

# MJD31B/31C MJD32B/32C

# COMPLEMENTARY SILICON POWER TRANSISTORS

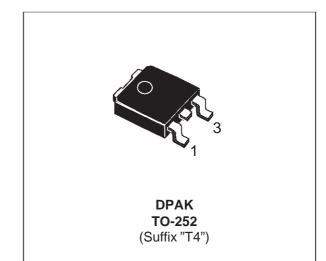
- STMicroelectronics PREFERRED SALESTYPES
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICALLY SIMILAR TO TIP31B/C AND TIP32B/C

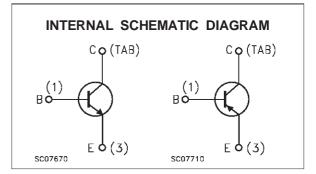
#### **APPLICATIONS**

 GENERAL PURPOSE SWITCHING AND AMPLIFIER TRANSISTORS

#### DESCRIPTION

The MJD31B and MJD31C and the MJD32B and MJD32C form complementary NPN-PNP pairs. They are manufactured using Epitaxial Base technology for cost-effective performance.





#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Va	Unit		
		NPN	MJD31B	MJD31C	1
		PNP	MJD32B	MJD32C	1
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)		80	100	V
V <sub>CEO</sub>	Collector-Emitter Voltage $(I_B = 0)$		80	100	V
V <sub>EBO</sub>	Emitter-Base Voltage $(I_C = 0)$			V	
Ι <sub>C</sub>	Collector Current			A	
I <sub>CM</sub>	Collector Peak Current		:	A	
IB	Base Current			A	
P <sub>tot</sub>	Total Dissipation at $T_c = 25$ °C		1	W	
T <sub>stg</sub>	Storage Temperature		-65 t	°C	
Tj	Max. Operating Junction Temperature	1	°C		

For PNP types the values are intented negative.

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance	Junction-case	Max	8.33	°C/W
R <sub>thj-amb</sub>	Thermal Resistance	Junction-ambient	Max	100	°C/W

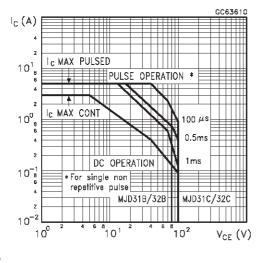
## **ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current ( $V_{BE} = 0$ )	V <sub>CE</sub> = Max Rating			20	μΑ
ICEO	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = 60 V$			50	μA
I <sub>EBO</sub>	Emitter Cut-off Current $(I_C = 0)$	$V_{EB} = 5 V$			0.1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	Ic = 30 mA for <b>MJD31B/32B</b> for <b>MJD31C/32C</b>	80 100			V V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	$I_{\rm C} = 3 \text{ A}$ $I_{\rm B} = 375 \text{ mA}$			1.2	V
V <sub>BE(on)</sub> *	Base-Emitter Voltage	$I_{C} = 3 A$ $V_{CE} = 4 V$			1.8	V
h <sub>FE</sub> *	DC Current Gain	$      I_C = 1 \ A \qquad V_{CE} = 4 \ V \\      I_C = 3 \ A \qquad V_{CE} = 4 \ V $	25 10		50	
h <sub>fe</sub>	Dynamic Current Gain		20 3			

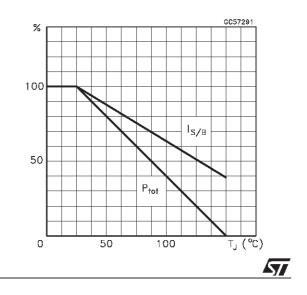
\* Pulsed: Pulse duration = 300  $\mu$ s, duty cycle  $\leq$  2 %

For PNP type voltage and current values are negative.

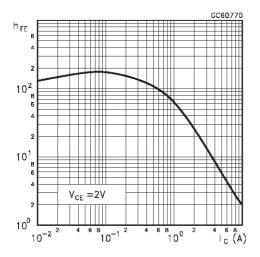
### Safe Operating Area



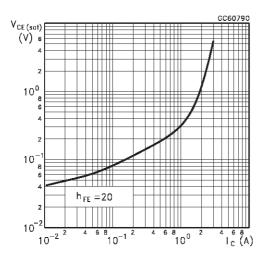
Derating Curves



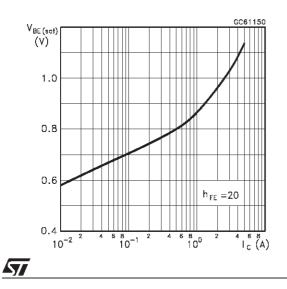
#### DC Current Gain (NPN type)



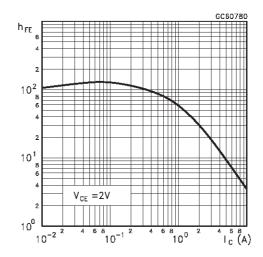
Collector-Emitter Saturation Voltage (NPN type)



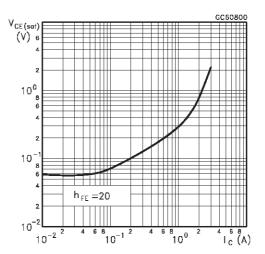
Base-Emitter Saturation Voltage (NPN type)



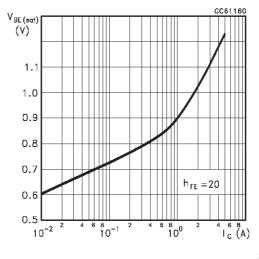
DC Current Gain (PNP type)



Collector-Emitter Saturation Voltage (PNP type)

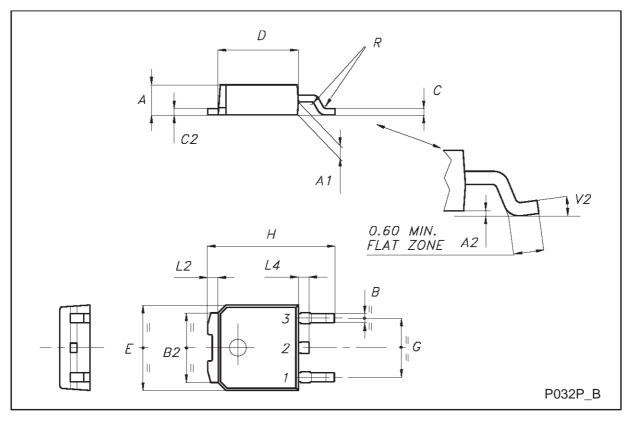


Collector-Base Capacitance (PNP type)



DIM.		mm			inch	
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	2.20		2.40	0.087		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
В	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.213
С	0.45		0.60	0.018		0.024
C2	0.48		0.60	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.252		0.260
G	4.40		4.60	0.173		0.181
Н	9.35		10.10	0.368		0.398
L2		0.8			0.031	
L4	0.60		1.00	0.024		0.039
V2	0°		8°	0°		0°





57

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

© 1999 STMicroelectronics - Printed in Italy - All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands -Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

http://www.st.com

57