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°C Derate above 25°C		P_D	15 0.1	W W/°C
Total Device Dissipation @ T_A = 25°C* Derate above 25°C		P_D	1.68 0.011	W W/°C
Operating and Storage Junction Temperature Range		T_J, T_{stg}	−65 to +175	°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	°C/W

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

ON Semiconductor®

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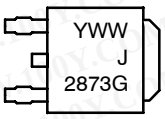
SILICON POWER TRANSISTORS 2 AMPERES 50 VOLTS 15 WATTS

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.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Sustaining Voltage (Note 1) (I_C = 10 mAdc, I_B = 0)	$V_{CEO(sus)}$	50	–	Vdc
Collector Cutoff Current (V_{CB} = 50 Vdc, I_E = 0)	I_{CBO}	– 	100 	nAdc
Emitter Cutoff Current (V_{BE} = 5 Vdc, I_C = 0)	I_{EBO}	–	100	nAdc
ON CHARACTERISTICS				
DC Current Gain (Note 1) (I_C = 0.5 A, V_{CE} = 2 V) (I_C = 2 Adc, V_{CE} = 2 Vdc) (I_C = 0.75 Adc, V_{CE} = 1.6 Vdc, −40°C ≤ T_J ≤ 150°C)	h_{FE}	 120 40 80	 360 – 360	–
Collector−Emitter Saturation Voltage (Note 1) (I_C = 1 A, I_B = 0.05 A)	$V_{CE(sat)}$	– 	0.3 	Vdc
Base−Emitter Saturation Voltage (Note 1) (I_C = 1 A, I_B = 0.05 Adc)	$V_{BE(sat)}$	–	1.2	Vdc
Base−Emitter On Voltage (Note 1) (I_C = 1 Adc, V_{CE} = 2 Vdc) (I_C = 0.75 Adc, V_{CE} = 1.6 Vdc, −40°C ≤ T_J ≤ 150°C)	$V_{BE(on)}$	 – –	 1.2 0.95	Vdc
DYNAMIC CHARACTERISTICS				
Current−Gain − Bandwidth Product (Note 2) (I_C = 100 mAdc, V_{CE} = 10 Vdc, f_{test} = 10 MHz)	f_T	65	–	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 0.1 MHz)	C_{ob}	–	80	pF

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≈ 2%.
2. $f_T = |h_{fe}| \bullet f_{test}$.

TYPICAL CHARACTERISTICS

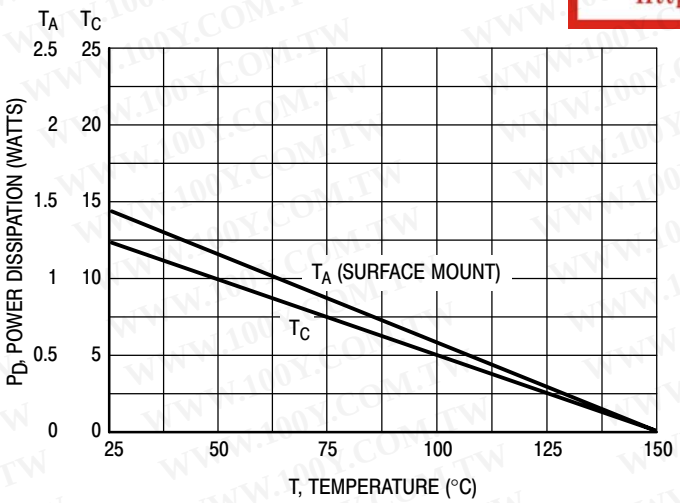


Figure 1. Power Derating

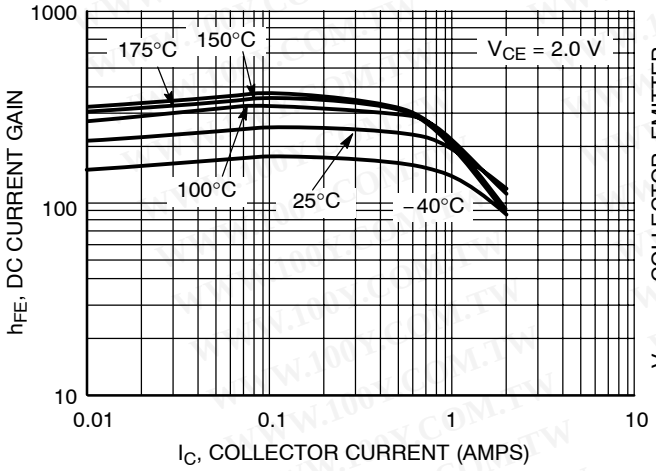


Figure 2. DC Current Gain

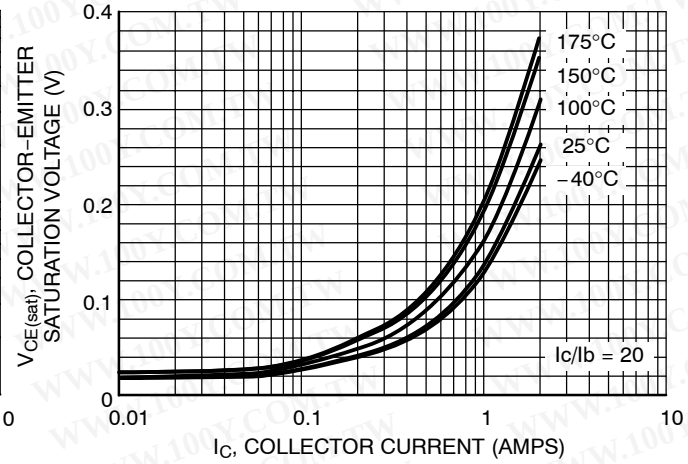


Figure 3. Collector−Emitter Saturation Voltage

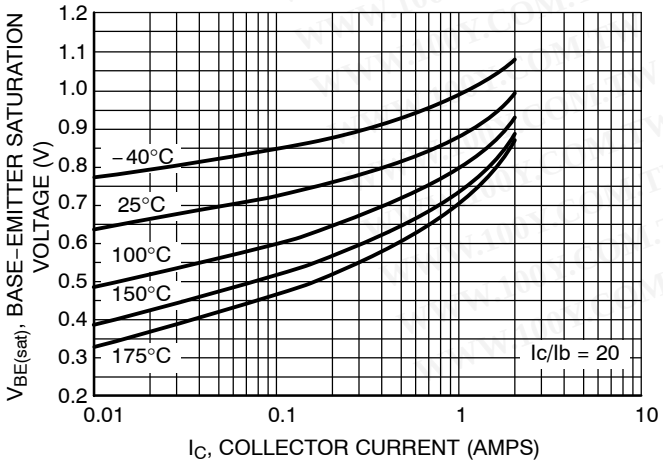


Figure 4. Base−Emitter Saturation Voltage

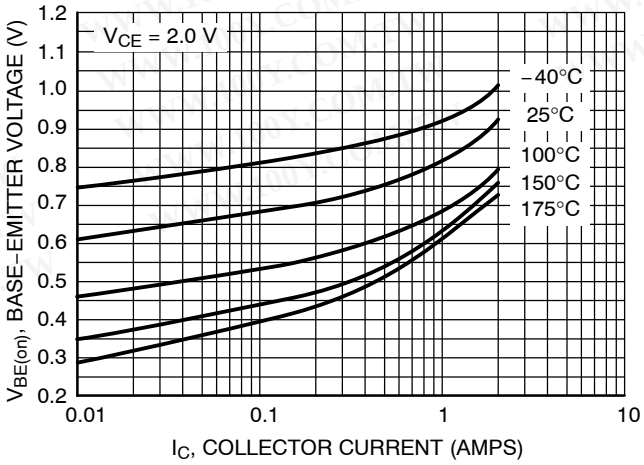


Figure 5. Base−Emitter Voltage

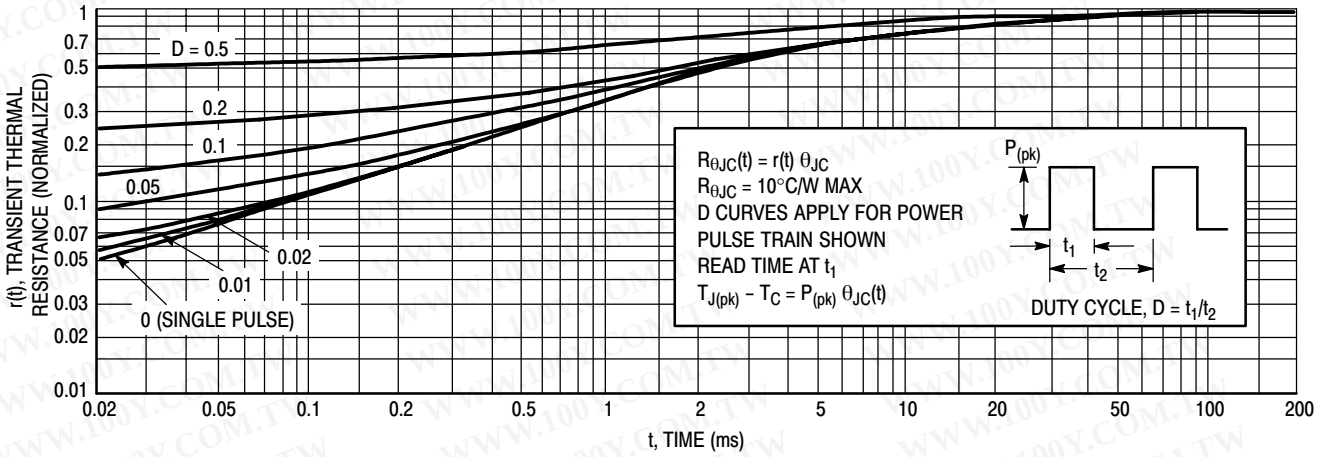
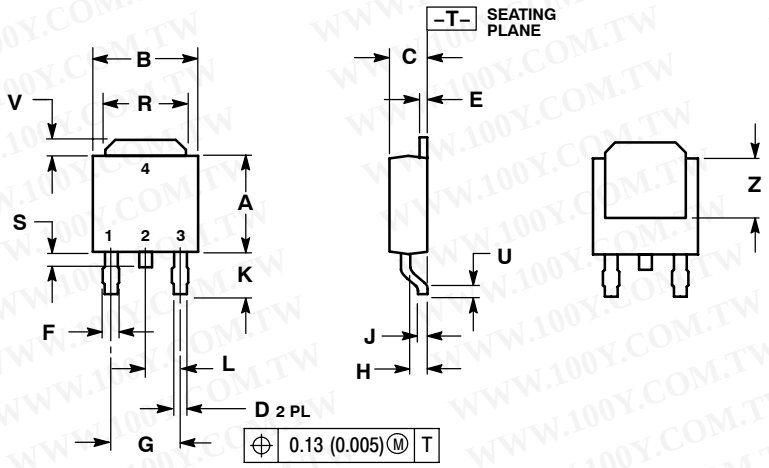


Figure 6. Thermal Response

NJD2873T4

PACKAGE DIMENSIONS

DPAK
CASE 369C−01
ISSUE O

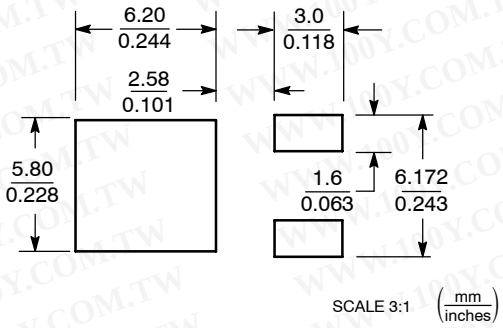


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	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*



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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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