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MJE180/181/182

Low Power Audio Amplifier
Low Current High Speed Switching Applications

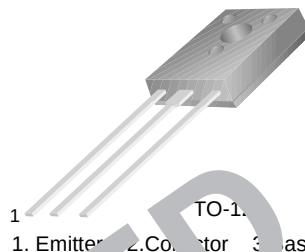
NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Units
V_{CBO}	Collector-Base Voltage : MJE180 : MJE181 : MJE182	60 V 80 V 100 V
V_{CEO}	Collector-Emitter Voltage : MJE180 : MJE181 : MJE182	40 V 60 V 80 V
V_{EBO}	Emitter-Base Voltage	7 V
I_C	Collector Current (DC)	3 A
I_{CP}	Collector Current (Pulse)	3 A
I_B	Base Current	1 A
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	1.5 W
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	12.5 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 : MJE180 : MJE181 : MJE182	$I_C = 10\text{mA}$, $I_B = 0$	40 60 80		V V V
I_{CBO}	Collector Cut-off Current : MJE180 : MJE181 : MJE182	$V_{CB} = 60\text{V}$, $I_B = 0$ $V_{CB} = 80\text{V}$, $I_E = 0$ $V_{CB} = 100\text{V}$, $I_E = 0$ $V_{CB} = 60\text{V}$, $I_E = 0$ @ $T_C = 150^\circ\text{C}$ $V_{CB} = 80\text{V}$, $I_E = 0$ @ $T_C = 150^\circ\text{C}$ $V_{CB} = 100\text{V}$, $I_E = 0$ @ $T_C = 150^\circ\text{C}$		0.1 0.1 0.1 0.1 0.1 0.1	μA μA μA mA mA mA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = 7\text{V}$, $I_C = 0$		0.1	μA
h_{FE}	DC Current Gain	$V_{CE} = 1\text{V}$, $I_C = 100\text{mA}$ $V_{CE} = 1\text{V}$, $I_C = 500\text{mA}$ $V_{CE} = 1\text{V}$, $I_C = 1.5\text{A}$	50 30 12	250	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 500\text{mA}$, $I_B = 50\text{mA}$ $I_C = 1.5\text{A}$, $I_B = 150\text{mA}$ $I_C = 3\text{A}$, $I_B = 600\text{mA}$		0.3 0.9 1.7	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.5\text{A}$, $I_B = 150\text{mA}$ $I_C = 3\text{A}$, $I_B = 600\text{mA}$		1.5 2.0	V 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	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 0.1\text{MHz}$		30	pF



TO-18
1. Emitter 2. Collector 3. Base

Typical Characteristics

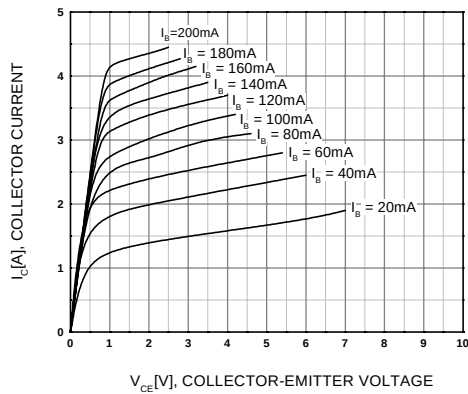


Figure 1. Static Characteristic

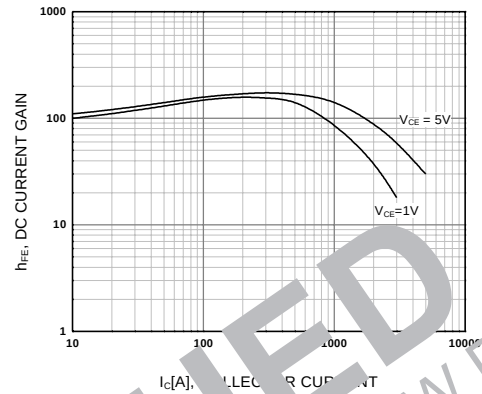


Figure 2. DC Current Gain

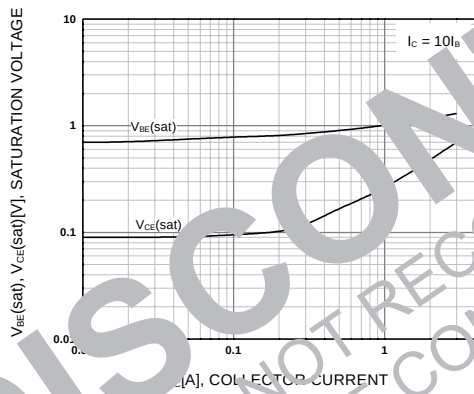


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

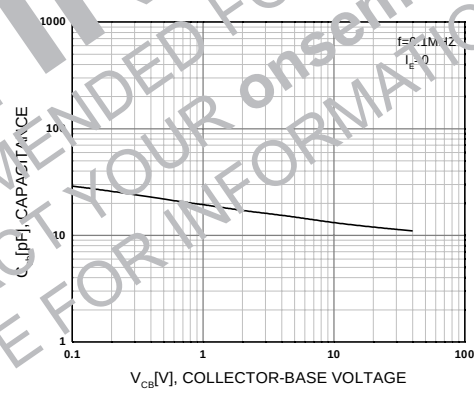


Figure 4. Collector Output Capacitance

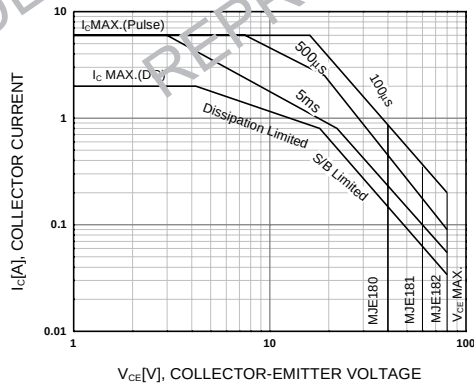


Figure 5. Safe Operating Area

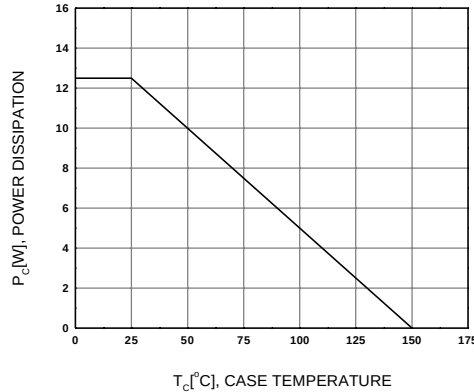
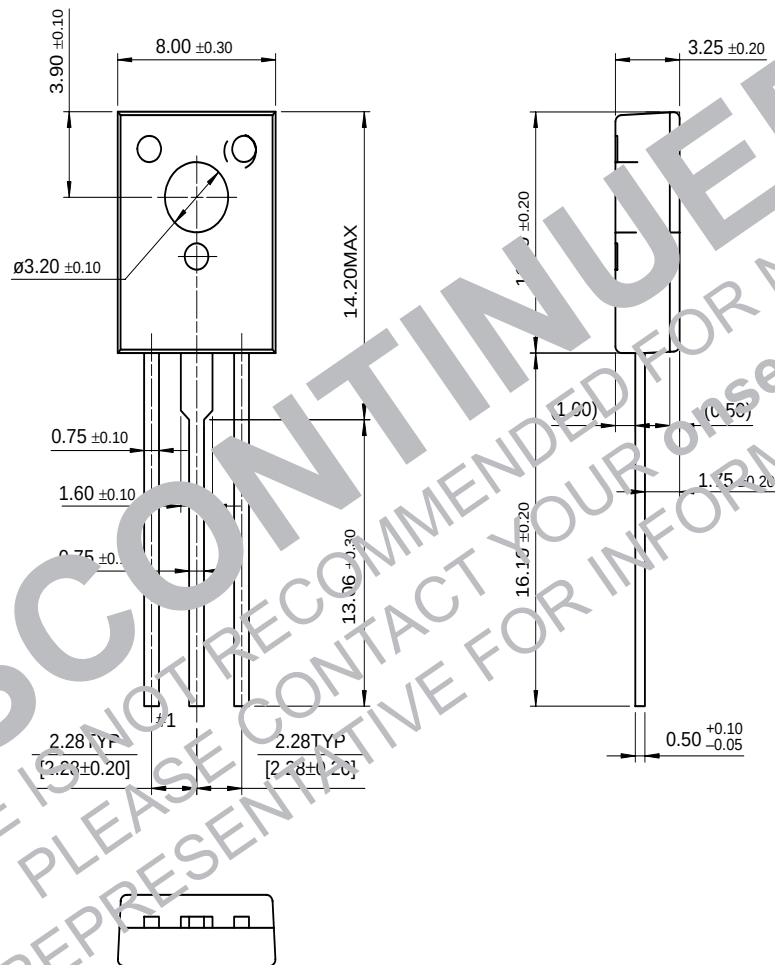


Figure 6. Power Derating

Package Dimensions

TO-126

MJE180/181/182



Dimensions in Millimeters

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