SGS-THOMSON MICROELECTRONICS

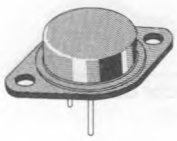
MJ2500/2501 MJ3000/3001

COMPLEMENTARY POWER DARLINGTONS

DESCRIPTION

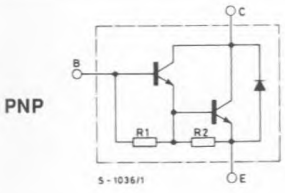
The MJ2500, MJ2501, MJ3000 and MJ3001 are silicon epitaxial-base transistors in monolithic Darlington configuration and are mounted in Jedec TO-3 metal case. They are intended for use in power linear and switching applications.

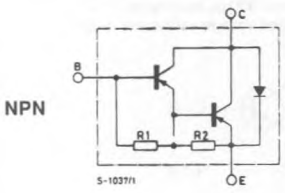
The PNP types are the MJ2500 and MJ2501 and their complementary NPN types are the MJ3000 and MJ3001 respectively.



TO-3

INTERNAL SCHEMATIC DIAGRAMS





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	PNP NPN	Value		Unit
			MJ2500 MJ3000	MJ2501 MJ3001	
V_{CBO}	Collector-base Voltage (I_E = 0)		60	80	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)		60	80	V
V_{EBO}	Emitter-base Voltage (I_C = 0)		5		V
I_C	Collector Current		10		A
I_B	Base Current		0.2		A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25°C$		150		W
T_{stg}	Storage Temperature		– 65 to 200		°C
T_j	Junction Temperature		200		°C

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.17	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cutoff Current (R_{BE} = 1KΩ)	for **MJ2500** and **MJ3000** V_{CE} = 60 V			1	mA
		for **MJ2501** and **MJ3001** V_{CE} = 80 V			1	mA
		T_{case} = 150 °C for **MJ2500** and **MJ3000** V_{CE} = 60 V			5	mA
		for **MJ2501** and **MJ3001** V_{CE} = 80 V			5	mA
I_{CEO}	Collector Cutoff Current (I_B = 0)	for **MJ2500** and **MJ3000** V_{CE} = 30 V			1	mA
		for **MJ2501** and **MJ3001** V_{CE} = 40 V			1	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5V			2	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 100mA for **MJ2500** and **MJ3000**	60			V
		for **MJ2501** and **MJ3001**	80			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 5A I_B = 20mA			2	V
		I_C = 10A I_B = 50mA			4	V
V_{BE}*	Base-emitter Voltage	I_C = 5A V_{CE} = 3V			3	V
h_{FE}*	DC Current Gain	I_C = 5A V_{CE} = 3V	1000			

* Pulsed : pulse duration = 300μs, duty cycle = 1.5%.
For PNP types current and voltage values are negative.