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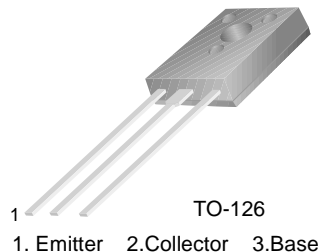
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# MJE170/171/172

**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 : MJE171 : MJE172	$I_C = 10\text{mA}, I_B = 0$	-40		V
			-60		V
			-80		V
					V
$I_{CBO}$	Collector Cut-off Current : MJE170 : MJE171 : MJE172 : MJE170 : MJE171 : MJE172	$V_{CB} = - 60\text{V}, I_B = 0$		-0.1	$\mu\text{A}$
		$V_{CB} = - 80\text{V}, I_E = 0$		-0.1	$\mu\text{A}$
		$V_{CB} = - 100\text{V}, I_E = 0$		-0.1	$\mu\text{A}$
		$V_{CB} = - 60\text{V}, I_E = 0, @T_C = 150^\circ\text{C}$		-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	$\mu\text{A}$
$h_{FE}$	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

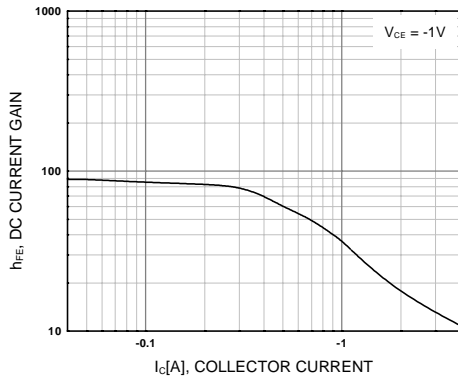


Figure 1. DC current Gain

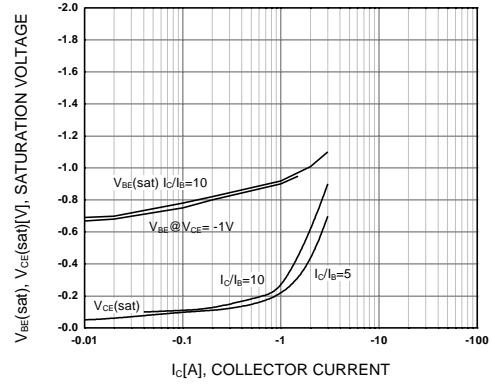


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

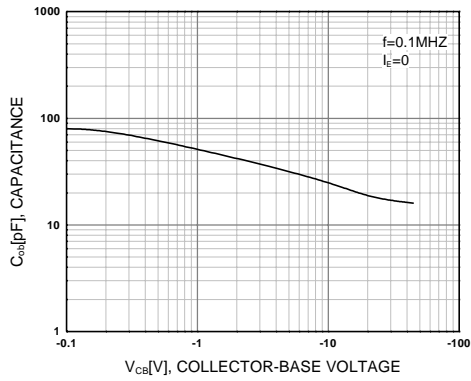


Figure 3. Collector Output Capacitance

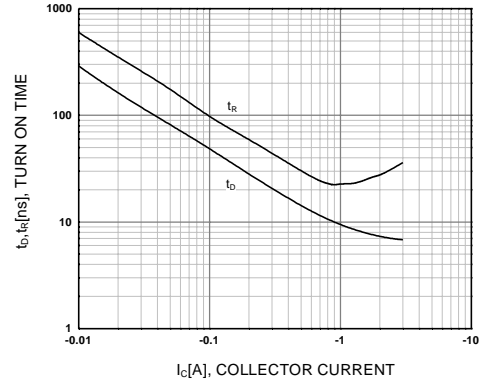


Figure 4. Turn On Time

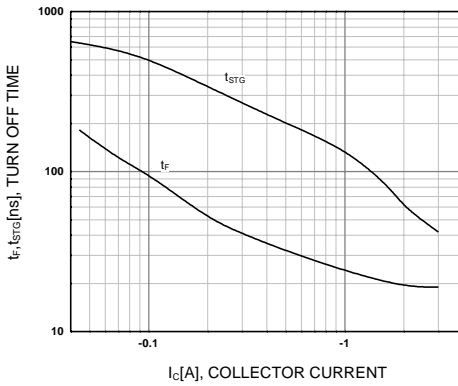


Figure 5. Turn Off Time

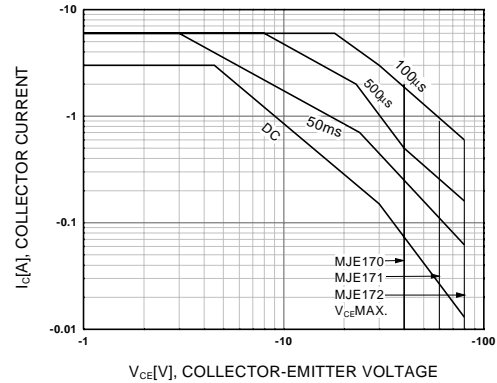


Figure 6. Safe Operating Area

## Typical Characteristics (Continued)

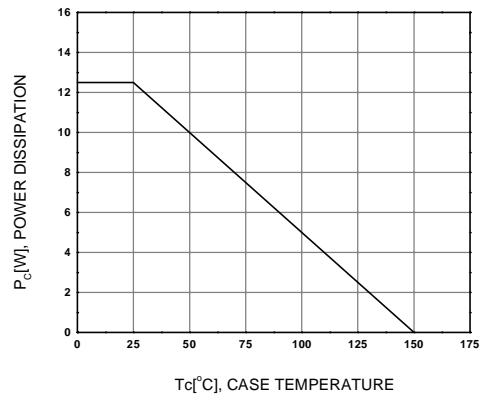
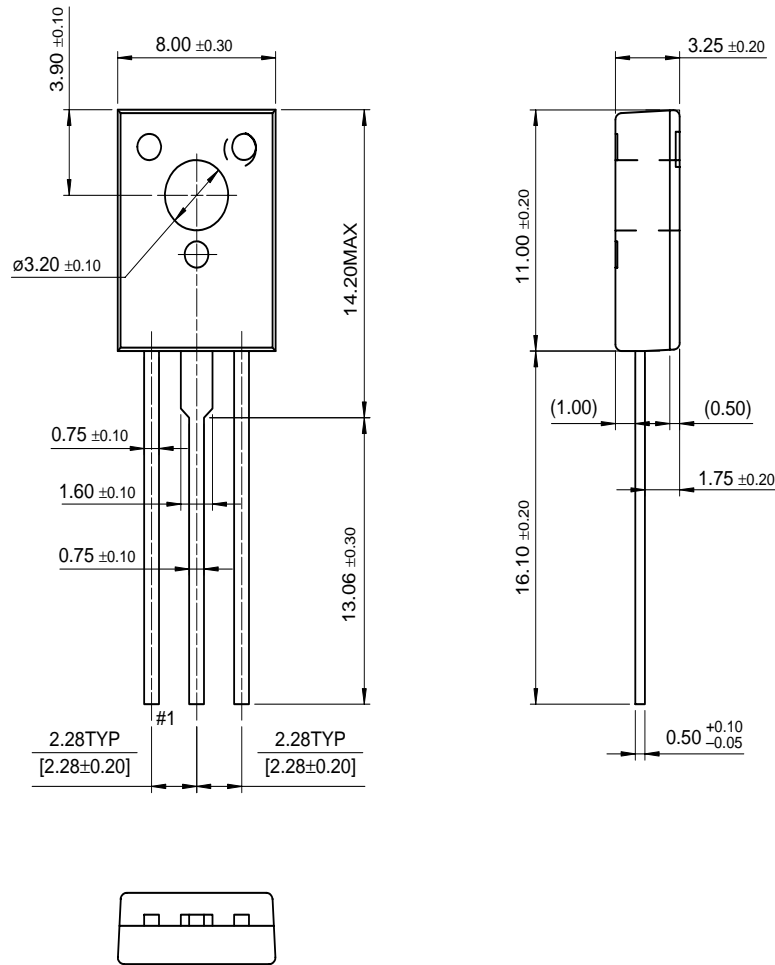


Figure 7. DC current Gain

# Package Dimensions

## TO-126



Dimensions in Millimeters

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