

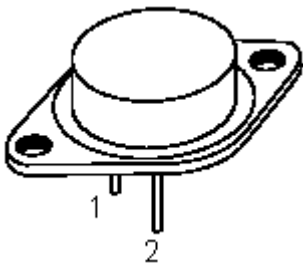
Darlington Transistor



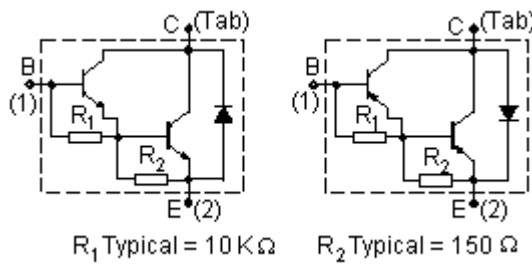
Description

The is a silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in JEDEC TO-3 metal case. They are intended for use in power linear and switching applications

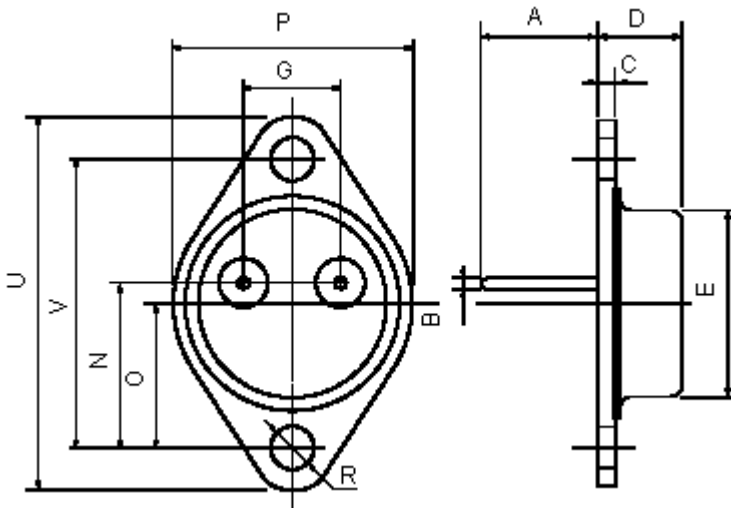
TO-3



Internal Schematic Diagram



TO-3 Mechanical Data



Dimensions	Minimum	Maximum
A	11 (0.433)	13.1 (0.516)
B	0.97 (0.038)	1.15 (0.045)
C	1.5 (0.59)	1.65 (0.065)
D	8.32 (0.327)	8.92 (0.351)
E	19 (0.748)	20 (0.787)
G	10.7 (0.421)	11.1 (0.437)
N	16.5 (0.649)	17.2 (0.677)
P	25 (0.984)	26 (1.023)
R	4 (0.157)	4.09 (0.161)
U	38.5 (1.515)	39.3 (1.547)
V	30 (1.187)	30.3 (1.193)

Dimensions : Millimetres (Inches)

Darlington Transistor



Absolute Maximum Ratings

Parameter	Symbol	Value		Unit
		NPN	MJ3001	
Collector-Base Voltage ($I_E = 0$)	V_{CBO}	80		V
Collector-Emitter Voltage ($I_B = 0$)	V_{CEO}			
Emitter-Base Voltage ($I_C = 0$)	V_{EBO}			
Collector Current	I_C	10		A
Base Current	I_B	0.2		
Total Dissipation at $T_C \leq 25^\circ\text{C}$	P_{tot}	150		W
Storage Temperature	T_{stg}	-65 to 200		
Maximum Operating Junction Temperature	T_j	200		$^\circ\text{C}$

Maximum Operating Junction Temperature

Maximum Thermal Resistance Junction-Case	$R_{thj-case}$	1.17	$^\circ\text{C} / \text{W}$
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Electrical Characteristics ($T_{case} = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Collector Cut-off Current ($R_{BE} = 1 \text{ K}\Omega$)	$V_{CE} = 80 \text{ V}$ $T_{case} = 150^\circ\text{C}$ $V_{CE} = 80 \text{ V}$	I_{CER}	-	1 5	μA
Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 30 \text{ V}$ $V_{CE} = 40 \text{ V}$	I_{CEO}	-	1 1	
Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 \text{ V}$	I_{EBO}	-	2	-
Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100 \text{ mA}$	$V_{CEO(sus)}^*$	80	-	V
Collector-Emitter Saturation Voltage	$I_C = 5 \text{ A}$ $I_B = 20 \text{ mA}$ $I_C = 10 \text{ A}$ $I_B = 50 \text{ mA}$	$V_{CE(sat)}^*$	-	2 4	
Base-Emitter Voltage	$I_C = 5 \text{ A}$ $V_{CE} = 3 \text{ V}$	V_{BE}^*	-	3	
DC Current Gain	$I_C = 5 \text{ A}$ $V_{CE} = 3 \text{ V}$	h_{FE}^*	1,000	-	-

*Pulsed : Pulse Duration = 300 μs , Duty Cycle 1.5%

Part Number Table

Description	Part Number
Darlington Transistor, TO-3	MJ3001

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