

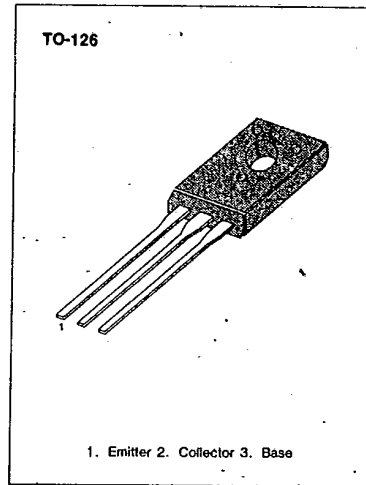
MJE170**PNP EPITAXIAL SILICON TRANSISTOR**

**LOW POWER AUDIO AMPLIFIER
LOW CURRENT, HIGH SPEED
SWITCHING APPLICATIONS**

T-33-17

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	-60	V
Collector-Emitter Voltage	V_{CE0}	-40	V
Emitter-Base Voltage	V_{EB0}	-7	V
Collector Current (DC)	I_C	-3	A
Collector Current (Pulse)	I_C	-3	A
Base Current	I_B	-1	A
Collector Dissipation ($T_a=25^\circ\text{C}$)	P_C	1.5	W
Derate above 25°C		0.012	W/ $^\circ\text{C}$
Collector Dissipation ($T_c=25^\circ\text{C}$)	P_C	12.5	W
Derate above 25°C		0.1	W/ $^\circ\text{C}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65~150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$)**

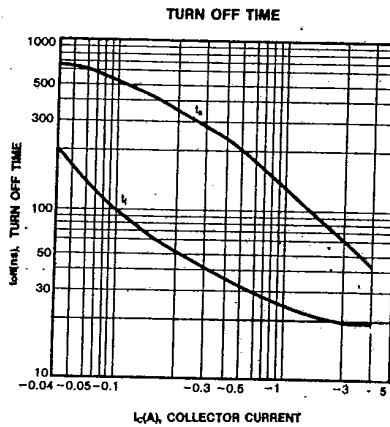
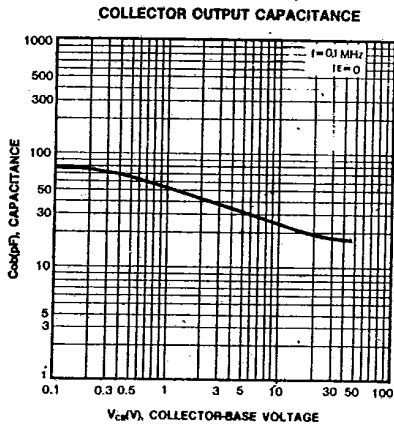
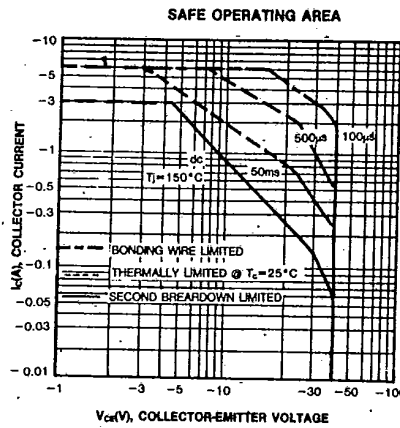
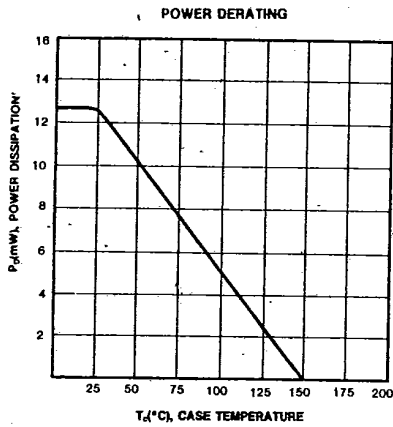
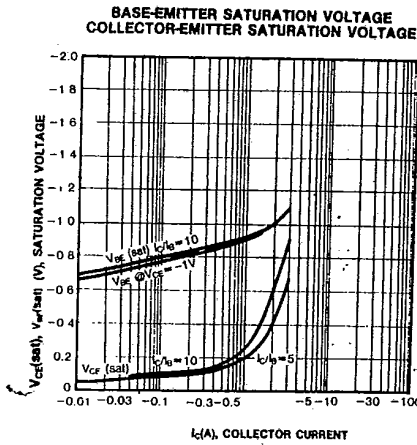
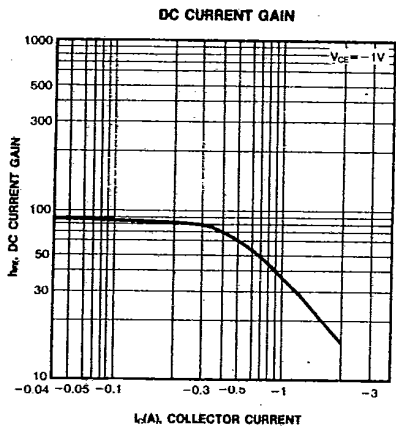
Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CE0}(\text{sus})$	$I_C=-10\text{mA}, I_B=0$	-40		V
Collector Cutoff Current	I_{CB0}	$V_{CB}=-60\text{V}, I_E=0$		-0.1	μA
Emitter Cutoff Current	I_{EB0}	$V_{CB}=-60\text{V}, I_E=0, T_c=150^\circ\text{C}$		-0.1	mA
DC Current Gain	h_{FE}	$V_{BE}=-7\text{V}, I_C=0$		-0.1	μA
		$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	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		
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		-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	$V_{BE}(\text{sat})$	$I_B=-150\text{mA}, I_C=-1.5\text{A}$		-1.5	V
		$I_B=-600\text{mA}, I_C=-3\text{A}$		-2	V
Base Emitter On Voltage	$V_{BE}(\text{on})$	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$		-1.2	V
Current Gain Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-100\text{mA}$ $f=10\text{MHz}$	50		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, f=0.1\text{MHz}$		5	pF



MJE170

PNP EPITAXIAL SILICON TRANSISTOR

T-33-17



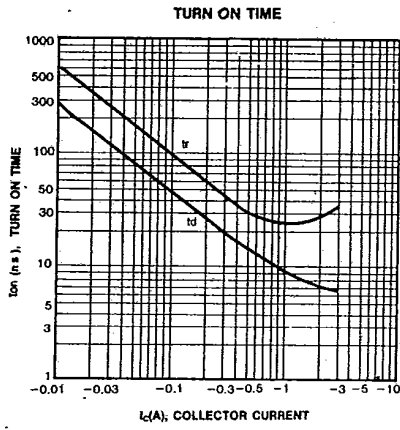
3



MJE170

PNP EPITAXIAL SILICON TRANSISTOR

T-33-17



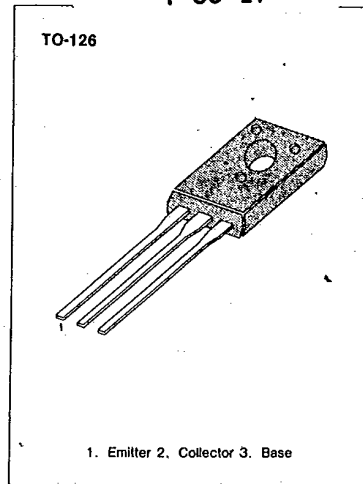
MJE171**PNP EPITAXIAL SILICON TRANSISTOR**

**LOW FREQUENCY AMPLIFIER
LOW CURRENT, HIGH SPEED
SWITCHING APPLICATION**

T-33-17

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-7	V
Base Current	I_B	-1	A
Collector Current (DC)	I_C	-3	A
Collector Current (Pulse)	I_C	-6	A
Collector Dissipation ($T_a=25^\circ\text{C}$)	P_C	1.5	W
Derate above 25°C		0.012	W/ $^\circ\text{C}$
Collector Dissipation ($T_c=25^\circ\text{C}$)	P_C	12.5	W
Derate above 25°C		0.1	W/ $^\circ\text{C}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65~150	$^\circ\text{C}$



3

* Refer to MJE170 for graphs

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C=-10\text{mA}, I_B=0$	-60		V
Collector Cutoff Current	I_{CBO}	$V_{CB}=-80\text{V}, I_E=0$		-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{CB}=-80\text{V}, I_E=0, T_C=150^\circ\text{C}$		-0.1	μA
DC Current Gain	h_{FE}	$V_{EB}=-7\text{V}, I_C=0$		-0.1	μA
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{CE}=-1\text{V}, I_C=-100\text{mA}$	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		
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		-0.3	V
		$I_C=-1.5\text{A}, I_B=-150\text{mA}$		-0.9	V
		$I_C=-3.0\text{A}, I_B=-600\text{mA}$		-1.7	V
Base-Emitter On Voltage	$V_{BE(on)}$	$I_C=-1.5\text{A}, I_B=-150\text{mA}$		-1.5	V
		$I_C=-3.0\text{A}, I_B=-600\text{mA}$		-2.0	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$		-1.2	V
Current Gain Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-100\text{mA}, f=10\text{MHz}$	50		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, I_E=0, f=0.1\text{MHz}$		50	pF