



MJ900 – MJ901 PNP
MJ1000 – MJ1001 NPN

COMPLEMENTARY POWER DARLINGTONS

The MJ900, MJ901, MJ1000 and 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.

PNP types are the MJ900 and MJ901, and their complementary NPN types are the MJ1000 and MJ1001 respectively.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
V_{CBO}	Collector-Base Voltage	MJ900 MJ1000	60	Vdc	
		MJ901 MJ1001	80		
V_{CEO}	Collector-Emitter Voltage	$I_B=0$	MJ900 MJ1000	60	Vdc
			MJ901 MJ1001	80	
V_{EBO}	Emitter-Base Voltage		MJ900 MJ1000 MJ901 MJ1001	5.0	Vdc
I_C	Collector Current	$I_{C(RMS)}$	MJ900 MJ1000 MJ901 MJ1001	8.0	Adc



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Symbol	Ratings		Value	Unit	
I_B	Base Current		MJ900 MJ1000	0.1	Adc
			MJ901 MJ1001		
P_T	Power Dissipation	@ $T_C < 25^\circ$	MJ900 MJ1000	90	Watts
		Derate above 25°C	MJ901 MJ1001	0.515	W/°C
T_J	Junction Temperature		MJ900 MJ1000	-65 to +200	°C
			MJ901 MJ1001		
T_S	Storage Temperature		MJ900 MJ1000	-65 to +200	°C
			MJ901 MJ1001		

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit	
R_{thJ-C}	Thermal Resistance, Junction to Case		MJ900 MJ1000	1.94	°C/W
			MJ901 MJ1001		

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
V_{CEO}	Collector-Emitter Breakdown Voltage (*)	$I_C=100$ mAdc, $I_B=0$	MJ900 MJ1000	60	-	-	Vdc
			MJ901 MJ1001	80	-	-	
I_{CEO}	Collector Cutoff Current	$V_{CE}=30$ Vdc, $I_B=0$	MJ900 MJ1000	-	-	500	µAdc
		$V_{CE}=40$ Vdc, $I_B=0$	MJ901 MJ1001	-	-		

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Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
I_{EBO}	Emitter Cutoff Current	$V_{BE}=5.0$ Vdc, $I_C=0$	MJ900 MJ1000	-	-	2.0	mAdc
			MJ901 MJ1001				
I_{CER}	Collector-Emitter Leakage Current	$V_{CB}=60$ V, $R_{BE}=1.0$ k ohm	MJ900 MJ1000	-	-	1.0	mAdc
		$V_{CB}=80$ V, $R_{BE}=1.0$ k ohm	MJ901 MJ1001	-	-		
		$V_{CB}=60$ V, $R_{BE}=1.0$ k ohm, $T_C=150^\circ\text{C}$	MJ900 MJ1000	-	-	5.0	
		$V_{CB}=80$ V, $R_{BE}=1.0$ k ohm, $T_C=150^\circ\text{C}$	MJ901 MJ1001	-	-		
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=3.0$ A, $I_B=12$ mAdc	MJ900 MJ1000	-	-	2.0	Vdc
		$I_C=8.0$ A, $I_B=40$ mAdc	MJ900 MJ1000 MJ901 MJ1001	-	-	4.0	

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit
V_F	Forward Voltage (pulse method)	$I_F=3$ A	-	1.8	-	V
V_{BE}	Base-Emitter Voltage (*)	$I_C=3.0$ Adc, $V_{CE}=3.0$ Vdc	-	-	2.5	V
H_{FE}	DC Current Gain (*)	$V_{CE}=3.0$ Vdc, $I_C=3.0$ Adc	1000	-	-	-
		$V_{CE}=3.0$ Vdc, $I_C=4.0$ Adc	750	-	-	

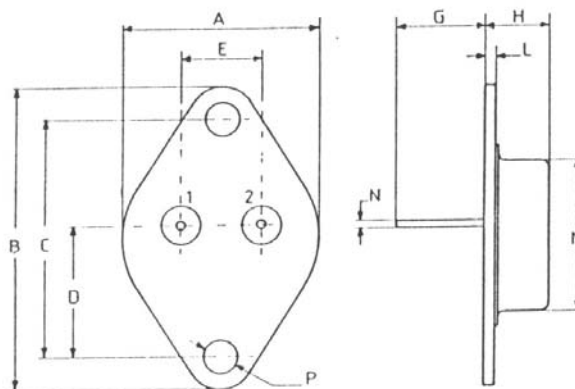
(*) Pulse Width ≈ 300 μs , Duty Cycle $\angle 2.0\%$

!!! For PNP types current and voltage values are negative !!!

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MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector