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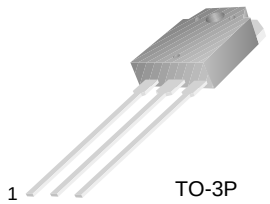
FAIRCHILD SEMICONDUCTOR®

January 2009

2SC5242/FJA4313
NPN Epitaxial Silicon Transistor

Applications

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



1 TO-3P

1.Base 2.Collector 3.Emitter

Features

- High Current Capability: I_C = 17A
- High Power Dissipation : 130watts
- High Frequency : 30MHz.
- High Voltage : V_{CEO}=250V
- Wide S.O.A for reliable operation.
- Excellent Gain Linearity for low THD.
- Complement to 2SA1962/FJA4213.
- Thermal and electrical Spice models are available
- Same transistor is also available in:
  --TO264 package, 2SC5200/FJL4315 : 150 watts
  --TO220 package, FJP5200 : 80 watts
  --TO220F package, FJPF5200 : 50 watts

Absolute Maximum Ratings* T_a = 25°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°C) Derate above 25°C	130 1.04	W W/°C
T_J, T_{STG}	Junction and Storage Temperature	- 50 ~ +150	°C

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

Thermal Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	0.96	°C/W

* Device mounted on minimum pad size

h_{FE} Classification

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

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Electrical Characteristics* T_a=25°C unless otherwise noted

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

* Pulse Test: Pulse Width=20μs, Duty Cycle≤2%

Ordering Information

Part Number	Marking	Package	Packing Method	Remarks
2SC5242RTU	C5242R	TO-3P	TUBE	hFE1 R grade
2SC5242OTU	C5242O	TO-3P	TUBE	hFE1 O grade
FJA4313RTU	J4313R	TO-3P	TUBE	hFE1 R grade
FJA4313OTU	J4313O	TO-3P	TUBE	hFE1 O grade

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Typical Characteristics

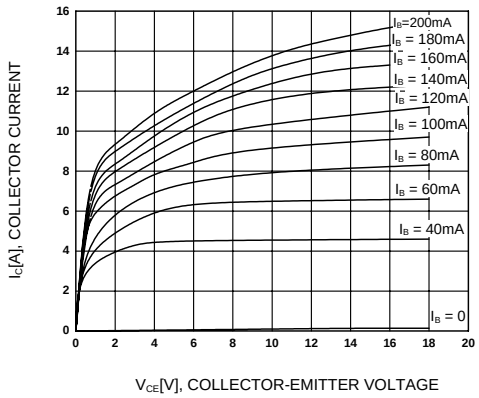


Figure 1. Static Characteristic

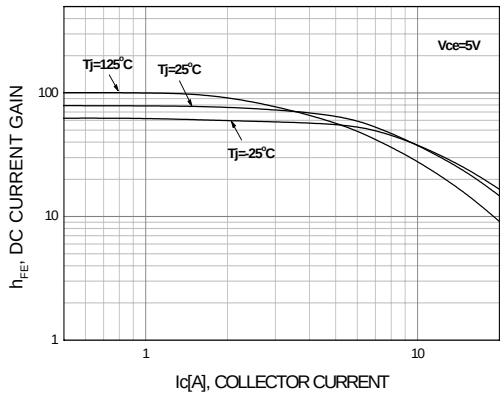


Figure 2. DC current Gain (R grade)

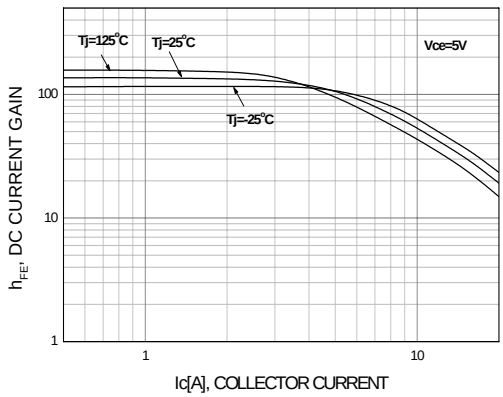


Figure 3. DC current Gain (O grade)

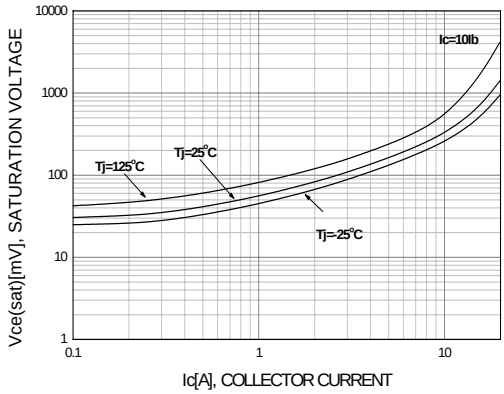


Figure 4. Collector-Emitter Saturation Voltage

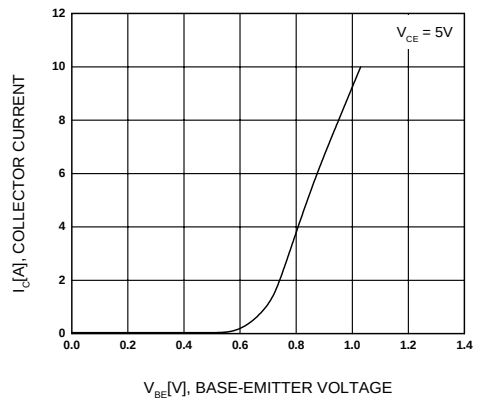


Figure 5. Base-Emitter On Voltage

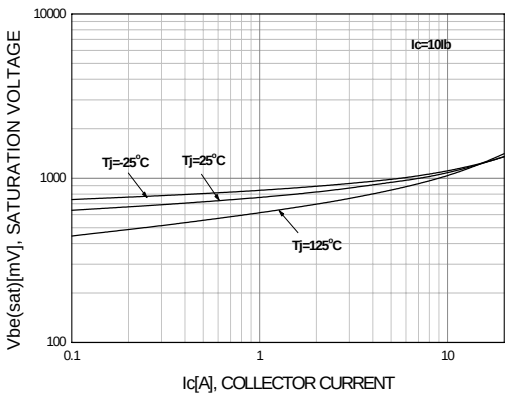


Figure 6. Base-Emitter Saturation Voltage

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Typical Characteristics

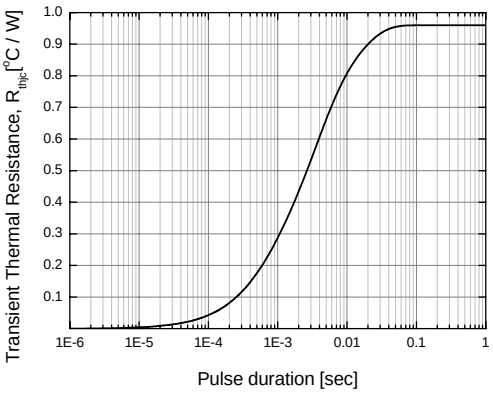


Figure 7. Thermal Resistance

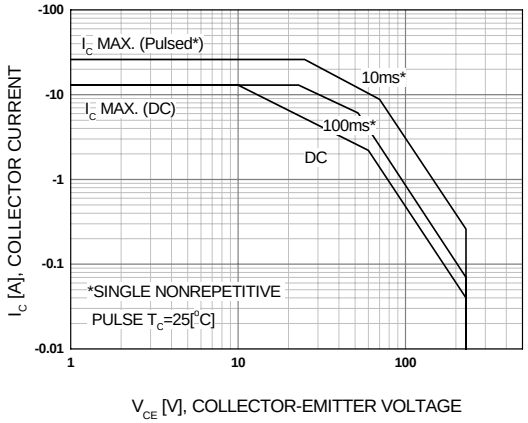


Figure 8. Safe Operating Area

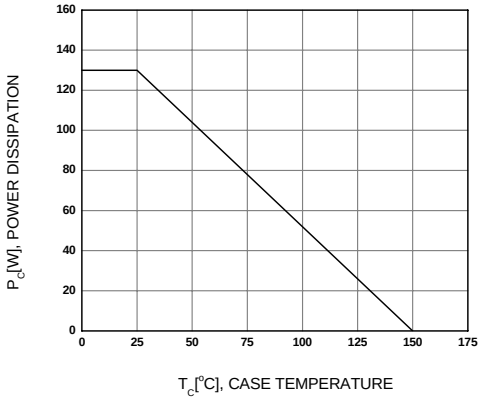
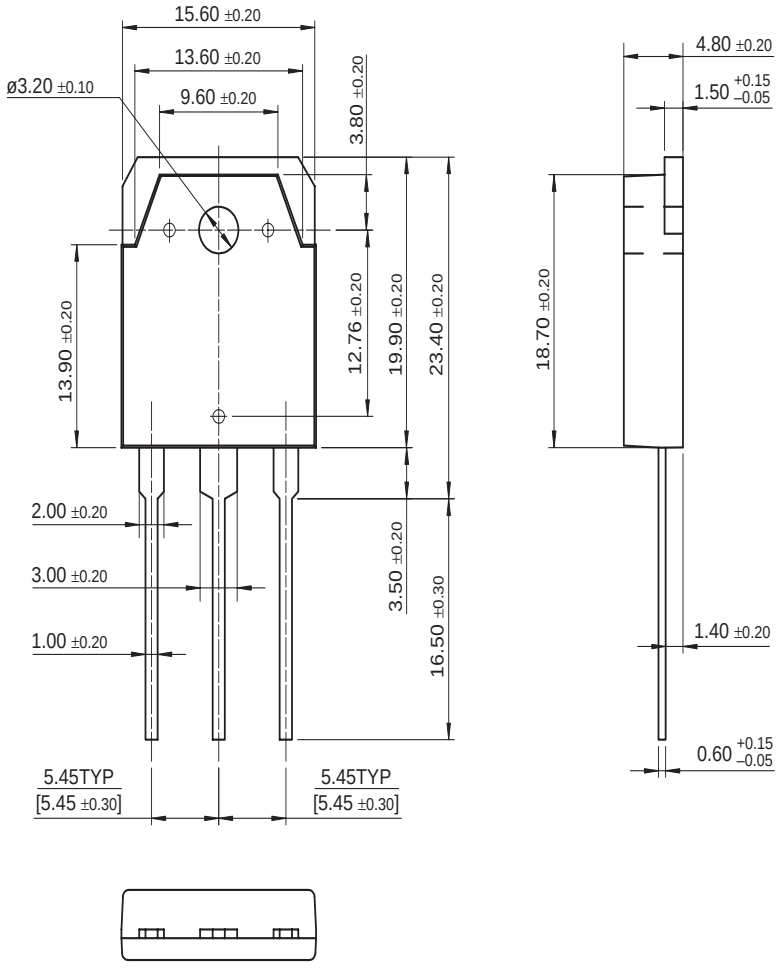


Figure 9. Power Derating

Package Dimensions

TO-3P



Dimensions in Millimeters

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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Rev. I35

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