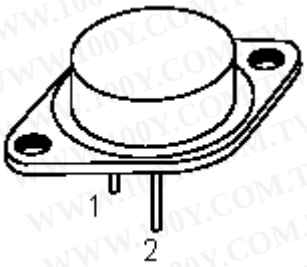
Darlington Transistor

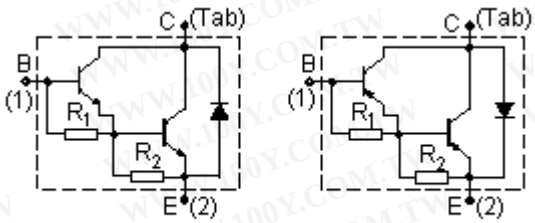
Description

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

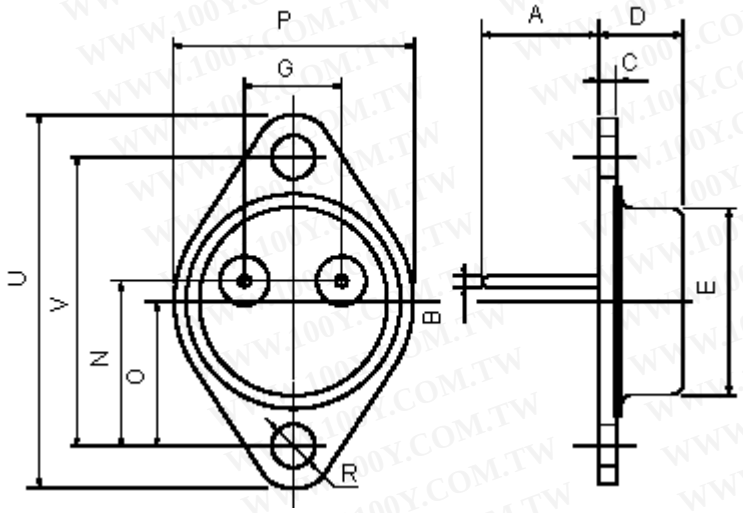
TO-3



Internal Schematic Diagram



R_1 Typical = 10 KΩ R_2 Typical = 150 Ω



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)

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multicomp

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}	5		
Collector Current	I_C	10		A
Base Current	I_B	0.2		
Total Dissipation at T_C ≤25°C	P_{tot}	150		W
Storage Temperature	T_{stg}	-65 to 200		
Maximum Operating Junction Temperature	T_j	200		°C

Maximum Operating Junction Temperature

Maximum Thermal Resistance Junction-Case	$R_{thj\text{-}case}$	1.17	°C / W

Electrical Characteristics (T_{case} = 25°C unless otherwise specified)

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