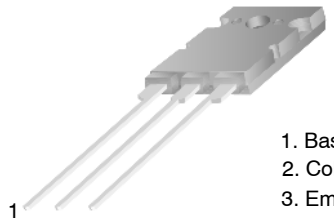
NPN Epitaxial Silicon Transistor

FJL4315, 2SC5200



1. Base
2. Collector
3. Emitter

TO−264−3LD
CASE 340CA

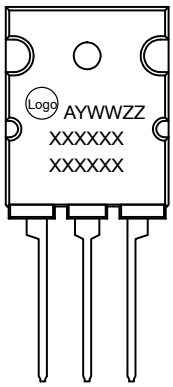
Features

- High Current Capability: I_C = 17 A
- High Power Dissipation: 150 W
- High Frequency: 30 MHz
- High Voltage: V_{CEO} = 250 V
- Wide S.O.A. for Reliable Operation
- Excellent Gain Linearity for Low THD
- Complement to 2SA1943 / 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
- These Devices are Pb−Free and are RoHS Compliant

Applications

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

MARKING DIAGRAM



A = Assembly Location
YWW = Date Code
ZZ = Assembly Lot
xxxxx = Specific Device Code
(J4315O or C5200O)

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Ratings	Units
Collector−Base Voltage	BV_{CBO}	250	V
Collector−Emitter Voltage	BV_{CEO}	250	V
Emitter−Base Voltage	BV_{EBO}	5	V
Collector Current (DC)	I_C	17	A
Base Current	I_B	1.5	A
Total Device Dissipation (T_C = 25°C) Derate Above 25°C	P_D	150 1.04	W W/°C
Junction and Storage Temperature	T_J, T_{STG}	−50 ~ +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (Note 1)

(T_A = 25°C unless otherwise noted)

Parameter	Symbol	Max.	Units
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.83	°C/W

1. Device mounted on minimum pad size.

h_{FE} CLASSIFICATION

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

ELECTRICAL CHARACTERISTICS (Note 2) (T_C = 25°C unless otherwise noted)

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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

ORDERING INFORMATION

Part Number	Marking	Package	Shipping	Remarks
2SC5200OTU	C5200O	TO−264−3LD (Pb−Free)	375 Units / Tube	h_{FE1} O grade
FJL4315OTU	J4315O	TO−264−3LD (Pb−Free)	375 Units / Tube	h_{FE1} O grade

TYPICAL CHARACTERISTICS

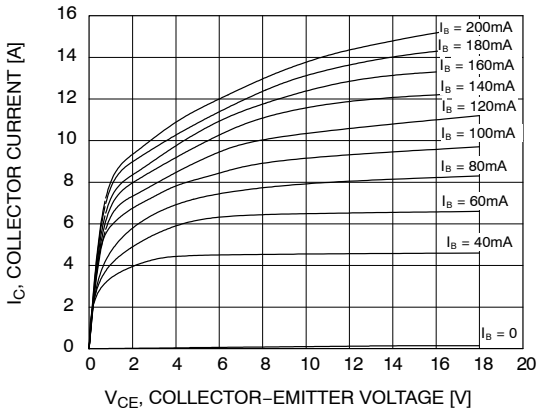


Figure 1. Static Characteristic

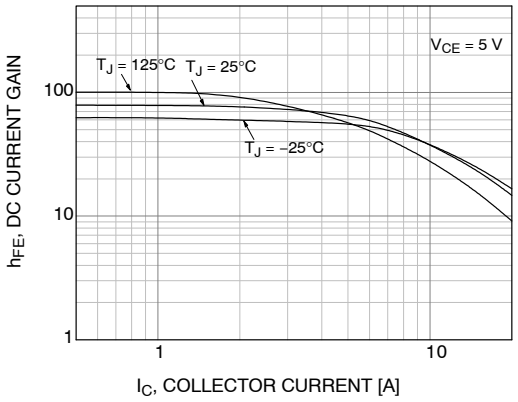


Figure 2. DC Current Gain (R Grade)

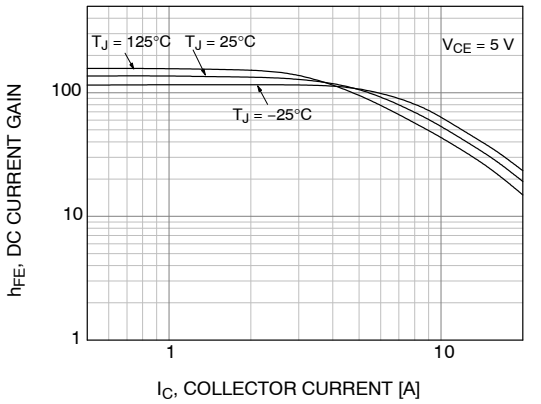


Figure 3. DC Current Gain (O Grade)

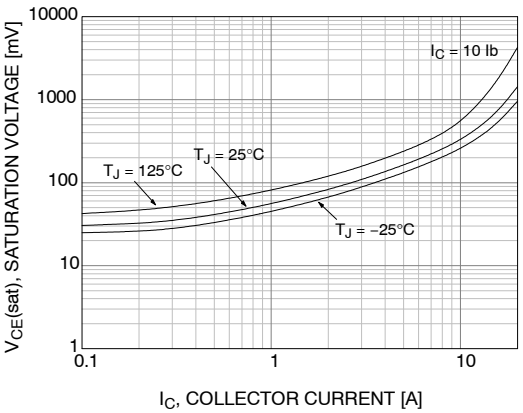


Figure 4. Collector−Emitter Saturation Voltage

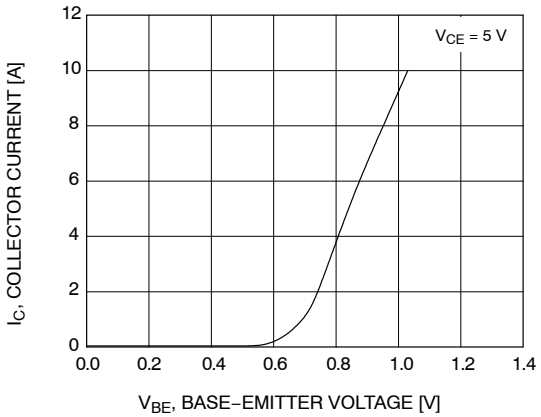


Figure 5. Base−Emitter On Voltage

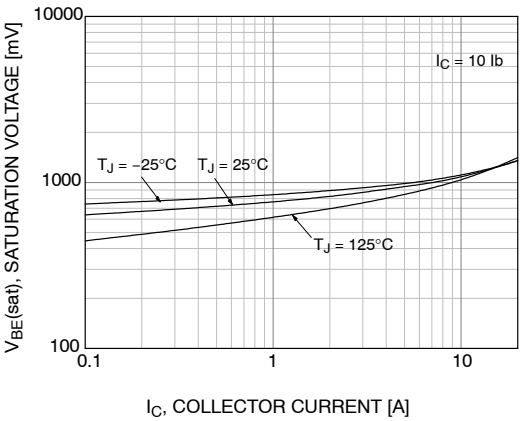


Figure 6. Base−Emitter Saturation Voltage

TYPICAL CHARACTERISTICS

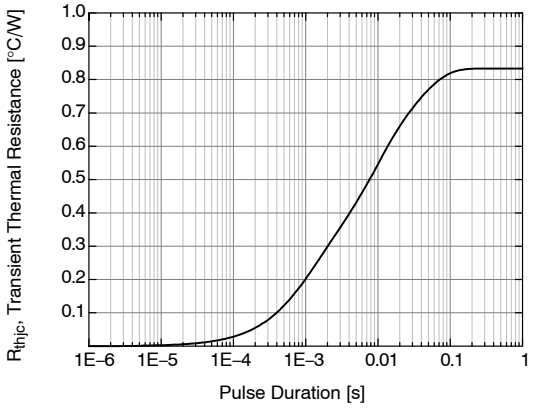


Figure 7. Power Derating

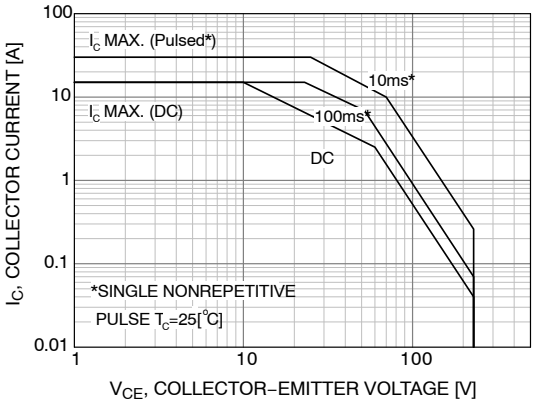


Figure 8. Safe Operating Area

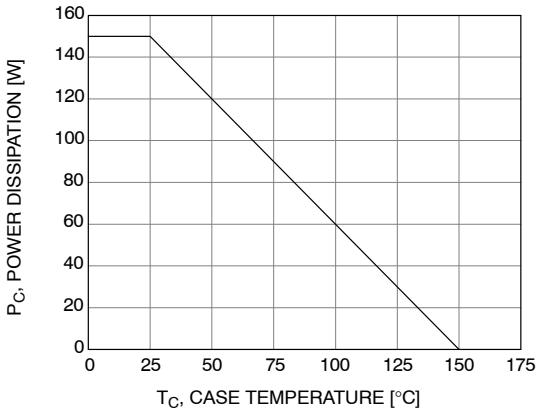


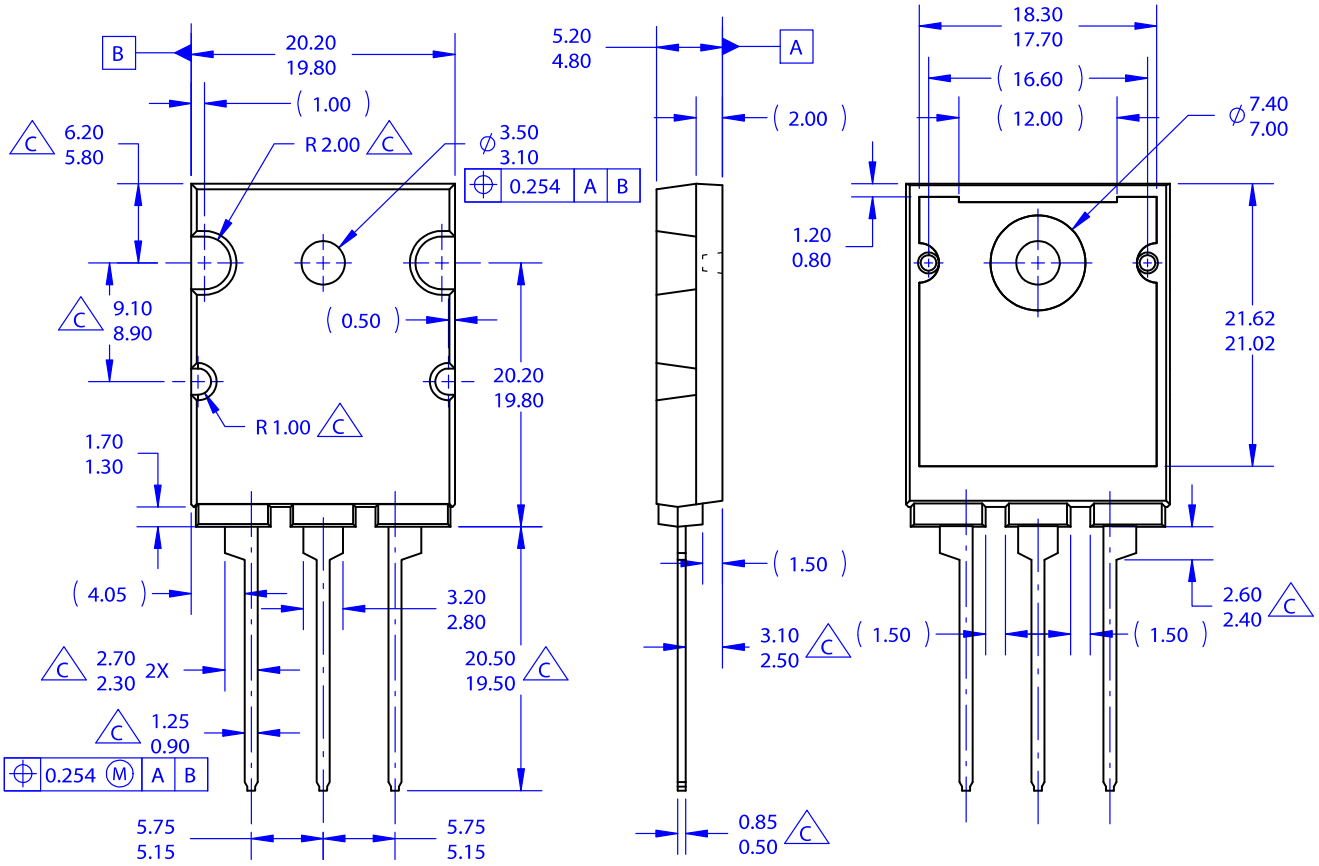
Figure 9. Power Derating

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

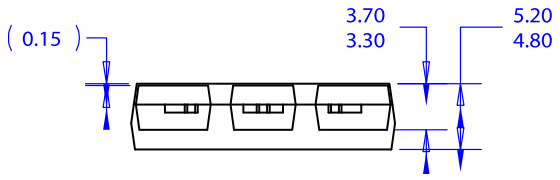
ON Semiconductor®

TO−264−3LD
CASE 340CA
ISSUE O

DATE 31 OCT 2016



FRONT VIEW SIDE VIEW BACK VIEW



BOTTOM VIEW

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.

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