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January 2009

FJP5200

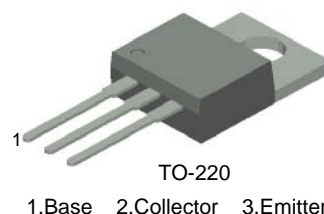
NPN Epitaxial Silicon Transistor

Applications

- High-Fidelity Audio Output Amplifier
- General Purpose Power Amplifier

Features

- High Current Capability: $I_C = 17A$.
- High Power Dissipation : 80watts.
- High Frequency : 30MHz.
- High Voltage : $V_{CE0}=250V$
- Wide S.O.A for reliable operation.
- Excellent Gain Linearity for low THD.
- Complement to FJP1943
- Thermal and electrical Spice models are available.
- Same transistor is also available in:
 - TO264 package, 2SC5200/FJL4315 : 150 watts
 - TO3P package, 2SC5242/FJA4313 : 130 watts
 - TO220F package, FJPF5200 : 50 watts



Absolute Maximum Ratings* $T_a = 25^\circ C$ unless otherwise noted

Symbol	Parameter	Ratings	Units
BV_{CBO}	Collector-Base Voltage	250	V
BV_{CEO}	Collector-Emitter Voltage	250	V
BV_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current(DC)	17	A
I_B	Base Current	1.5	A
P_D	Total Device Dissipation($T_C=25^\circ C$) Derate above $25^\circ C$	80 0.64	W W/ $^\circ C$
T_J, T_{STG}	Junction and Storage Temperature	- 50 ~ +150	$^\circ C$

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Thermal Characteristics* $T_a=25^\circ C$ unless otherwise noted

Symbol	Parameter	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.25	$^\circ C/W$

* Device mounted on minimum pad size

h_{FE} Classification

Classification	R	O
h_{FE1}	55 ~ 110	80 ~ 160

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=5\text{mA}$, $I_E=0$	250			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C=10\text{mA}$, $R_{BE}=\infty$	250			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=5\text{mA}$, $I_C=0$	5			V
I_{CBO}	Collector Cut-off Current	$V_{CB}=230\text{V}$, $I_E=0$			5.0	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=5\text{V}$, $I_C=0$			5.0	μA
h_{FE1}	DC Current Gain	$V_{CE}=5\text{V}$, $I_C=1\text{A}$	55		160	
h_{FE2}	DC Current Gain	$V_{CE}=5\text{V}$, $I_C=7\text{A}$	35	60		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}$, $I_B=0.8\text{A}$		0.4	3.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE}=5\text{V}$, $I_C=7\text{A}$		1.0	1.5	V
f_T	Current Gain Bandwidth Product	$V_{CE}=5\text{V}$, $I_C=1\text{A}$		30		MHz
C_{ob}	Output Capacitance	$V_{CB}=10\text{V}$, $f=1\text{MHz}$		200		pF

* Pulse Test: Pulse Width=20 μs , Duty Cycle \leq 2%**Ordering Information**

Part Number	Marking	Package	Packing Method	Remarks
FJP5200RTU	J5200R	TO-220	TUBE	hFE1 R grade
FJP5200OTU	J5200O	TO-220	TUBE	hFE1 O grade

Typical Characteristics

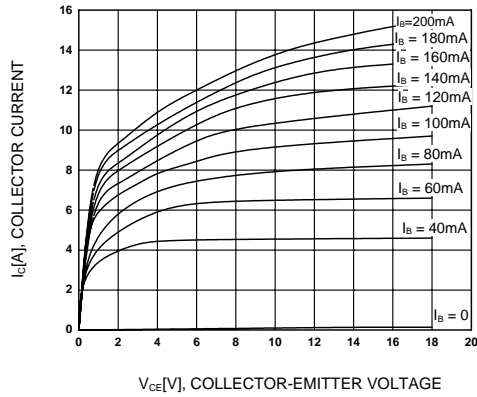


Figure 1. Static Characteristic

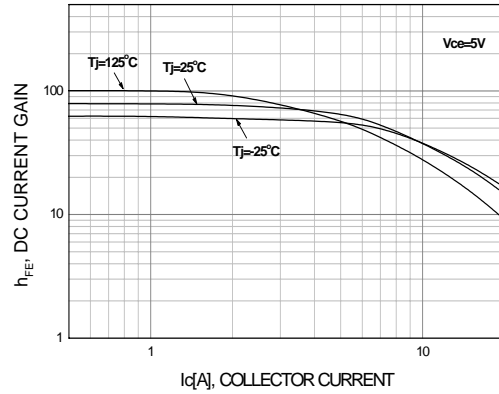


Figure 2. DC current Gain (R grade)

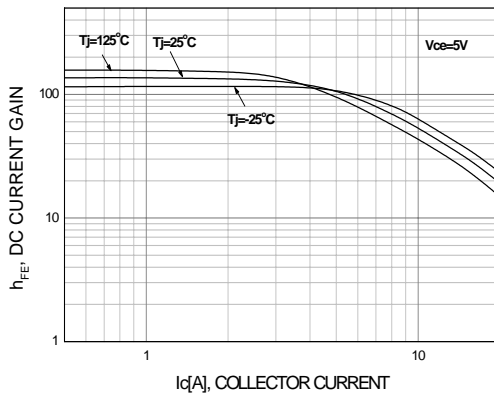


Figure 3. DC current Gain (O grade)

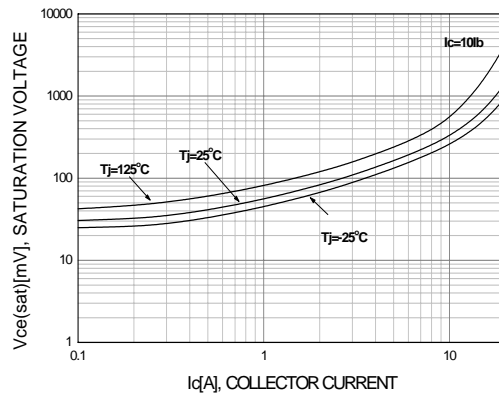


Figure 4. Collector-Emitter Saturation Voltage

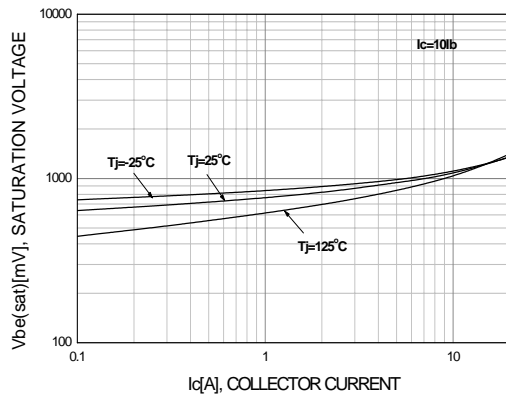


Figure 5. Base-Emitter Saturation Voltage

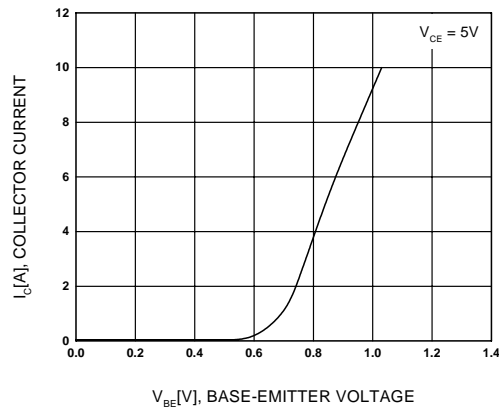


Figure 6. Base-Emitter On Voltage

Typical Characteristics

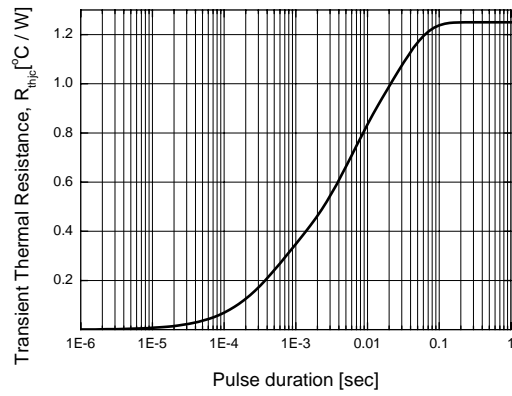


Figure 7. Thermal Resistance

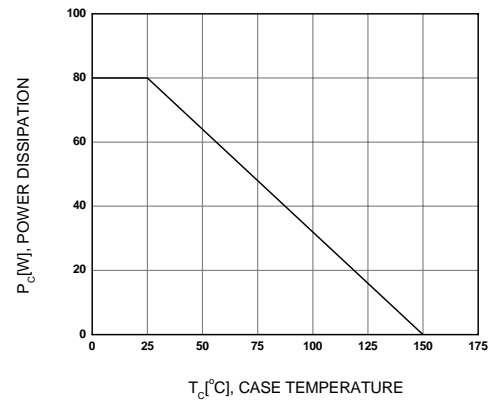
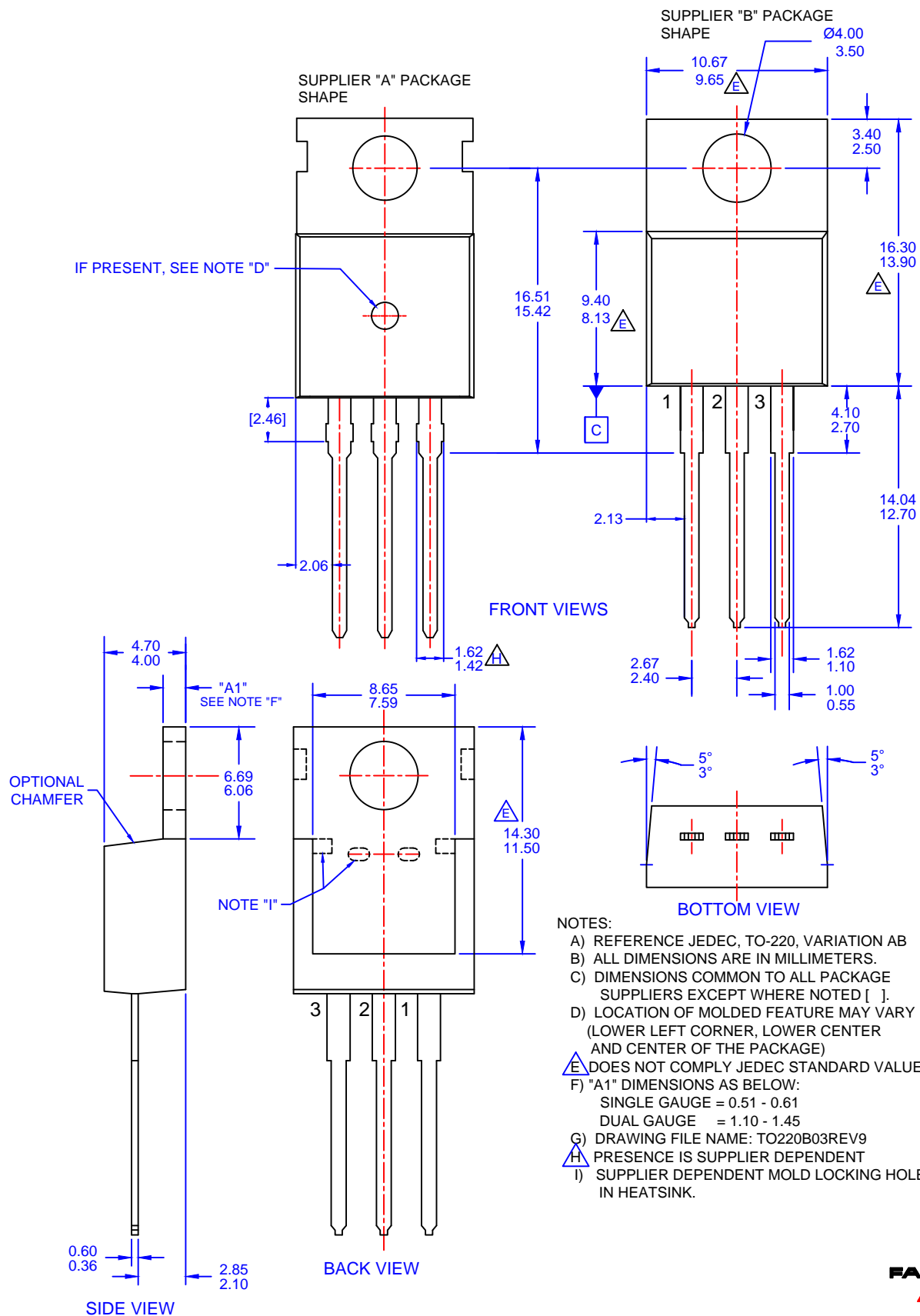


Figure 8. Power Derating



NOTES:

- A) REFERENCE JEDEC, TO-220, VARIATION AB
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [].
- D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
- E) DOES NOT COMPLY JEDEC STANDARD VALUE.
- F) "A1" DIMENSIONS AS BELOW:
SINGLE GAUGE = 0.51 - 0.61
DUAL GAUGE = 1.10 - 1.45
- G) DRAWING FILE NAME: TO220B03REV9
- H) PRESENCE IS SUPPLIER DEPENDENT
- I) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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