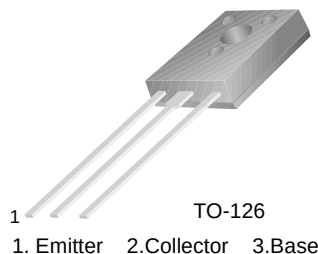


MJE170/171/172

Low Power Audio Amplifier
Low Current, High Speed Switching Applications



PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : MJE170	- 60	V
	: MJE171	- 80	V
	: MJE172	- 100	V
V_{CEO}	Collector-Emitter Voltage : MJE170	- 40	V
	: MJE171	- 60	V
	: MJE172	- 80	V
V_{EBO}	Emitter-Base Voltage	- 7	V
I_C	Collector Current (DC)	- 3	A
I_{CP}	Collector Current (Pulse)	- 6	A
I_B	Base Current	- 1	A
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	12.5	W
	Collector Dissipation ($T_a=25^\circ\text{C}$)	1.5	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage : MJE170	$I_C = 10\text{mA}, I_B = 0$	-40 -60 -80		V
	: MJE171				V
	: MJE172				V
					V
I_{CBO}	Collector Cut-off Current : MJE170 : MJE171 : MJE172 : MJE170 : MJE171 : MJE172	$V_{CB} = - 60\text{V}, I_B = 0$		-0.1	μA
		$V_{CB} = - 80\text{V}, I_E = 0$		-0.1	μA
		$V_{CB} = - 100\text{V}, I_E = 0$		-0.1	μA
		$V_{CB} = - 60\text{V}, I_E = 0, @T_C = 150^\circ\text{C}$		-0.1	mA
		$V_{CB} = - 80\text{V}, I_E = 0, @T_C = 150^\circ\text{C}$		-0.1	mA
		$V_{CB} = - 100\text{V}, I_E = 0, @T_C = 150^\circ\text{C}$		-0.1	mA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = - 7\text{V}, I_C = 0$		-0.1	μA
h_{FE}	DC Current Gain	$V_{CE} = - 1\text{V}, I_C = - 100\text{mA}$	50	250	
		$V_{CE} = - 1\text{V}, I_C = - 500\text{mA}$	30		
		$V_{CE} = - 1\text{V}, I_C = - 1.5\text{A}$	12		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = - 500\text{mA}, I_B = - 50\text{mA}$		-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
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = - 1.5\text{A}, I_B = - 150\text{mA}$		-1.5	V
		$I_C = - 3\text{A}, I_B = - 600\text{mA}$		-2.0	V
$V_{BE(on)}$	Base-Emitter ON Voltage	$V_{CE} = - 1\text{V}, I_C = - 500\text{mA}$		-1.2	V
f_T	Current Gain Bandwidth Product	$V_{CE} = - 10\text{V}, I_C = - 100\text{mA}$	50		MHz
C_{ob}	Output Capacitance	$V_{CB} = - 10\text{V}, I_E = 0, f = 0.1\text{MHz}$		50	pF

Typical Characteristics

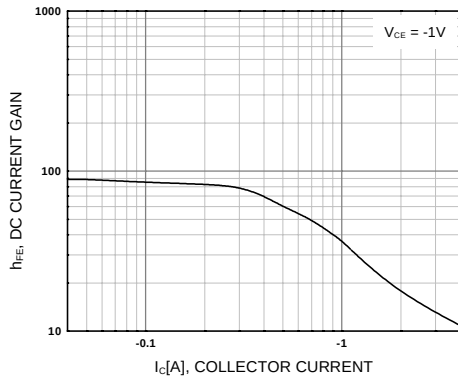


Figure 1. DC current Gain

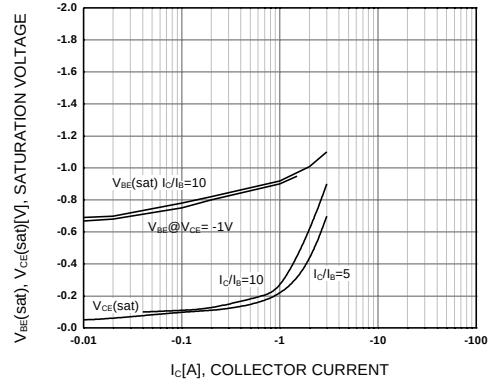


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

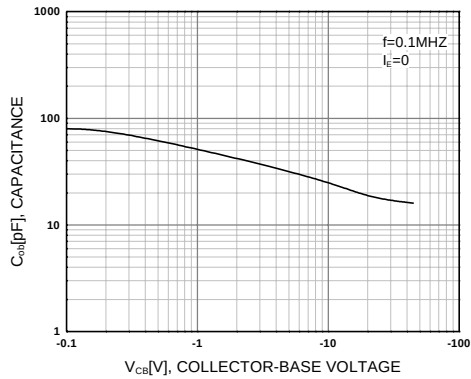


Figure 3. Collector Output Capacitance

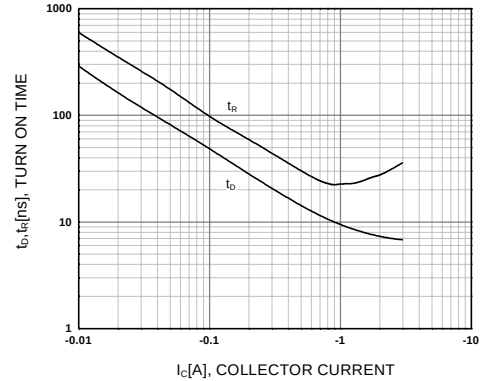


Figure 4. Turn On Time

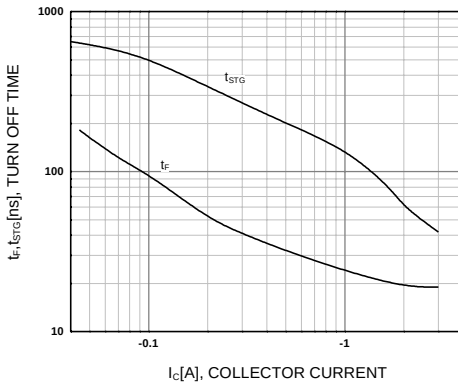


Figure 5. Turn Off Time

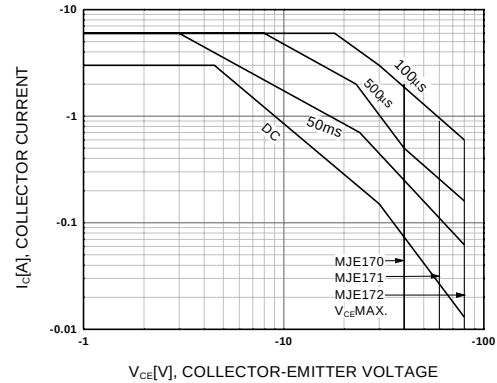


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

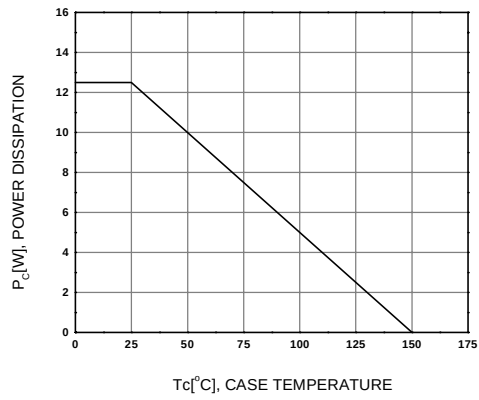


Figure 7. DC current Gain

Technical drawing of a 10-pin D-sub connector. The drawing includes a front view (top), a side view (right), and a detail view of the pin (bottom). Dimensions are given in millimeters with tolerances.

Front View Dimensions:

- Overall width: 8.00 ± 0.30
- Overall height: 14.20 MAX
- Pin diameter: $\text{Ø}3.20 \pm 0.10$
- Pin spacing: 2.28 TYP [2.28 ± 0.20]
- Pin length: 13.06 ± 0.30
- Pin thickness: 0.75 ± 0.10
- Pin width: 1.60 ± 0.10
- Pin height: 0.75 ± 0.10

Side View Dimensions:

- Overall height: 11.00 ± 0.20
- Pin thickness: $0.50^{+0.10}_{-0.05}$
- Pin width: 1.75 ± 0.20
- Pin height: 1.00 (dimension line shown)
- Pin width: (0.50) (dimension line shown)

Detail View Dimensions:

- Pin diameter: $\text{Ø}3.20 \pm 0.10$
- Pin length: 13.06 ± 0.30
- Pin thickness: 0.75 ± 0.10
- Pin width: 1.60 ± 0.10
- Pin height: 0.75 ± 0.10

Rev. A2, June 2001

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