MJE172
MJE182

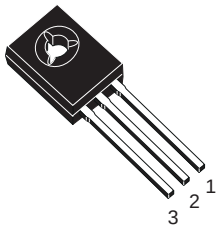
COMPLEMENTARY SILICON POWER TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

DESCRIPTION

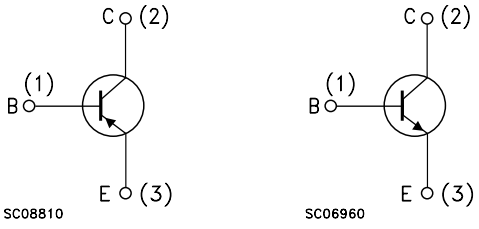
The MJE172 (PNP type) and MJE182 (NPN type) are silicon Epitaxial Planar, complementary transistors in Jedec SOT-32 plastic package.

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



SOT-32

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
		NPN	MJE182	
		PNP	MJE172	
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		80	V
V_{CBO}	Collector-Base Voltage (I_E = 0)		100	V
V_{EBO}	Base-Emitter Voltage (I_C = 0)		7	V
I_C	Collector Current		3	A
I_{CM}	Collector Peak Current (t_p < 5 ms)		6	A
I_B	Base Current		1	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25\ ^oC$		12.5	W
T_{stg}	Storage Temperature		-65 to 150	^oC
T_j	Total Power Dissipation at $T_{case} \leq 25\ ^oC$		150	^oC

For PNP type voltage and current values are negative.

THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	83.4	$^oC/W$
$R_{thj-case}$	Thermal Resistance Junction-case	Max	10	$^oC/W$

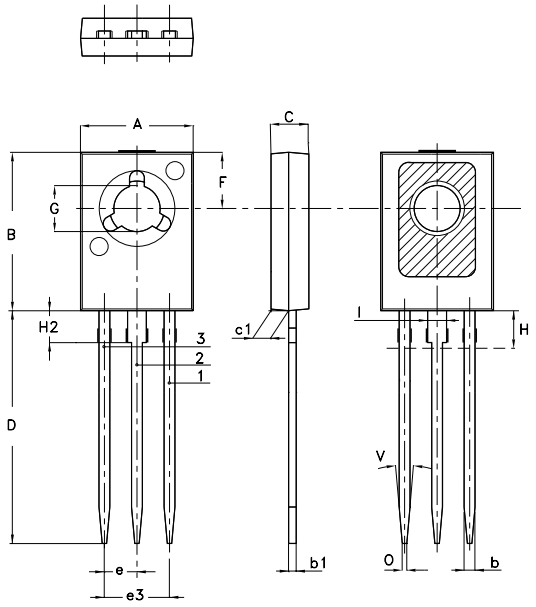
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = rated V_{CBO} T_{case} = 150^oC			0.1 0.1	µA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 7 V			0.1	µA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 10 mA	80			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 0.5 A I_B = 50 mA I_C = 1.5 A I_B = 0.15 A I_C = 3 A I_B = 0.6 A			0.3 0.9 1.7	V V V
$V_{BE(sat)}$*	Base-Emitter on Voltage	I_C = 1.5 A I_B = 0.15 A I_C = 3 A I_B = 0.6 A			1.5 2	V
V_{BE}*	Base-Emitter on Voltage	I_C = 0.5 A V_{CE} = 1 V			1.2	V
h_{FE}	DC Current Gain	I_C = 0.1 A V_{CE} = 1 V I_C = 0.5 A V_{CE} = 1 V I_C = 1.5 A V_{CE} = 1 V	50 30 12		250	
f_T	Transistor Frequency	I_C = 0.1 A V_{CE} = 10 V f = 10 MHz	50			MHz
C_{CBO}	Collector-base Capacitance	V_{CB} = 10 V I_E = 0 f = 0.1MHz for **MJE172** for **MJE182**			 60 40	 pF pF

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

SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	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
C	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
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	
I		1.27			0.05	
O		0.3			0.011	
V		10^o			10^o	



1: Base
2: Collector
3: Emitter

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