

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 –
 $h_{FE} = 120$ (Min) @ $I_C = 500$ mA
 $= 40$ (Min) @ $I_C = 2$ A
- Low Collector-Emitter Saturation Voltage –
 $V_{CE(sat)} = 0.3$ Vdc (Max) @ $I_C = 1$ A
- High Current-Gain – Bandwidth Product –
 $f_T = 65$ MHz (Min) @ $I_C = 100$ mA
- Epoxy Meets UL 94 V-0 @ 0.125 in
- ESD Ratings: Human Body Model, 3B > 8000 V
Machine Model, C > 400 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	12.5 0.1	W W/ $^\circ\text{C}$
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ * Derate above 25°C	P_D	1.4 0.011	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

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

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

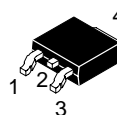


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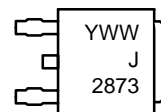
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**SILICON
POWER TRANSISTORS
2 AMPERES
50 VOLTS
12.5 WATTS**

MARKING DIAGRAM



DPAK
CASE 369C
STYLE 1



Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping†
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.

NJD2873T4

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) ($I_C = 0.5\text{ A}$, $V_{CE} = 2\text{ V}$) ($I_C = 2\text{ Adc}$, $V_{CE} = 2\text{ Vdc}$)	h_{FE}	120 40	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) ($I_C = 1\text{ Adc}$, $V_{CE} = 2\text{ Vdc}$)	$V_{BE(on)}$	–	1.2	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

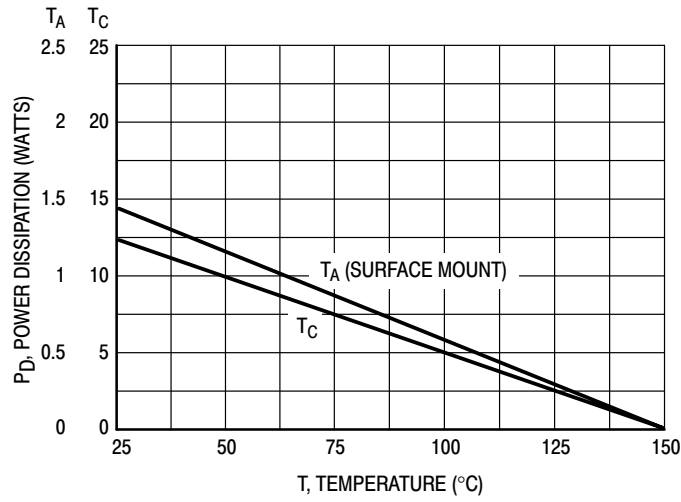


Figure 1. Power Derating

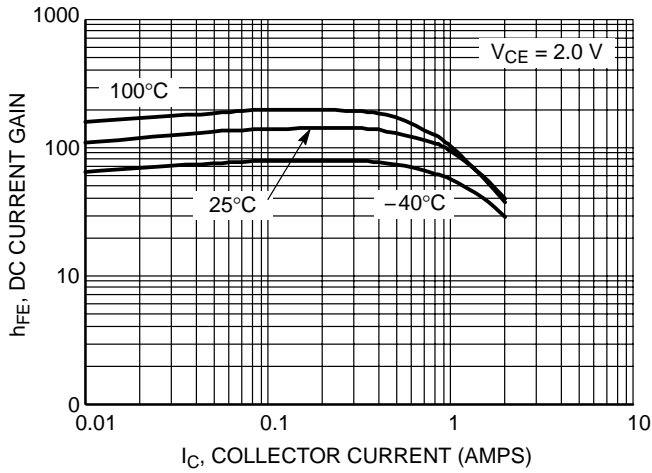


Figure 2. DC Current Gain

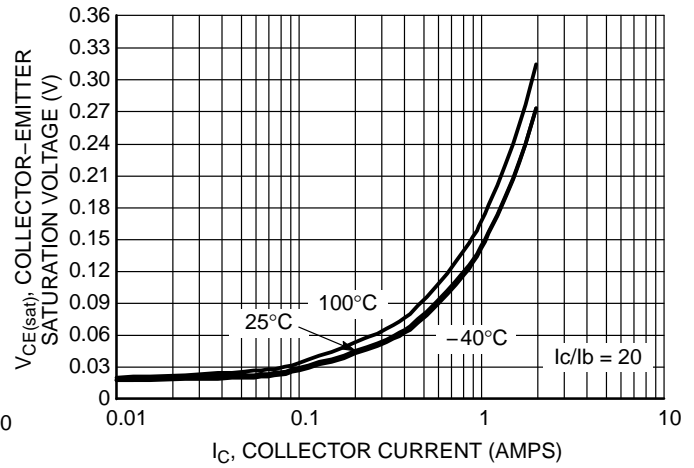


Figure 3. Collector-Emitter Saturation Voltage

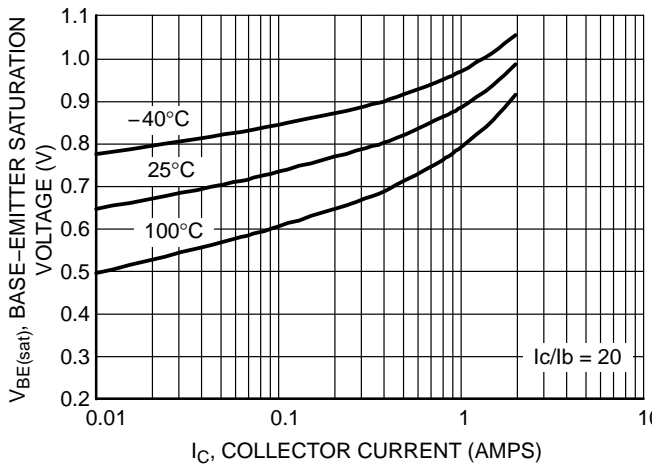


Figure 4. Base-Emitter Saturation Voltage

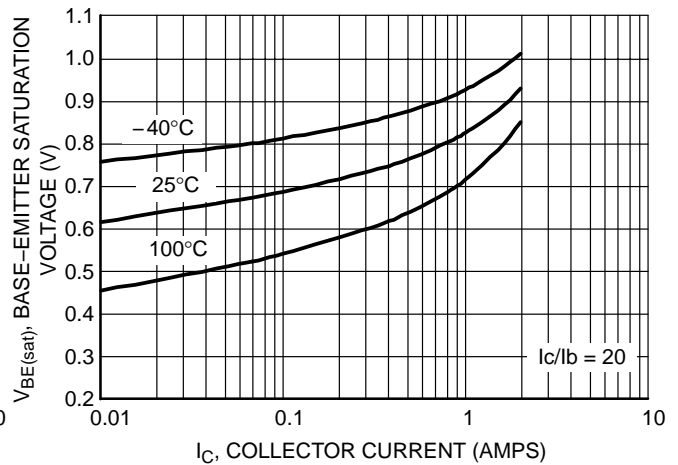


Figure 5. Base-Emitter Saturation Voltage

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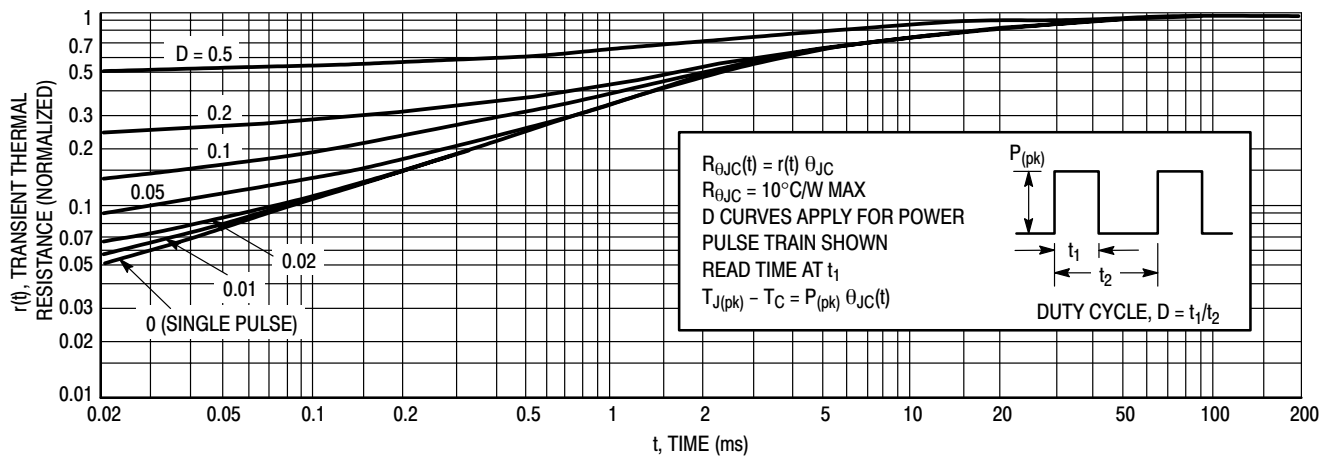
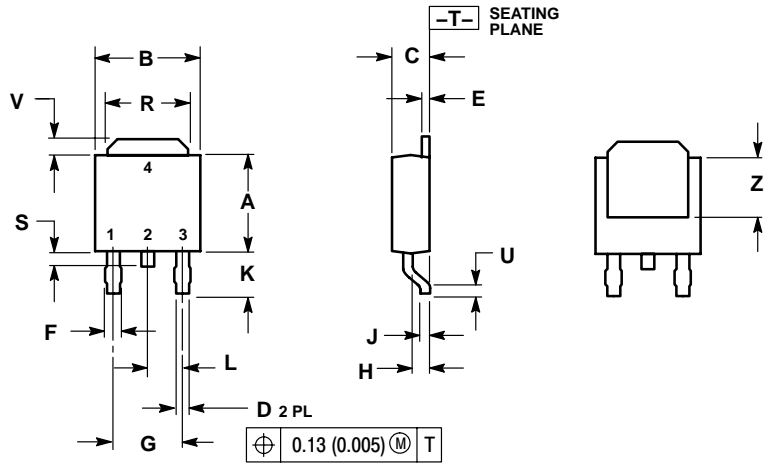


Figure 6. Thermal Response

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PACKAGE DIMENSIONS

DPAK
CASE 369C-01
ISSUE O

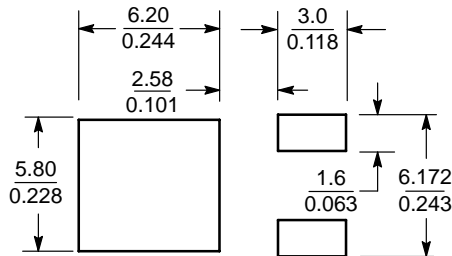


NOTES:
1. DIMENSIONING AND TOLERANCING
PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

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	---

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

SOLDERING FOOTPRINT*



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

*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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