MJ2501
MJ3001

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

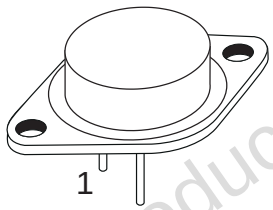
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

APPLICATION
- AUDIO POWER AMPLIFIER
- DC-AC CONVERTER
- EASY DRIVER FOR LOW VOLTAGE DC MOTOR
- GENERAL POWER SWITCHING

DESCRIPTION

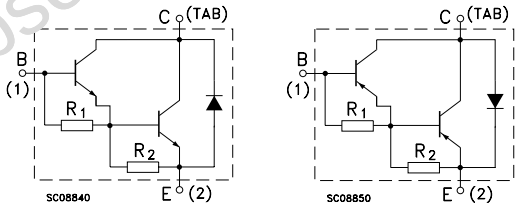
The MJ2501 is a Silicon Epitaxial-Base PNP power transistors in monolithic Darlington configuration, mounted in Jedec TO-3 metal case. It is intented for use in power linear and switching applications.

The complementary NPN type is the MJ3001.



TO-3

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 10 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		PNP	MJ2501	
		NPN	MJ3001	
V_{CBO}	Collector-base Voltage (I_E = 0)		80	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)		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 Dissipation at $T_c \leq 25\ ^oC$		150	W
T_{stg}	Storage Temperature		-65 to 200	^oC
T_j	Max. Operating Junction Temperature		200	^oC

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj\text{-}case}$	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 Cut-off Current (R_{BE} = 1 KΩ)	V_{CE} = 80 V T_{case} = 150 °C V_{CE} = 80 V			1 5	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 30 V V_{CE} = 40 V			1 1	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA	80			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 5 A I_B = 20 mA I_C = 10 A I_B = 50 mA			2 4	V V
V_{BE}*	Base-emitter Voltage	I_C = 5 A V_{CE} = 3 V			3	V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 3 V	1000			

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

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.934		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193