

Darlington Transistor



Features:

- Medium-power complementary Silicon Transistors for use as output devices in complementary general purpose amplifier applications
- High DC Current Gain
 $h_{FE} = 1,000$ (Typical) at $I_C = 5A$
- Monolithic construction with built Base-Emitter Shunt Resistors

Maximum Ratings:

Characteristic	Symbol	MJ2501	Unit
Collector-Emitter Voltage	V_{CEO}	80	V
Collector-Emitter Voltage	V_{CEX}		
Emitter-Base Voltage	V_{EBO}		
Collector Current - Continuous - Peak	I_C	10 12	A
Base Current	I_B	0.2	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	150 0.857	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +200	$^\circ C$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise noted)

Parameter	Symbol	Min.	Max.	Unit
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OFF Characteristics

Collector-Emitter Sustaining Voltage (1) ($I_C = 200mA, I_B = 0$)	$V_{CEO(SUS)}$	80	-	V
Collector Cut off Current ($V_{CE} = 80V, R_{BE} = 1k\Omega$) ($V_{CE} = 80V, R_{BE} = 1k\Omega, T_C = 150^\circ C$)	I_{CER}	-	1 5	mA
Emitter Cut off Current mA ($V_{EB} = 5V, I_C = 0$)	I_{EBO}	-	2	
Collector Cut off Current ($V_{CE} = 40V, I_B = 0$)	I_{CER}	-	1	

ON Characteristics

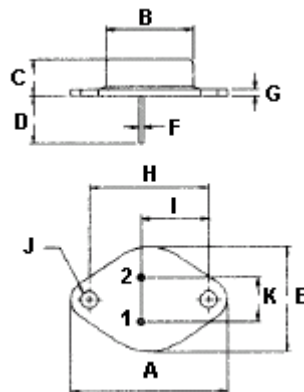
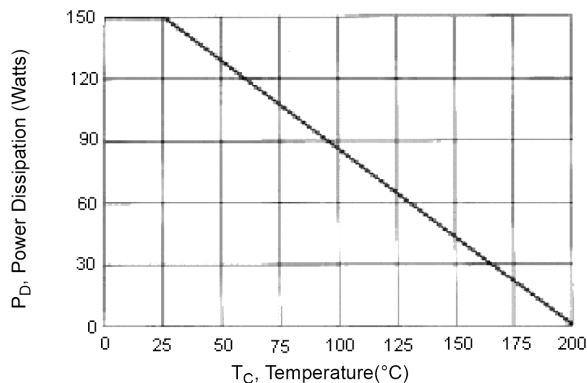
DC Current Gain ($I_C = 5A, V_{CE} = 3V$)	h_{FE}	1,000	-	-
Collector-Emitter Saturation Voltage ($I_C = 5A, I_B = 20mA$) ($I_C = 10A, I_B = 50mA$)	$V_{CE(sat)}$	-	2 4	V
Base - Emitter On Voltage ($I_C = 5A, V_{CE} = 3V$)	$V_{BE(sat)}$	-	3	

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

Thermal Characteristics:

Characteristic	Symbol	Max.	Unit
Thermal Resistance Junction to Case	$R\theta_{jc}$	1.17	°C/W

Power Derating



Dim.	Min.	Max.
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.2	26.67
F	0.92	1.09
G	1.38	1.62
H	29.9	30.4
I	16.64	17.3
J	3.88	4.36
K	10.57	11.16

Dimensions : Millimetres

Part Number Table

Description	$I_c(av)$ Max. (A)	V_{ce} Max (V)	h_{fe} Min.	I_c (A)	P_{tot} at 25°C (W)	Package	Type	Part Number
Darlington Transistor, TO-3	10	80	1,000	5	150	TO-3	PNP	MJ2501

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