

MJE180/181/182

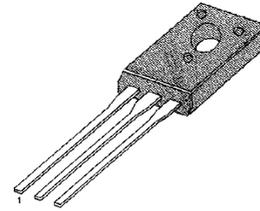
NPN EPITAXIAL SILICON TRANSISTOR

**DESIGNED FOR LOW POWER AUDIO
AMPLIFIER AND LOW CURRENT
HIGH SPEED SWITCHING APPLICATIONS**

ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : MJE180	V_{CB0}	60	V
: MJE181		80	V
: MJE182		100	V
Collector-Emitter Voltage	V_{CE0}		
: MJE180		40	V
: MJE181		60	V
: MJE182		80	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current (DC)	I_C	3	A
Collector Current (Pulse)	I_C	6	A
Base Current (DC)	I_B	1	A
Collector Dissipation ($T_A=25^\circ\text{C}$)	P_C	1.5	W
Collector Dissipation ($T_C=25^\circ\text{C}$)	P_C	12.5	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 ~ 150	$^\circ\text{C}$

TO-18



1. Emitter 2. Collector 3. Base

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

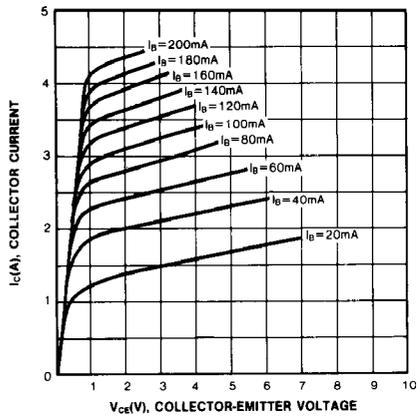
Characteristic	Symbol	Test Conditions	Min	Max	Unit
Collector Emitter Sustaining Voltage					
: MJE180	$V_{CE0(sus)}$	$I_C = 10\text{mA}, I_B = 0$	40		V
: MJE181			60		V
: MJE182			80		V
Collector Cutoff Current : MJE180	I_{CBO}	$V_{CB} = 60\text{V}, I_B = 0$		0.1	μA
: MJE181		$V_{CB} = 80\text{V}, I_E = 0$		0.1	μA
: MJE182		$V_{CB} = 100\text{V}, I_E = 0$		0.1	μA
: MJE180		$V_{CB} = 60\text{V}, I_E = 0, T_C = 150^\circ\text{C}$		0.1	mA
: MJE181		$V_{CB} = 80\text{V}, I_E = 0, T_C = 150^\circ\text{C}$		0.1	mA
: MJE182		$V_{CB} = 100\text{V}, I_E = 0, T_C = 150^\circ\text{C}$		0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 7\text{V}, I_C = 0$		0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	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	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		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	$V_{BE(on)}$	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$		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}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$		30	pF

FAIRCHILD
SEMICONDUCTOR TM

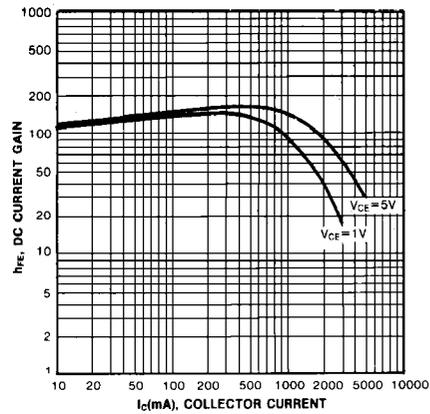
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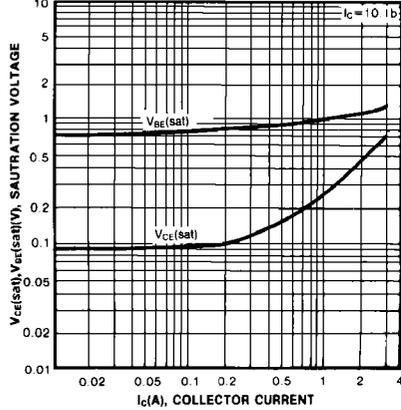
STATIC CHARACTERISTIC



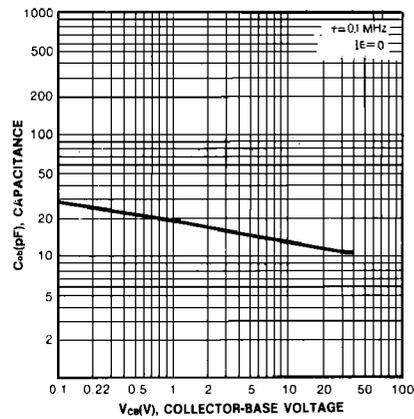
DC CURRENT GAIN



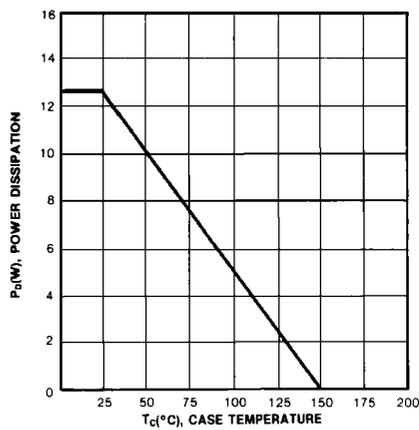
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



POWER DERATING



SAFE OPERATING AREA

