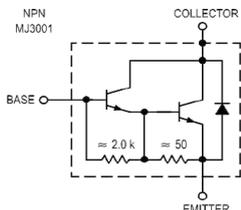


# NPN Silicon Darlington Medium Power Transistor

$V_{CE0}$  80V,  $I_C$  10A, 150W, TO-3

**multicomp** PRO

**RoHS  
Compliant**



## Features

1. High DC Current Gain -  $h_{FE} = 4000$  (Typ.) @  $I_C=25A$  DC  
 $h_{FE} = 400$  (Min) @  $I_C= 5$  Adc
2. Monolithic Construction with Built-In Base-Emitter Shunt Resistor

**APPLICATIONS:** For use as output devices in complementary general purpose amplifier applications.

**ABSOLUTE MAXIMUM RATINGS** ( $T_a = 25^\circ C$ )

Rating	Symbol	Max	Units
Collector-Emitter Voltage	$V_{CE0}$	80	V DC
Collector-Base Voltage	$V_{CB}$	80	V DC
Emitter Base Voltage	$V_{EB}$	5	V DC
Collector Current	$I_C$	10	A DC
Base Current	$I_B$	0.2	A DC
Total Device Dissipation @ TC 25°C Derate above 25°C	$P_D$	150 0.857	Watts W/°C
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55°C to +200°C	°C

## Thermal Characteristics

Characteristic	Symbol	Rating	Unit
Thermal Resistance, Junction to case	JC	1.17	°C/W

**NPN Silicon Darlington Medium Power Transistor**  
**V<sub>CE</sub> 80V, I<sub>C</sub> 10A, 150W, TO-3**

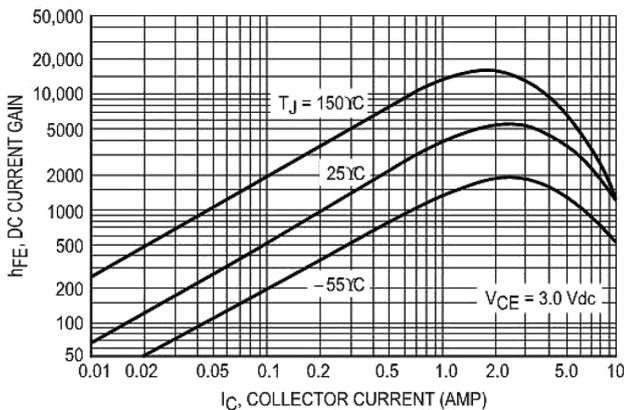


**Electrical Characteristics at T<sub>A</sub> = 25°C unless otherwise specified)**

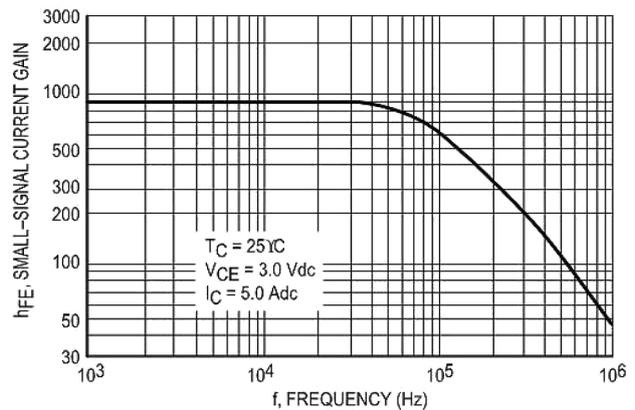
Description	Symbol	Min	Max	Units
<b>Off Characteristics</b>				
Collector-Emitter Breakdown Voltage (1) (I <sub>C</sub> = 100mA DC, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	80	-	V DC
Collector-Emitter Leakage Current (V <sub>CE</sub> = 80V DC, R <sub>BE</sub> = 1k Ω (V <sub>CE</sub> = 80V DC, R <sub>BE</sub> = 1k Ω, T <sub>C</sub> = 150°C)	I <sub>CER</sub>	-	1 5	mA DC
Emitter Cut Off Current (V <sub>BE</sub> = 5V DC, I <sub>C</sub> = 0)	I <sub>EBO</sub>	-	5	mA DC
Collector-Emitter Leakage Current (V <sub>CE</sub> = 40V DC, I <sub>B</sub> = 0)	I <sub>CEO</sub>	-	1	mA DC
<b>On Characteristics (1)</b>				
DC Current Gain (I <sub>C</sub> = 5A DC, V <sub>CE</sub> = 3 V <sub>DC</sub> )	h <sub>FE</sub>	1000	-	-
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 5A DC, I <sub>B</sub> = 20 mA <sub>DC</sub> (I <sub>C</sub> = 10A DC, I <sub>B</sub> = 50 mA <sub>DC</sub> )	V <sub>CE(sat)</sub>	-	2 4	V DC
Base-Emitter Voltage (I <sub>C</sub> = 5A DC, V <sub>CE</sub> = 3 V <sub>DC</sub> )	V <sub>BE(on)</sub>	-	3	V DC

(1) Pulse Test: Pulse Width = 300µs, Duty Cycle = 2%

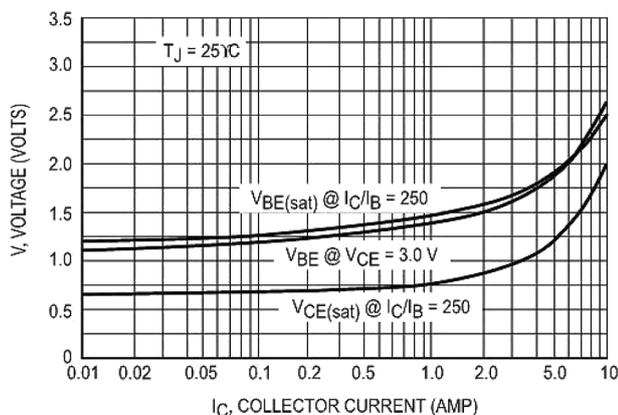
**Typical Characteristics Curves**



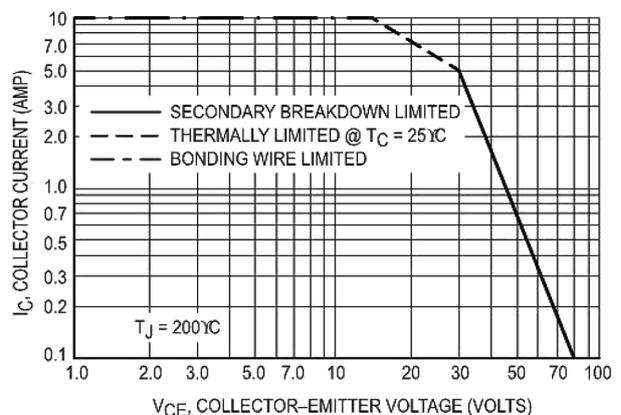
**Figure 2. DC Current Gain**



**Figure 3. Small-Signal Current Gain**



**Figure 4. "On" Voltages**



**Figure 5. DC Safe Operating Area**

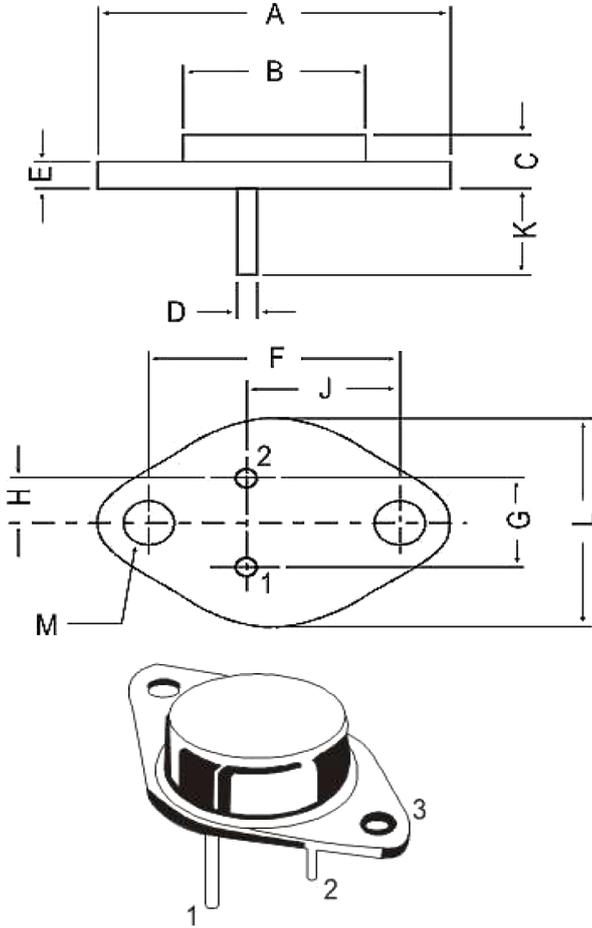
Newark.com/multicomp-pro  
 Farnell.com/multicomp-pro  
 Element14.com/multicomp-pro



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**V<sub>CEO</sub> 80V, I<sub>C</sub> 10A, 150W, TO-3**



**Package Details**



Dimensions : Millimetres

Dim	Min.	Max.
A	-	39.37
B	-	22.22
C	6.35	8.5
D	0.96	1.09
E	-	1.77
F	29.9	30.4
G	10.69	11.18
H	5.2	5.72
J	16.64	17.15
K	11.15	12.25
L	-	26.67
M	3.84	4.19

- PIN CONFIGURATION**  
 1. BASE  
 2. EMITTER  
 3. COLLECTOR

**Part Number Table**

Description	Part Number
Silicon Darlington Medium Power Transistor, NPN 80V, 10A, TO-3	MJ3001

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