

New Jersey Semi-Conductor Products, Inc.

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DARLINGTON COMPLEMENTARY SILICON-POWER TRANSISTORS

...designed for general-purpose power amplifier and low frequency switching applications

FEATURES:

- * Monolithic Construction with Built-in Base-Emitter Shunt Resistors.
- * High DC Current Gain -
hFE = 3500 (typ) @ IC = 5.0 A

MAXIMUM RATINGS

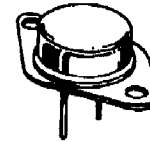
Characteristic	Symbol	2N6050 2N6057	2N6051 2N6058	2N6052 2N6059	Unit
Collector-Emitter Voltage	V _{CEO}	60	80	100	V
Collector-Base Voltage	V _{CBO}	60	80	100	V
Emitter-Base Voltage	V _{EB0}	5			V
Collector Current - Continuous -Peak	I _C	12 20			A
Base Current	I _B	0.2			A
Total Power Dissipation @ T _C = 25°C Derated above 25°C	P _D	150 0.857			W W/°C
Operating and Storage Junction Temperature Range	T _J , T _{STG}	-65 to +200			°C

THERMAL CHARACTERISTICS

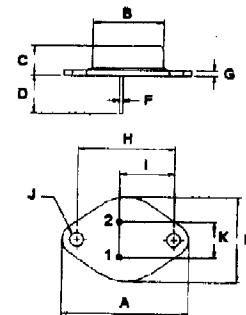
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	R _{θjc}	1.17	°C/W

PNP	NPN
2N6050	2N6057
2N6051	2N6058
2N6052	2N6059

DARLINGTON
12 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
60-100 VOLTS
150 WATTS



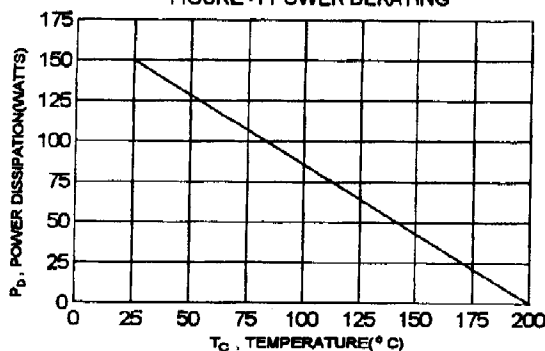
TO-3



PIN 1. BASE
2. EMITTER
COLLECTOR(CASE)

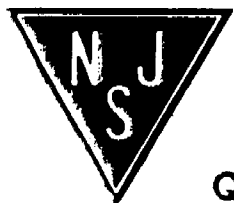
DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.98
B	19.28	22.23
C	7.98	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.38
K	10.67	11.18

FIGURE -1 POWER DERATING



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors



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 (1) ($I_c = 100 \text{ mA}, I_B = 0$)	2N6050, 2N6057 2N6051, 2N6058 2N6052, 2N6059	$V_{CEO(SUS)}$	60 80 100	V
Collector Cutoff Current ($V_{CE} = 30 \text{ V}, I_B = 0$) ($V_{CE} = 40 \text{ V}, I_B = 0$) ($V_{CE} = 50 \text{ V}, I_B = 0$)	2N6050, 2N6057 2N6051, 2N6058 2N6052, 2N6059	I_{CEO}	1.0 1.0 1.0	mA
Collector Cutoff Current ($V_{CE} = \text{Rated } V_{CEO}, V_{BE(ON)} = 1.5 \text{ V}$) ($V_{CE} = \text{Rated } V_{CEO}, V_{BE(ON)} = 1.5 \text{ V}, T_c = 150^\circ\text{C}$)		I_{CEX}	0.5 5.0	mA
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ V}, I_C = 0$)		I_{EBO}	2.0	mA

ON CHARACTERISTICS (1)

DC Current Gain ($I_c = 6.0 \text{ A}, V_{CE} = 3.0 \text{ V}$) ($I_c = 12 \text{ A}, V_{CE} = 3.0 \text{ V}$)	h_{FE}	750 100	18000	
Collector-Emitter Saturation Voltage ($I_c = 6.0 \text{ A}, I_B = 24 \text{ mA}$) ($I_c = 12 \text{ A}, I_B = 120 \text{ mA}$)	$V_{CE(sat)}$		2.0 3.0	V
Base-Emitter On Voltage ($I_c = 6.0 \text{ A}, V_{CE} = 3.0 \text{ V}$)	$V_{BE(on)}$		2.8	V
Base-Emitter Saturation Voltage ($I_c = 12 \text{ A}, I_B = 120 \text{ mA}$)	$V_{BE(sat)}$		4.0	V

DYNAMIC CHARACTERISTICS

Current-Gain-Bandwidth Product (2) ($I_c = 5.0 \text{ A}, V_{CE} = 3.0 \text{ V}, f = 1.0 \text{ MHz}$)	f_T	4.0		MHz
Small-Signal Current Gain ($I_c = 5.0 \text{ A}, V_{CE} = 3.0 \text{ V}, f = 1.0 \text{ KHZ}$)	h_{fe}	300		

(1) Pulse Test: Pulse width $\leq 300 \text{ us}$, Duty Cycle $\leq 2.0\%$

(2) $f_T = |h_{fe}| \cdot f_{test}$