



**MJ2501**  
**MJ3001**

## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

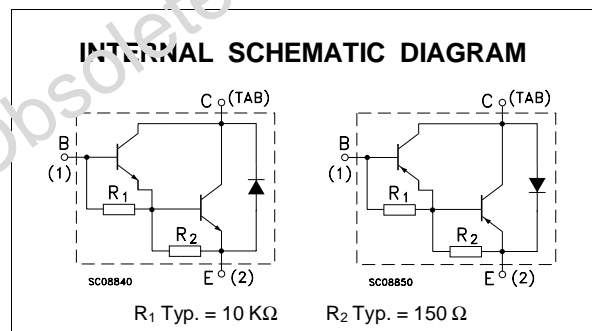
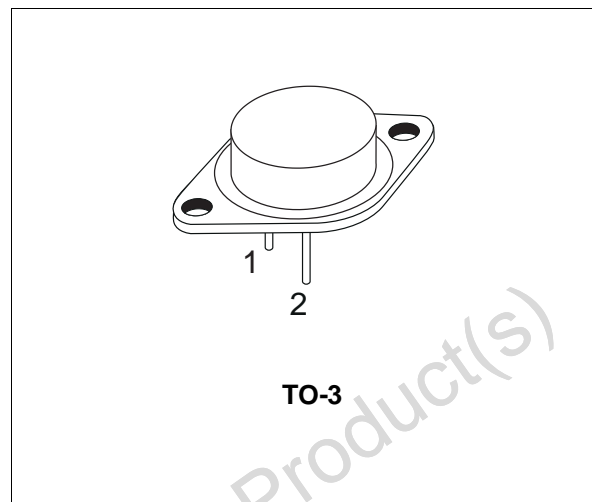
### APPLICATION

- 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 intended for use in power linear and switching applications.

The complementary NPN type is the MJ3001.



### 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 $T_c \leq 25^\circ\text{C}$		150	W
$T_{stg}$	Storage Temperature		-65 to 200	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature		200	$^\circ\text{C}$

For PNP types voltage and current values are negative.

## MJ2501 / MJ3001

### THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.17	°C/W
----------------	----------------------------------	-----	------	------

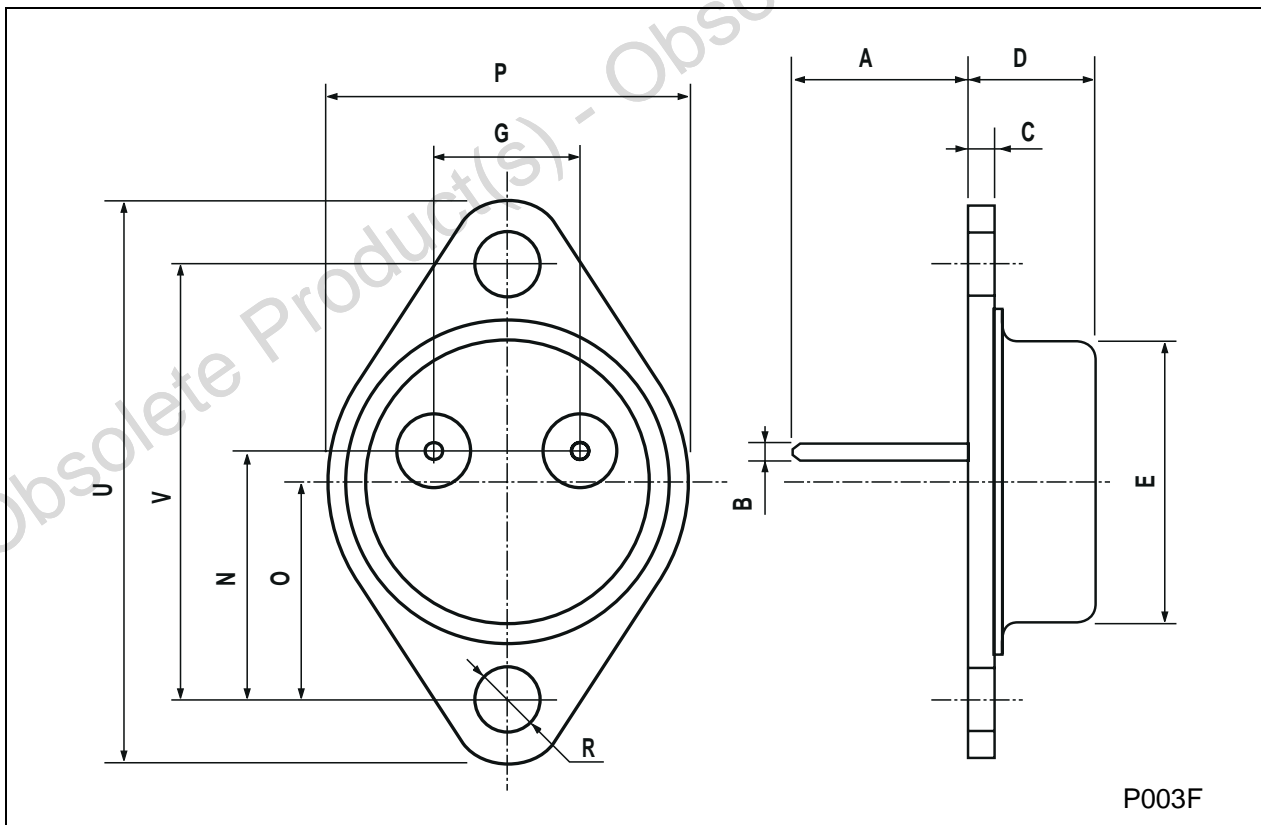
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$ unless otherwise specified)

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

\* Pulsed: Pulse duration = 300  $\mu$ s, 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	0.984		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



P003F

Obsolete Product(s) - Obsolete Product(s)

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics.

All other names are the property of their respective owners.

© 2003 STMicroelectronics – All Rights reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>