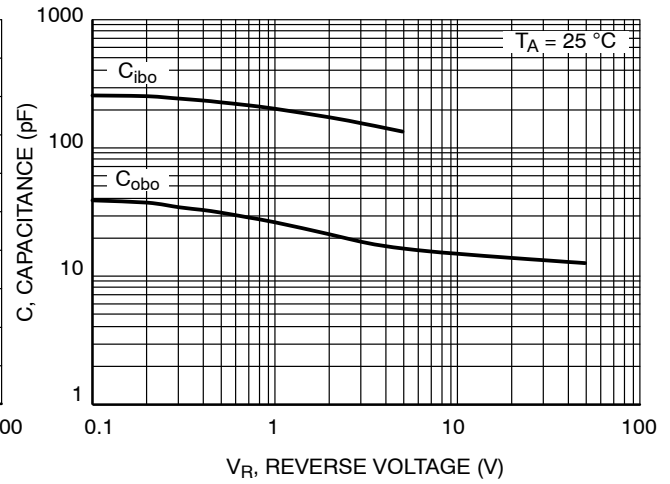


Figure 7. Capacitance

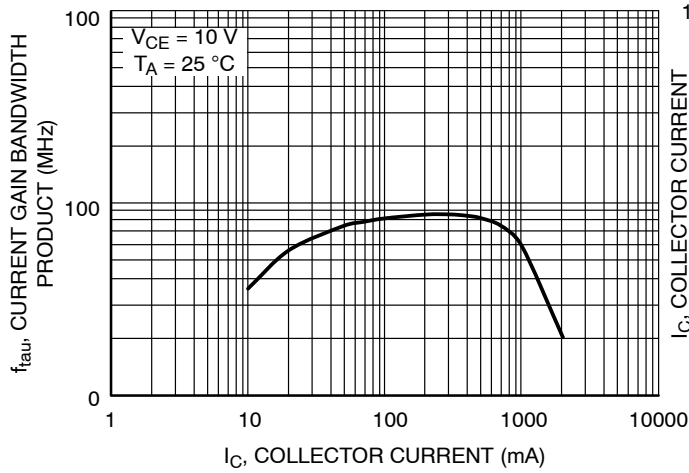


Figure 8. Saturation Region

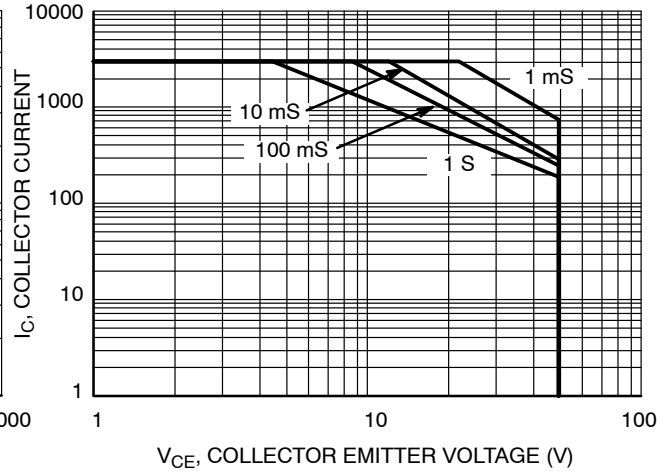


Figure 9. Capacitance

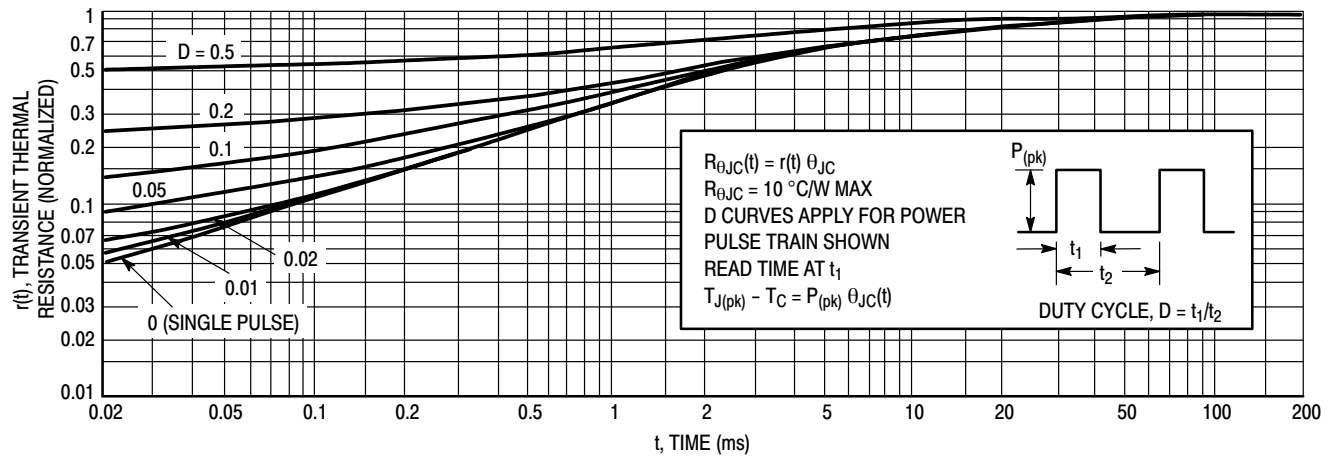
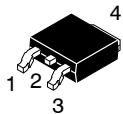


Figure 10. Thermal Response

REVISION HISTORY

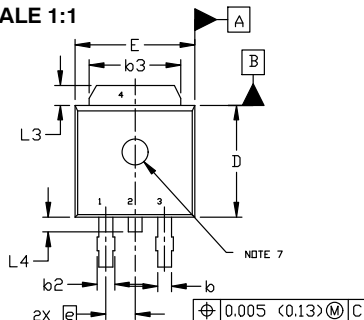
Revision	Description of Changes	Date
19	Rebranded the Data Sheet to onsemi format.	6/26/2025



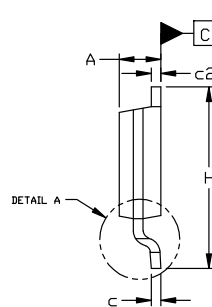
DPAK (SINGLE GAUGE)
CASE 369C
ISSUE G

DATE 31 MAY 2023

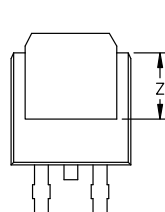
SCALE 1:1



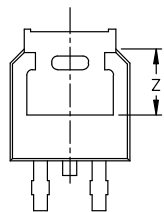
TOP VIEW



SIDE VIEW

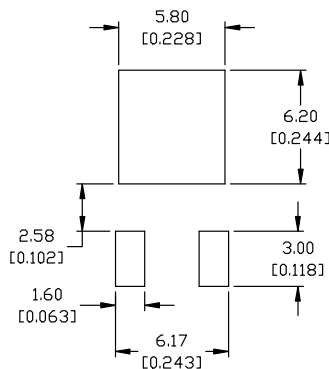


BOTTOM VIEW



BOTTOM VIEW

ALTERNATE
CONSTRUCTIONS



RECOMMENDED MOUNTING FOOTPRINT*

*FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

STYLE 1:

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

STYLE 2:

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

STYLE 3:

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

STYLE 4:

PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 5:

PIN 1. GATE
2. ANODE
3. CATHODE
4. ANODE

STYLE 6:

PIN 1. MT1
2. MT2
3. GATE
4. MT2

STYLE 7:

PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 8:

PIN 1. N/C
2. CATHODE
3. ANODE
4. CATHODE

STYLE 9:

PIN 1. ANODE
2. CATHODE
3. RESISTOR ADJUST
4. CATHODE

STYLE 10:

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

NOTES:

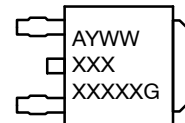
1. DIMENSIONING AND TOLERANCING ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3, AND Z.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
7. OPTIONAL MOLD FEATURE.

DIM	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.086	0.094	2.18	2.38
A1	0.000	0.005	0.00	0.13
b	0.025	0.035	0.63	0.89
b2	0.028	0.045	0.72	1.14
b3	0.180	0.215	4.57	5.46
c	0.018	0.024	0.46	0.61
c2	0.018	0.024	0.46	0.61
D	0.235	0.245	5.97	6.22
E	0.250	0.265	6.35	6.73
e	0.090	BSC	2.29	BSC
H	0.370	0.410	9.40	10.41
L	0.055	0.070	1.40	1.78
L1	0.114	REF	2.90	REF
L2	0.020	BSC	0.51	BSC
L3	0.035	0.050	0.89	1.27
L4	----	0.040	---	1.01
Z	0.155	----	3.93	---

GENERIC
MARKING DIAGRAM*



IC



Discrete

XXXXXX = Device Code
A = Assembly Location
L = Wafer Lot
Y = Year
WW = Work Week
G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

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