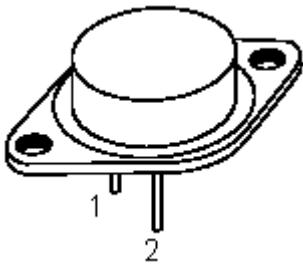




TO-3



T-NPN, Si, darlington with base-emitter speedup diode

Features:

- Continuous collector current- $I_C = 60\text{ A}$

Applications:

Switching regulators
 Inverters
 Solenoid and relay drivers
 AC and DC motor controls

Description:

The MJ10021 is a darlington transistor in a TO-3 type package designed for high-voltage, high-speed, power switching in inductive circuits where fall time is critical. This device is particularly suited for line operated switchmode applications

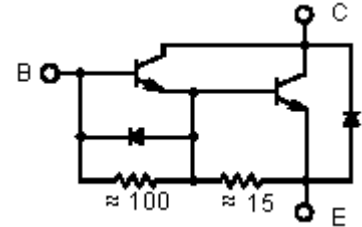
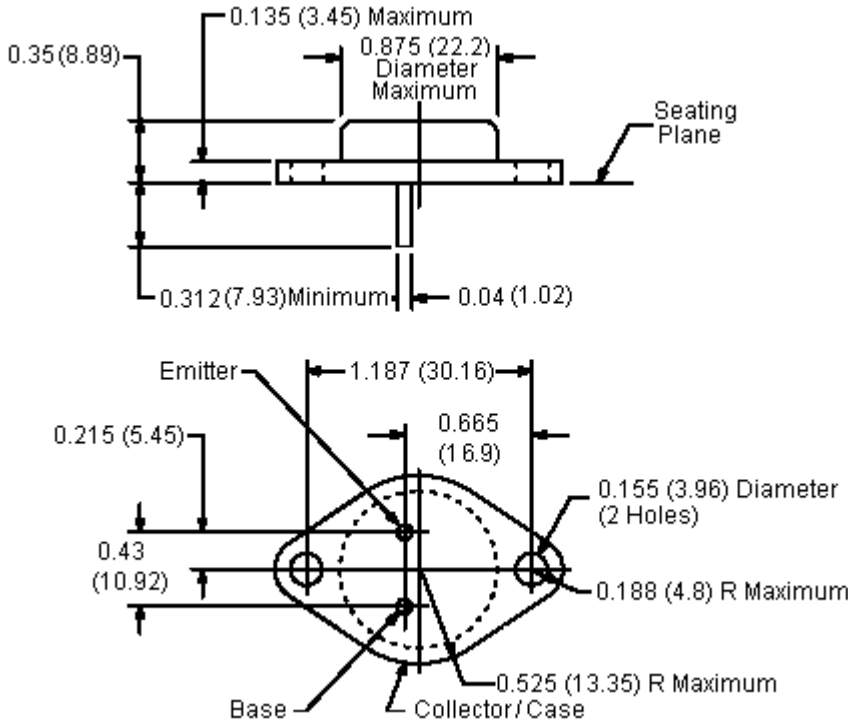
Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEV}	250	V
Collector-Emitter Voltage	$V_{CEO (SUS)}$	350	
Emitter-Base Voltage	V_{EBO}	8	
Collector Current-Continuous -Peak	I_C I_{CM}	60 100	A
Base Current	I_B	20	
Total Power Dissipation $T_C = +25^\circ\text{C}$ $T_C = +100^\circ\text{C}$ Derate Above $+25^\circ\text{C}$	P_D	250 143 1.43	W W/°C
Operating Junction Temperature Range	T_J	-65° to +200°C	°C
Storage Temperature	T_{stg}		
Thermal Resistance, Junction-to-Case	R_{thJC}	0.7	°C/W

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Off Characteristics					
Collector-Emitter Sustaining Voltage	$I_C = 100\text{ mA}, I_B = 0$	$V_{CEO(SUS)}$	250	-	V
Collector Cut off Current	$V_{CEV} = 250\text{ V},$ $V_{BE(OFF)} = 1.5\text{ V}$	I_{CEV}	-	0.25	mA
	$T_C = 150^\circ\text{C}$		-	5	
	$V_{CEV} = 250\text{ V}, R_{BE} = 50\ \Omega, T_C = +100^\circ\text{C}$	I_{CER}	-		
Emitter Cut off Current	$V_{EB} = 2\text{ V}, I_C = 0$	I_{EBO}	-	175	
On Characteristics (Note 1)					
DC Current Gain	$I_C = 15\text{ A}, V_{CE} = 5\text{ V}$	h_{FE}	75	1,000	-
Collector-Emitter Saturation Voltage	$I_C = 30\text{ A}, I_B = 1.2\text{ A}$	$V_{CE(sat)}$	-	2.2	V
	$I_C = 60\text{ A}, I_B = 4\text{ A}$		-	4	
	$I_C = 30\text{ A}, I_B = 1.2\text{ A}, T_C = +100^\circ\text{C}$		-	2.4	
Base-Emitter Saturation Voltage	$I_C = 30\text{ A}, I_B = 1.2\text{ A}$	$V_{BE(sat)}$	-	3	
	$T_C = +100^\circ\text{C}$		-	3.5	
Diode Forward Voltage	$I_F = 30\text{ A}$	V_F	-	5	
Dynamic Characteristics					
Output Capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = \text{kHz}$	C_{ob}	160	750	pF
Switching Characteristics					
Delay Time	$V_{CC} = 175\text{ V}, I_C = 30\text{ A}, I_{B1} = 1.2\text{ A},$ $V_{BE(off)} = 5\text{ V}, t_p = 25\ \mu\text{s}, \text{Duty Cycle} \leq 2\%$	t_d	-	0.2	μs
Rise Time		t_r	-	1	
Storage Time		t_s	-	3.5	
Fall Time		t_f	-	0.8	

Note 1. Pulsed Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$



Dimensions : (Inches) Millimetres

Part Number Table

Description	Part Number
Darlington Transistor, TO-3	MJ10021

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