

Medium-Power Complementary Silicon Transistors

... for use as output devices in complementary general purpose amplifier applications.

- High DC Current Gain — $h_{FE} = 4000$ (Typ) @ $I_C = 5.0$ Adc
- Monolithic Construction with Built-in Base-Emitter Shunt Resistors

MAXIMUM RATINGS

Rating	Symbol	MJ2500 MJ3000	MJ2501 MJ3001	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CB}	60	80	Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current	I_C	10		Adc
Base Current	I_B	0.2		Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150 0.857		Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	1.17	$^\circ\text{C/W}$

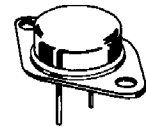
**PNP
MJ2500**

MJ2501*
NPN

MJ3000

MJ3001*

**10 AMPERE
DARLINGTON
POWER TRANSISTORS
COMPLEMENTARY
SILICON
60-80 VOLTS
150 WATTS**



(TO-3)

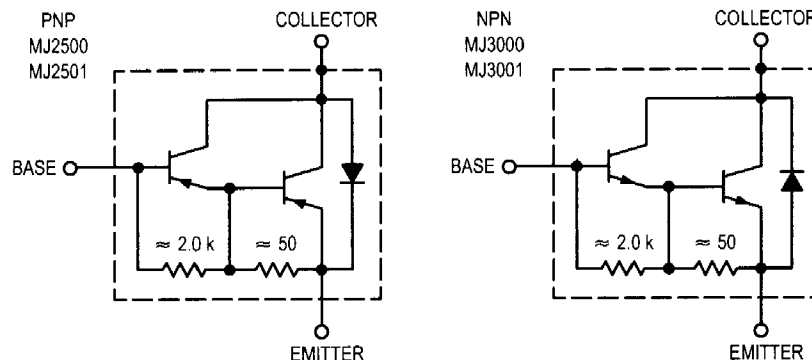


Figure 1. Darlington Circuit Schematic

NJ Semi-Conductors reserves the right to change test conditions, parameter 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.

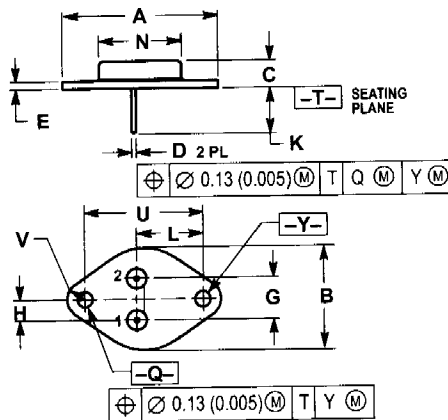


MJ2500 MJ2501 MJ3000 MJ3001

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector Emitter Breakdown Voltage ⁽¹⁾ (I _C = 100 mAdc, I _B = 0)	MJ2500, MJ3000 MJ2501, MJ3001	V _{(BR)CEO}	60 80	— —	Vdc
Collector-Emitter Leakage Current (V _{EB} = 60 Vdc, R _{BE} = 1.0 k ohm) (V _{EB} = 80 Vdc, R _{BE} = 1.0 k ohm) (V _{EB} = 60 Vdc, R _{BE} = 1.0 k ohm, T _C = 150°C) (V _{EB} = 80 Vdc, R _{BE} = 1.0 k ohm, T _C = 150°C)	MJ2500, MJ3000 MJ2501, MJ3001 MJ2500, MJ3000 MJ2501, MJ3001	I _{CER}	— — — —	1.0 1.0 5.0 5.0	mAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)		I _{EBO}	—	2.0	mAdc
Collector Emitter Leakage Current (V _{CE} = 30 Vdc, I _B = 0) (V _{CE} = 40 Vdc, I _B = 0)	MJ2500, MJ3000 MJ2501, MJ3001	I _{CEO}	— —	1.0 1.0	mAdc
ON CHARACTERISTICS⁽¹⁾					
DC Current Gain (I _C = 5.0 Adc, V _{CE} = 3.0 Vdc)		h _{FE}	1000	—	—
Collector-Emitter Saturation Voltage (I _C = 5.0 Adc, I _B = 20 mAdc) (I _C = 10 Adc, I _B = 50 mAdc)		V _{CE(sat)}	— —	2.0 4.0	Vdc
Base Emitter Voltage (I _C = 5.0 Adc, V _{CE} = 3.0 Vdc)		V _{BE(on)}	—	3.0	Vdc

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. ALL RULES AND NOTES ASSOCIATED WITH REFERENCED TO-204AA OUTLINE SHALL APPLY.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.550 REF	—	39.37 REF	—
B	—	1.050	—	26.67
C	0.250	0.335	6.35	8.51
D	0.038	0.043	0.97	1.09
E	0.055	0.070	1.40	1.77
G	0.430 BSC	—	10.92 BSC	—
H	0.215 BSC	—	5.46 BSC	—
K	0.440	0.480	11.18	12.19
L	0.665 BSC	—	16.89 BSC	—
N	—	0.830	—	21.08
Q	0.151	0.165	3.84	4.19
U	1.187 BSC	—	30.15 BSC	—
V	0.131	0.188	3.33	4.77

STYLE 1:
 PIN 1: BASE
 2: EMITTER
 CASE: COLLECTOR