



NPN MJ1000 – MJ1001

COMPLEMENTARY POWER DARLINGTONS

The MJ1000, MJ1001 are silicon epitaxial-bas 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. Their complementary PNP types are the MJ900 and MJ901 respectively. Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
V_{CBO}	Collector-Base Voltage		MJ1000	60	V
			MJ1001	80	
V_{CEO}	Collector-Emitter Voltage	$I_B=0$	MJ1000	60	V
			MJ1001	80	
V_{EBO}	Emitter-Base Voltage		MJ1000	5.0	V
			MJ1001		
I_C	Collector Current	$I_{C(RMS)}$	MJ1000	8.0	A
			MJ1001		
I_B	Base Current		MJ1000	0.1	A
			MJ1001		
P_T	Power Dissipation	@ $T_C < 25^\circ$	MJ1000	90	W
		Derate above $25^\circ C$	MJ1001	0.515	W/ $^\circ C$
T_J	Junction Temperature		MJ1000	-65 to +200	$^\circ C$
			MJ1001		
T_S	Storage Temperature		MJ1000	-65 to +200	$^\circ C$
			MJ1001		

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-C}	Thermal Resistance, Junction to Case	1.94	$^\circ C/W$

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

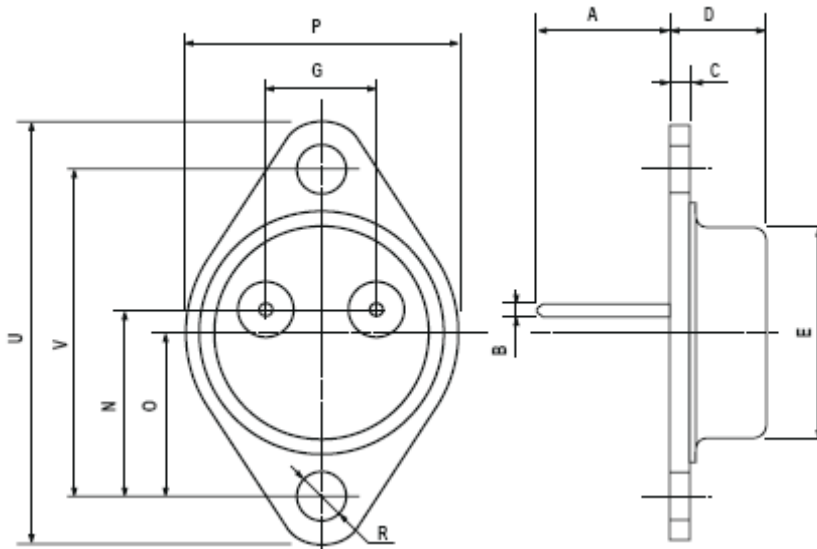
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
V_{CEO}	Collector-Emitter Breakdown Voltage (*)	$I_C=100\text{ mA}, I_B=0$	MJ1000	60	-	-	V
			MJ1001	80	-	-	
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{ V}, I_B=0$	MJ1000	-	-	500	μA
		$V_{CE}=40\text{ V}, I_B=0$	MJ1001	-	-		
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5.0\text{ V}, I_C=0$	MJ1000	-	-	2.0	mA
			MJ1001	-	-		
I_{CER}	Collector-Emitter Leakage Current	$V_{CB}=60\text{ V}, R_{BE}=1.0\text{ k}\Omega$	MJ1000	-	-	1.0	mA
		$V_{CB}=80\text{ V}, R_{BE}=1.0\text{ k}\Omega$	MJ1001	-	-		
		$V_{CB}=60\text{ V}, R_{BE}=1.0\text{ k}\Omega, T_C=150^\circ\text{C}$	MJ1000	-	-	5.0	
		$V_{CB}=80\text{ V}, R_{BE}=1.0\text{ k}\Omega, T_C=150^\circ\text{C}$	MJ1001	-	-		
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=3.0\text{ A}, I_B=2\text{ mA}$	MJ1000	-	-	2.0	V
			MJ1001	-	-		
		$I_C=8.0\text{ A}, I_B=40\text{ mA}$	MJ1000	-	-	4.0	
			MJ1001	-	-		
V_F	Forward Voltage (pulse method)	$I_F=3\text{ A}$	MJ1000	-	1.8	-	V
			MJ1001	-			
V_{BE}	Base-Emitter Voltage (*)	$I_C=3.0\text{ A}, V_{CE}=3.0\text{ V}$	MJ1000	-	-	2.5	V
			MJ1001	-	-		
H_{FE}	DC Current Gain (*)	$V_{CE}=3.0\text{ V}, I_C=3.0\text{ A}$	MJ1000	1000	-	-	-
			MJ1001				
		$V_{CE}=3.0\text{ V}, I_C=4.0\text{ A}$	MJ1000	750	-	-	
			MJ1001				

(*) Pulse Width $\approx 300\ \mu\text{s}$, Duty Cycle $\angle 2.0\%$

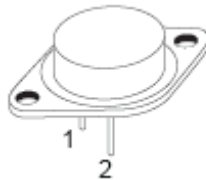
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MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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