

MJE172 Silicon PNP Transistor Low Power Audio Amp TO-126 Type Package

Description:

The MJE172 is a silicon PNP transistor in a TO-126 type package designed for low power audio amplifier and low-current, high-speed switching applications.

Features:

- Collector-Emitter Sustaining Voltage: $V_{CEO(sus)} = 80V$
- DC Current Gain: $h_{FE} = 30$ (Min) @ $I_C = 0.5A$
 $h_{FE} = 12$ (Min) @ $I_C = 1.5A$
- Current-Gain—Bandwidth Product: $f_T = 50MHz$ (Min) @ $I_C = 100mA$
- Annular Construction for Low Leakage: $I_{CBO} = 100nA$ (Max) @ $V_{CB} = 100V$

Absolute Maximum Ratings:

Collector-Base Voltage, V_{CB}	100V
Collector-Emitter Voltage, V_{CEO}	80V
Emitter-Base Voltage, V_{EB}	7V
Collector Current, I_C	
Continuous	3A
Peak	6A
Base Current, I_B	1A
Total Power Dissipation ($T_A = +25^\circ C$), P_D	1.5W
Derate above $+25^\circ C$	0.012W/ $^\circ C$
Total Power Dissipation ($T_C = +25^\circ C$), P_D	12.5W
Derate above $+25^\circ C$	0.1W/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Thermal Resistance, Junction-to-Case, R_{thJC}	10 $^\circ C/W$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	83.4 $^\circ C/W$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified))

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 10mA, I_B = 0$	80	—	—	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 100V, I_E = 0$	—	—	0.1	μA
		$T_C +150^\circ C$	—	—	0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 7V, I_C = 0$	—	—	0.1	μA

Electrical Characteristics (Cont'd): ($T_C = +25^{\circ}\text{C}$ unless otherwise specified))

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	$V_{CE} = 1\text{V}$	$I_C = 100\text{mA}$	50	–	250
			$I_C = 500\text{mA}$	30	–	–
			$I_C = 1.5\text{A}$	12	–	–
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	–	–	0.3	V
		$I_C = 1.5\text{A}, I_B = 150\text{mA}$	–	–	0.9	V
		$I_C = 3\text{A}, I_B = 600\text{mA}$	–	–	1.7	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1.5\text{A}, I_B = 150\text{mA}$	–	–	1.5	V
		$I_C = 3\text{A}, I_B = 600\text{mA}$	–	–	2.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 500\text{mA}, V_{CE} = 1\text{V}$	–	–	1.2	V
Dynamic Characteristics						
Current–Gain–Bandwidth Product	f_T	$I_C = 100\text{mA}, V_{CE} = 10\text{V}, f_{test} = 10\text{MHz}$, Note 1	50	–	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	–	60	pF

Note 1. $f_T = |h_{fe}| \cdot f_{test}$

