

# MJE172 MJE182

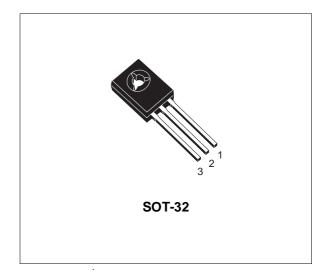
## COMPLEMENTARY SILICON POWER TRANSISTORS

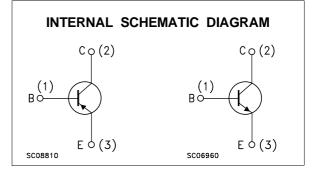
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP NPN DEVICES

#### DESCRIPTION

The MJE172 (PNP type) and MJE182 (NPN type) are silicon Epitaxial Planar, complementary transistors in Jedec SOT-32 plastic package.

They are designed for low power audio amplifier and low current, high speed switching applications.





#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit	
	NPN			MJE182
		PNP	MJE172	
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		80	V
V <sub>CBO</sub>	Collector-Base Voltage $(I_E = 0)$		100	V
V <sub>EBO</sub>	Base-Emitter Voltage (I <sub>C</sub> = 0)		7	V
Ι <sub>C</sub>	Collector Current		3	Α
I <sub>CM</sub>	Collector Peak Current (t <sub>p</sub> < 5 ms)		6	Α
Ι <sub>Β</sub>	Base Current		1	A
P <sub>tot</sub>	Total Power Dissipation at $T_{case} \leq 25 \ ^{\circ}C$		12.5	W
T <sub>stg</sub>	Storage Temperature		-65 to 150	°C
Tj	Total Power Dissipation at $T_{case} \leq 25$ °C		150	°C

For PNP type voltage and current values are negative.

#### September 2003

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### THERMAL DATA

R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	83.4	°C/W
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	10	°C/W

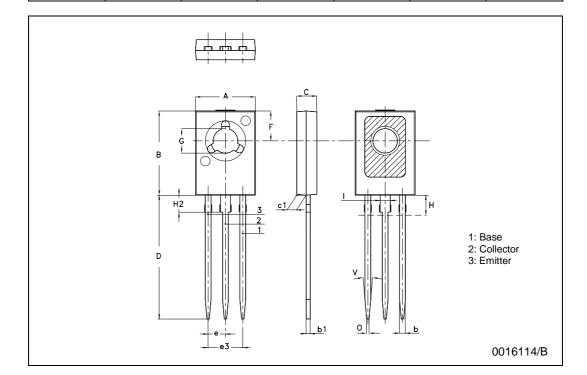
### **ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25 \ ^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Cond	itions	Min.	Тур.	Max.	Unit
Ісво	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = rated V <sub>CBO</sub> T <sub>case =</sub> 150 <sup>o</sup> C				0.1 0.1	μA mA
I <sub>EBO</sub>	Emitter Cut-off Current $(I_C = 0)$	$V_{EB} = 7 V$				0.1	μA
$V_{CEO(sus)^*}$	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 10 mA		80			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 0.5 A I <sub>C</sub> = 1.5 A I <sub>C</sub> = 3 A	I <sub>B</sub> = 50 mA I <sub>B</sub> = 0.15 A I <sub>B</sub> = 0.6 A			0.3 0.9 1.7	V V V
V <sub>BE(sat)</sub> *	Base-Emitter on Voltage	I <sub>C</sub> = 1.5 A I <sub>C</sub> = 3 A	I <sub>B</sub> = 0.15 A I <sub>B</sub> = 0.6 A			1.5 2	V
$V_{BE}*$	Base-Emitter on Voltage	I <sub>C</sub> = 0.5 A	$V_{CE} = 1 V$			1.2	V
h <sub>FE</sub>	DC Current Gain	$I_{C} = 0.1 A$ $I_{C} = 0.5 A$ $I_{C} = 1.5 A$	$V_{CE} = 1 V$ $V_{CE} = 1 V$ $V_{CE} = 1 V$	50 30 12		250	
f⊤	Transistor Frequency	I <sub>C</sub> = 0.1 A f = 10 MHz	V <sub>CE</sub> = 10 V	50			MHz
C <sub>CBO</sub>	Collector-base Capacitance	$V_{CB} = 10 V$ $I_E = 0$ for <b>MJE172</b> for <b>MJE182</b>	f = 0.1MHz			60 40	pF pF

\* Pulsed: Pulse duration =  $300\mu$ s, duty cycle  $\leq 1.5\%$ For PNP type voltage and current values are negative.

DIM.		mm			inch	
Diwi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	7.4		7.8	0.291		0.307
В	10.5		10.8	0.413		0.425
b	0.7		0.9	0.028		0.035
b1	0.40		0.65	0.015		0.025
С	2.4		2.7	0.094		0.106
c1	1.0		1.3	0.039		0.051
D	15.4		16.0	0.606		0.630
е		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
Н			2.54			0.100
H2		2.15			0.084	
I		1.27			0.05	
0		0.3			0.011	





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