

**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
		MJ901 MJ1001	80
$V_{CEO}$	Collector-Emitter Voltage $I_B=0$	MJ900 MJ1000	60
		MJ901 MJ1001	80
$V_{EBO}$	Emitter-Base Voltage	MJ900 MJ1000	5.0
		MJ901 MJ1001	
$I_C$	Collector Current $I_{C(RMS)}$	MJ900 MJ1000	8.0
		MJ901 MJ1001	



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

**MJ900 – MJ901 PNP**  
**MJ1000 – MJ1001 NPN**

Symbol	Ratings		Value	Unit	
$I_B$	Base Current	MJ900 MJ1000 MJ901 MJ1001	0.1	Adc	
$P_T$	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 MJ901 MJ1001	-65 to +200	°C	
$T_S$	Storage Temperature	MJ900 MJ1000 MJ901 MJ1001			

**THERMAL CHARACTERISTICS**

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

**ELECTRICAL CHARACTERISTICS**

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit	
$V_{CE0}$	Collector-Emitter Breakdown Voltage (**)	$I_C=100$ mAdc, $I_B=0$	MJ900 MJ1000	60	-	-	Vdc
			MJ901 MJ1001	80	-	-	
$I_{CE0}$	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	$V_{BE}=5.0 \text{ Vdc}, I_C=0$	-	-	2.0	mAdc
$I_{CER}$	Collector-Emitter Leakage Current	$V_{CB}=60 \text{ V}, R_{BE}=1.0 \text{ k ohm}$	-	-	1.0	mAdc
		$V_{CB}=80 \text{ V}, R_{BE}=1.0 \text{ k ohm}$	-	-	1.0	
		$V_{CB}=60 \text{ V}, R_{BE}=1.0 \text{ k ohm}, T_C=150^\circ\text{C}$	-	-	5.0	mAdc
		$V_{CB}=80 \text{ V}, R_{BE}=1.0 \text{ k ohm}, T_C=150^\circ\text{C}$	-	-	5.0	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=3.0 \text{ A}, I_B=12 \text{ mAdc}$	-	-	2.0	Vdc
		$I_C=8.0 \text{ A}, I_B=40 \text{ mAdc}$	-	-	4.0	

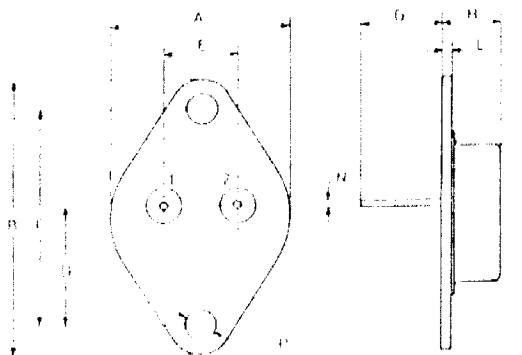
Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit
$V_F$	Forward Voltage (pulse method)	$I_F=3 \text{ A}$	-	1.8	-	V
$V_{BE}$	Base-Emitter Voltage (*)	$I_C=3.0 \text{ Adc}, V_{CE}=3.0 \text{ Vdc}$	-	-	2.5	V
$H_{FE}$	DC Current Gain (*)	$V_{CE}=3.0 \text{ Vdc}, I_C=3.0 \text{ Adc}$	1000	-	-	-
		$V_{CE}=3.0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

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

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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