



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

Feature

- Continuous collector current - $I_c = 60A$

Applications

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

Absolute Maximum Ratings

Parameter	Symbol	Values	Unit		
Collector-Emitter Voltage	V_{CBS}	250	V		
Collector-Emitter Voltage	V_{CEO}	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 $T_c = 25^\circ C$ $T_c = +100^\circ C$ Derate above $+25^\circ C$	P_D	250 143 1.43	W W / $^\circ C$		
Operating and Storage Junction Temperature Range		T_J, T_{STG}		65 to +200	$^\circ C$
Thermal Resistance, Junction-to-Case		R_{THJC}		0.7	$^\circ C/W$

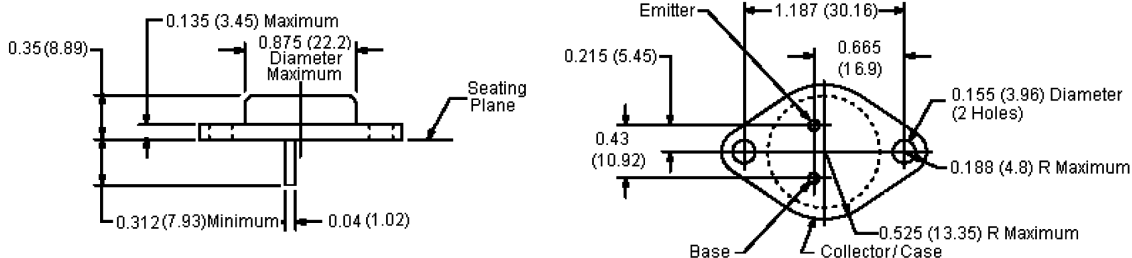
Electrical Characteristics ($T_{CASE} = 25^\circ C$ unless otherwise specified)

Parameter	Test Conditions	Symbol	Minimum	Maximum	Unit
Off Characteristics					
Collector-Emitter Sustaining Voltage	$I_c = 100mA, I_b = 0$	$V_{CEO (SUS)}$	250	-	V
Collector Cut off Current	$V_{CEV} = 250V,$ $V_{BE (OFF)} = 1.5V$ $T_c = 150^\circ C$	I_{CEV}	-	0.25	mA
			$V_{CEV} = 250V, R_{BE} = 50\Omega, T_c = +100^\circ C$	I_{CER}	
Emitter Cut off Current	$V_{EB} = 2V, I_c = 0$	I_{EBO}	-	175	

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

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

Diagram



Dimensions : Inches (Millimetres)

Part Number Table

Description	Part Number
Darlington Transistor, NPN, TO-3	MJ10021

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