

NJD2873T4

Plastic Power Transistors

NPN Silicon DPAK For Surface Mount Applications

Designed for high-gain audio amplifier applications.

Features

- Pb-Free Package is Available
- High DC Current Gain –
 $h_{FE} = 120 \text{ (Min) @ } I_C = 500 \text{ mA}$
 $= 40 \text{ (Min) @ } I_C = 2 \text{ A}$
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 0.3 \text{ Vdc (Max) @ } I_C = 1 \text{ A}$
- High Current-Gain – Bandwidth Product –
 $f_T = 65 \text{ MHz (Min) @ } I_C = 100 \text{ mA}$
- Epoxy Meets UL 94 V-0 @ 0.125 in
- ESD Ratings: Human Body Model, $3B > 8000 \text{ V}$
Machine Model, $C > 400 \text{ V}$

MAXIMUM RATINGS

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

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction-to-Case Junction-to-Ambient*	$R_{\theta JC}$ $R_{\theta JA}$	10 89.3	$^\circ\text{C/W}$

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

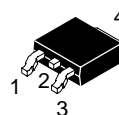


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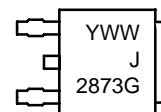
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**SILICON
POWER TRANSISTORS
2 AMPERES
50 VOLTS
15 WATTS**

MARKING DIAGRAM



**DPAK
CASE 369C
STYLE 1**



Y = Year
WW = Work Week
G = Pb-Free Device

ORDERING INFORMATION

Device	Package	Shipping†
NJD2873	DPAK	75 Units / Rail
NJD2873G	DPAK (Pb-Free)	75 Units / Rail
NJD2873RL	DPAK	1800 Units / Reel
NJD2873RLG	DPAK (Pb-Free)	1800 Units / Reel
NJD2873T4	DPAK	2500 Units / Reel
NJD2873T4G	DPAK (Pb-Free)	2500 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.

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Sustaining Voltage (Note 1) ($I_C = 10\text{ mAdc}$, $I_B = 0$)	$V_{CEO(sus)}$	50	–	Vdc
Collector Cutoff Current ($V_{CB} = 50\text{ Vdc}$, $I_E = 0$)	I_{CBO}	–	100	nAdc
Emitter Cutoff Current ($V_{BE} = 5\text{ Vdc}$, $I_C = 0$)	I_{EBO}	–	100	nAdc

ON CHARACTERISTICS

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

DYNAMIC CHARACTERISTICS

Current–Gain – Bandwidth Product (Note 2) ($I_C = 100\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f_{test} = 10\text{ MHz}$)	f_T	65	–	MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 0.1\text{ MHz}$)	C_{ob}	–	80	pF

1. Pulse Test: Pulse Width = $300\text{ }\mu\text{s}$, Duty Cycle $\approx 2\%$.
2. $f_T = |h_{fe}| \cdot f_{test}$.

TYPICAL CHARACTERISTICS

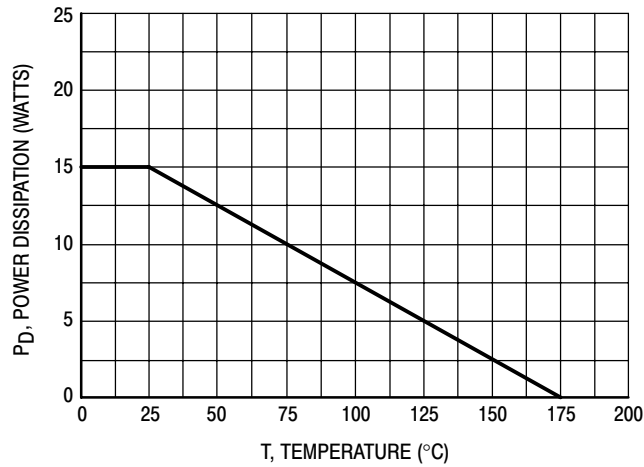


Figure 1. Power Derating

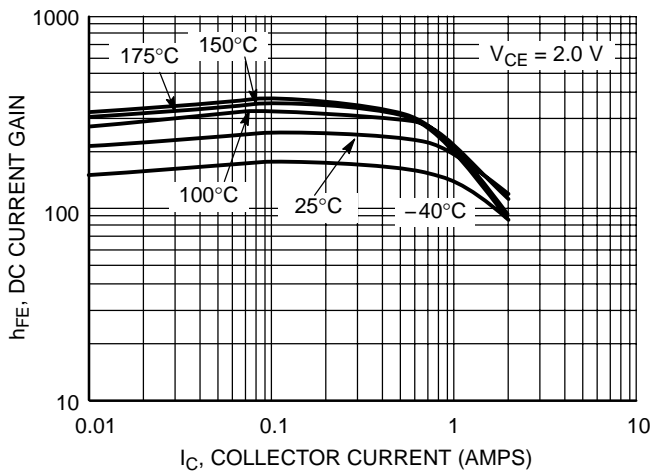


Figure 2. DC Current Gain

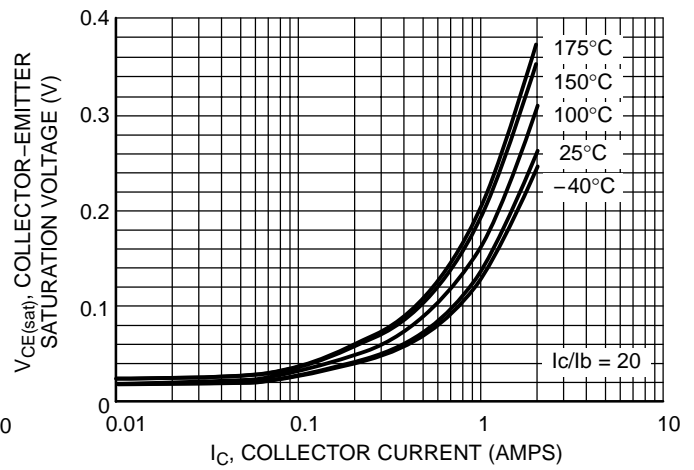


Figure 3. Collector-Emitter Saturation Voltage

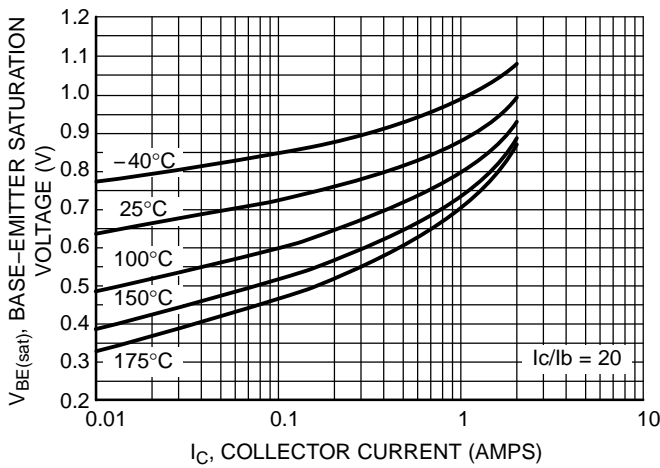


Figure 4. Base-Emitter Saturation Voltage

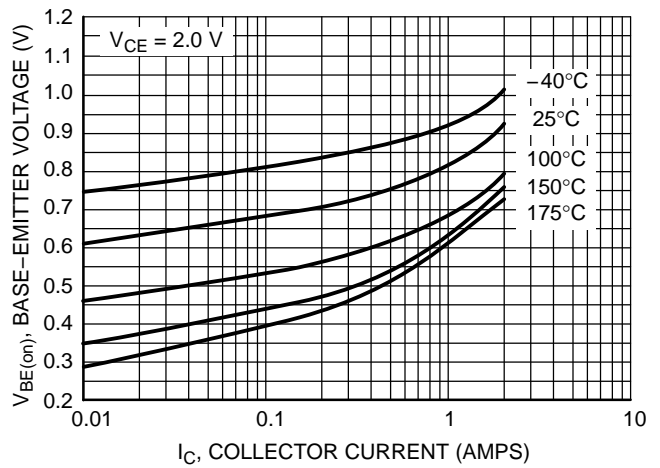


Figure 5. Base-Emitter Voltage

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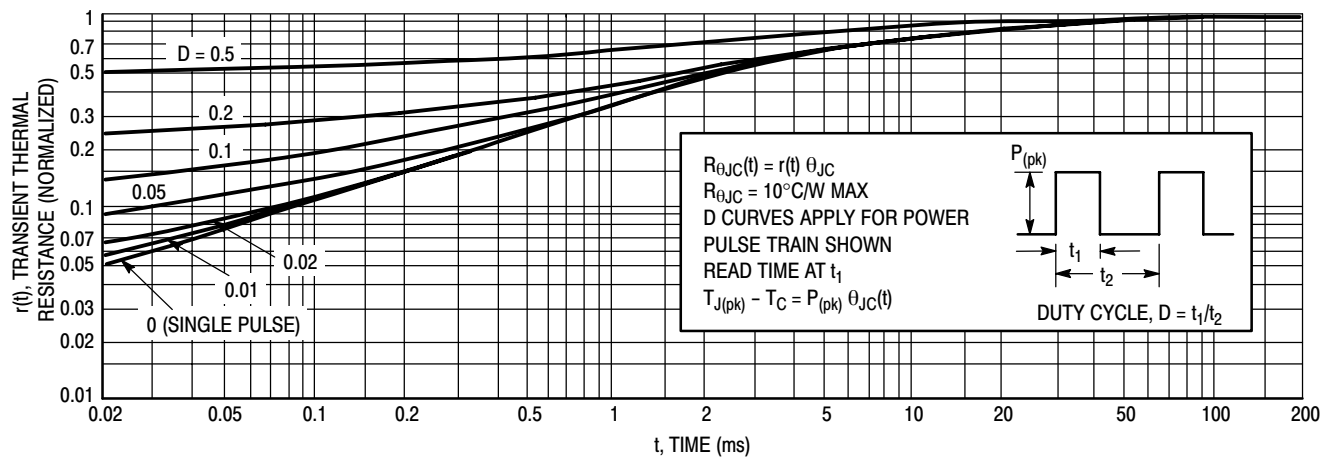
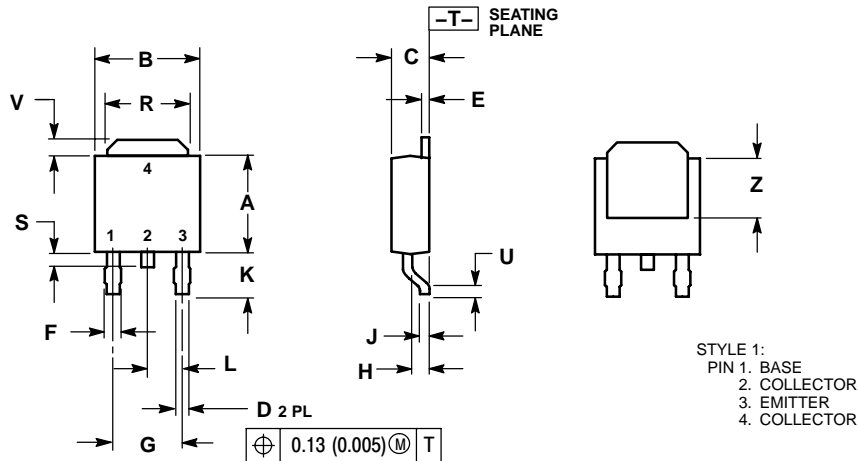


Figure 6. Thermal Response

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PACKAGE DIMENSIONS

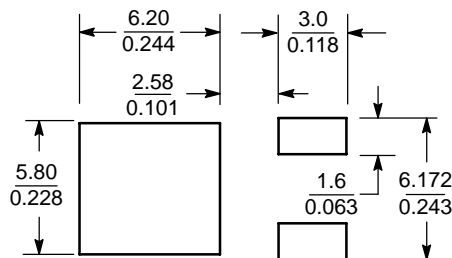
DPAK CASE 369C-01 ISSUE O



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.235	0.245	5.97	6.22
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
G	0.180 BSC		4.58 BSC	
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090 BSC		2.29 BSC	
R	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020		0.51	
V	0.035	0.050	0.89	1.27
Z	0.155		3.93	

SOLDERING FOOTPRINT*



SCALE 3:1 ($\frac{\text{mm}}{\text{inches}}$)

*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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