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www.onsemi.com

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

January 2009

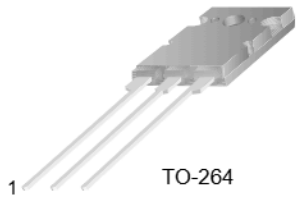
2SC5200/FJL4315
NPN Epitaxial Silicon Transistor

Applications

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

Features

- High Current Capability: I_C = 17A.
- High Power Dissipation : 150watts.
- High Frequency : 30MHz.
- High Voltage : V_{CEO}=250V
- Wide S.O.A for reliable operation.
- Excellent Gain Linearity for low THD.
- Complement to2SA1943/FJL4215.
- Thermal and electrical Spice models are available.
- Same transistor is also available in:
  -- TO3P package, 2SC5242/FJA4313 : 130 watts
  -- TO220 package, FJP5200 : 80 watts
  -- TO220F package, FJPF5200 : 50 watts



TO-264

1.Base 2.Collector 3.Emitter

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	150 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	0.83	°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°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
2SC5200RTU	C5200R	TO-264	TUBE	hFE1 R grade
2SC5200OTU	C5200O	TO-264	TUBE	hFE1 O grade
FJL4315RTU	J4315R	TO-264	TUBE	hFE1 R grade
FJL4315OTU	J4315O	TO-264	TUBE	hFE1 O grade

Typical Characteristics

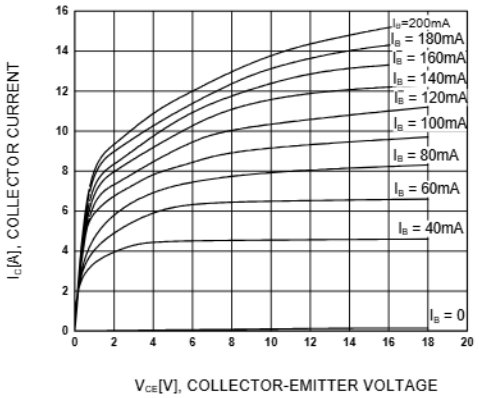


Figure 1. Static Characteristic

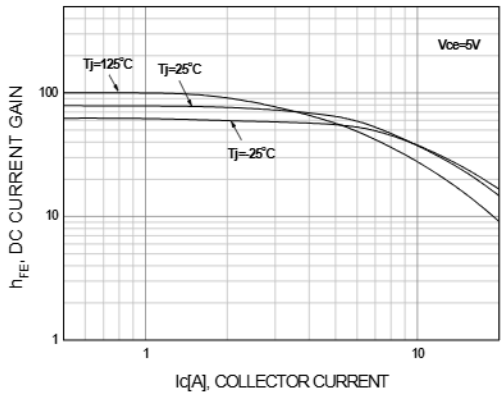


Figure 2. DC current Gain (R grade)

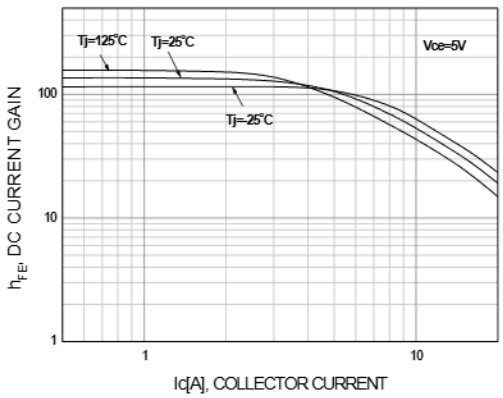


Figure 3. DC current Gain (O grade)

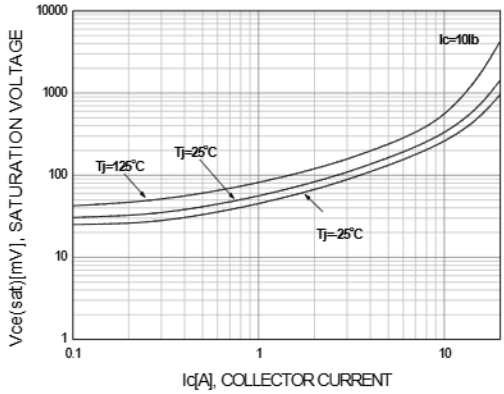


Figure 4. Collector-Emitter Saturation Voltage

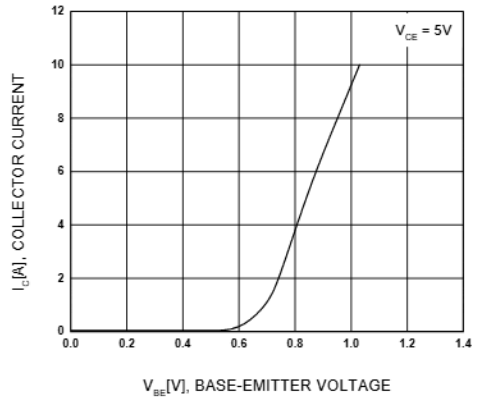


Figure 5. Base-Emitter On Voltage

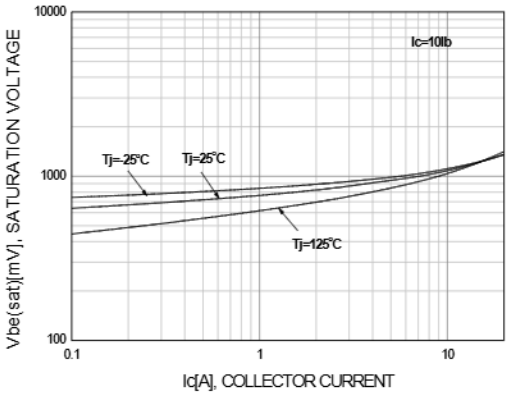


Figure 6. Base-Emitter Saturation Voltage

Typical Characteristics

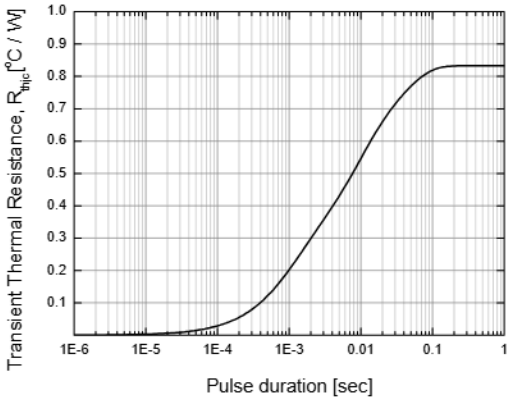


Figure 7. Power Derating

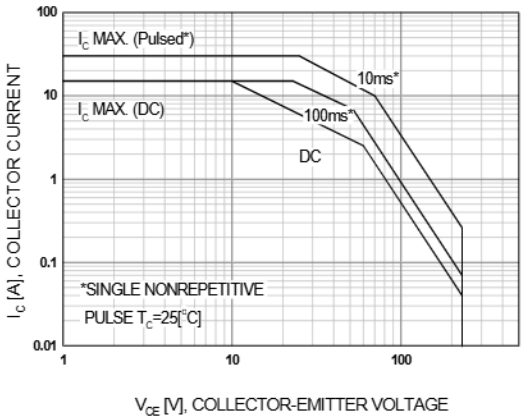


Figure 8. Safe Operating Area

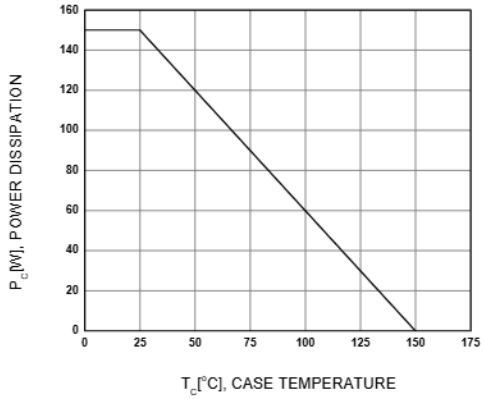
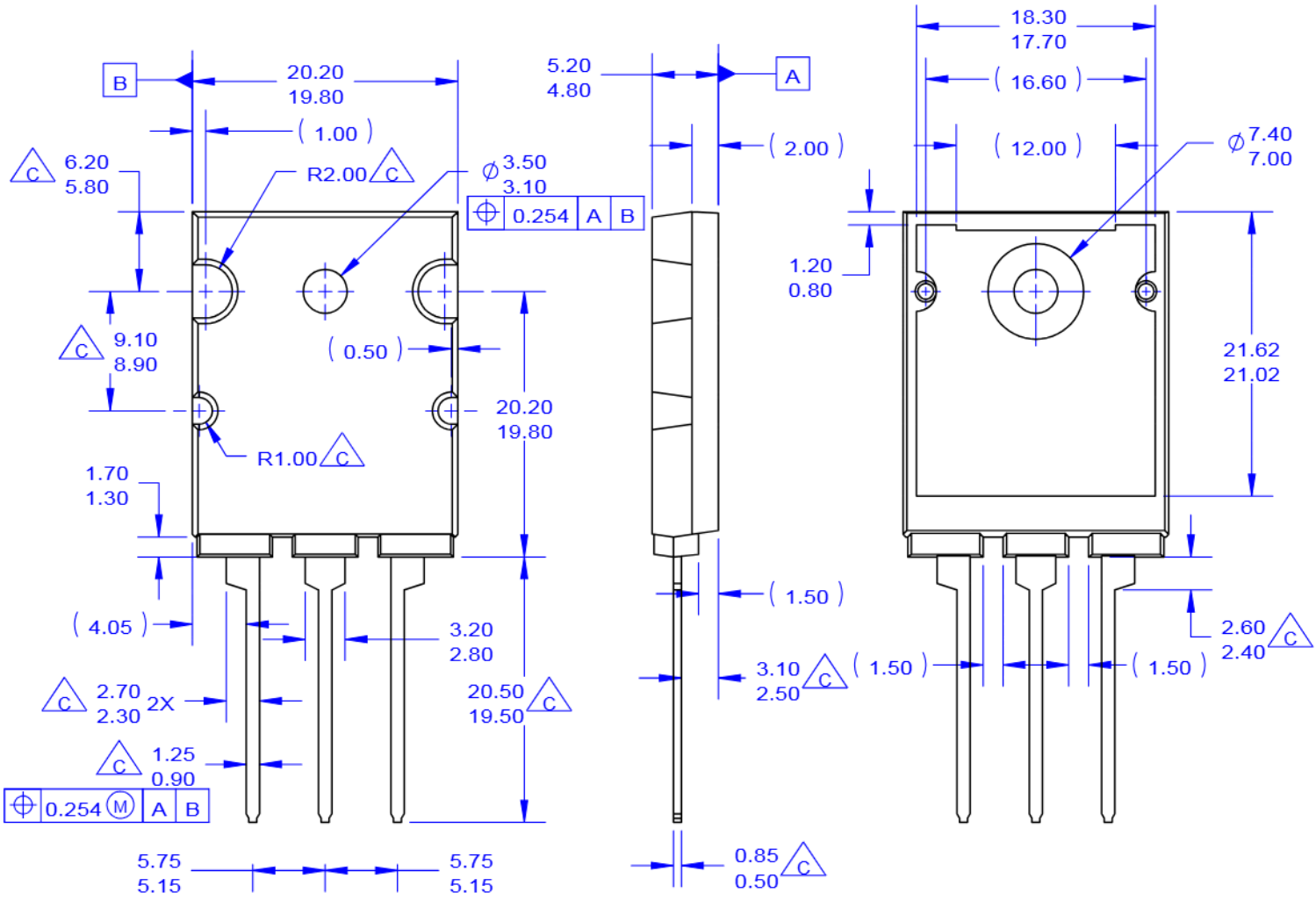
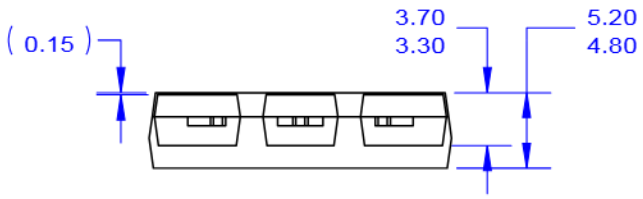


Figure 9. Power Derating



FRONT VIEW **SIDE VIEW** **BACK VIEW**



BOTTOM VIEW

FAIRCHILD ™

NOTES:

A. PACKAGE REFERENCE: JEDEC TO264 VARIATION AA.
B. ALL DIMENSIONS ARE IN MILLIMETERS.

C OUT OF JEDEC STANDARD VALUE.
D. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
E. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
F. THIS PACKAGE IS INTENDED ONLY FOR "FS PKG CODE AR"
G. DRAWING FILE NAME: TO264A03REV2

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
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