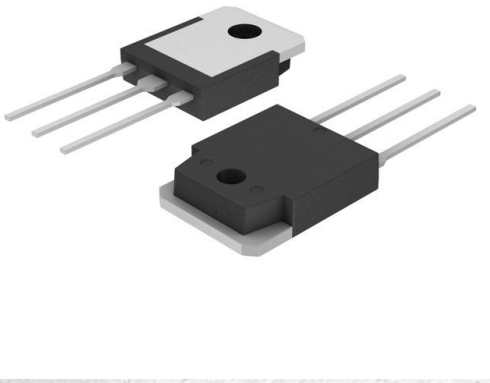
2SC5242RTU Datasheet



DiGi Electronics Part Number	2SC5242RTU-DG
Manufacturer	onsemi
Manufacturer Product Number	2SC5242RTU
Description	TRANS NPN 250V 17A TO3P
Detailed Description	Bipolar (BJT) Transistor NPN 250 V 17 A 30MHz 130 W Through Hole TO-3P

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
2SC5242RTU	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	17 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
250 V	3V @ 800mA, 8A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
5µA (ICBO)	55 @ 1A, 5V
Power - Max:	Frequency - Transition:
130 W	30MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-3P-3, SC-65-3	TO-3P
Base Product Number:	
2SC5242	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8541.29.0075

Is Now Part of

ON Semiconductor®

To learn more about ON Semiconductor, please visit our website at
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.

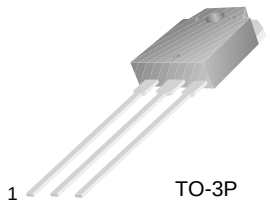
FAIRCHILD SEMICONDUCTOR®

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

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

Typical Characteristics

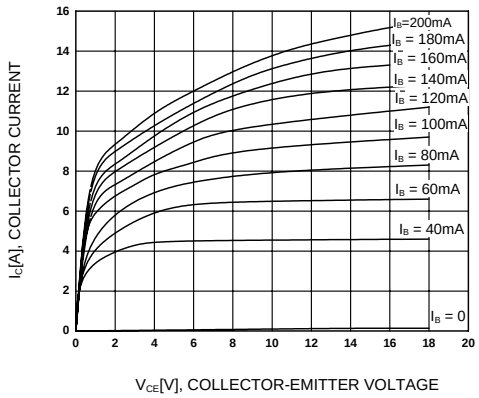


Figure 1. Static Characteristic

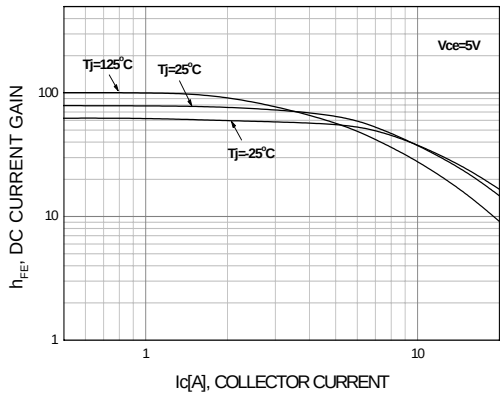


Figure 2. DC current Gain (R grade)

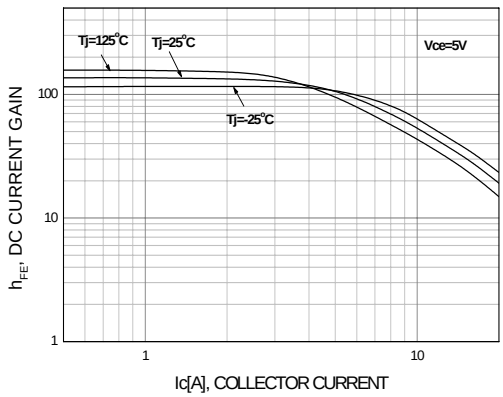


Figure 3. DC current Gain (O grade)

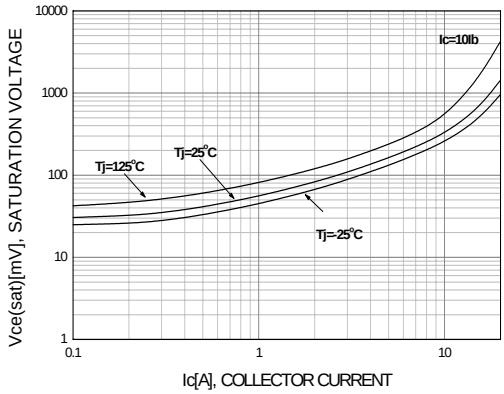


Figure 4. Collector-Emitter Saturation Voltage

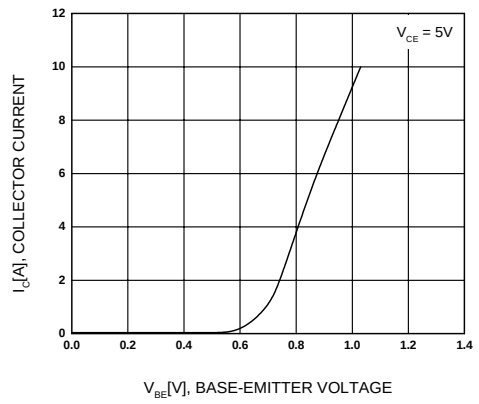


Figure 5. Base-Emitter On Voltage

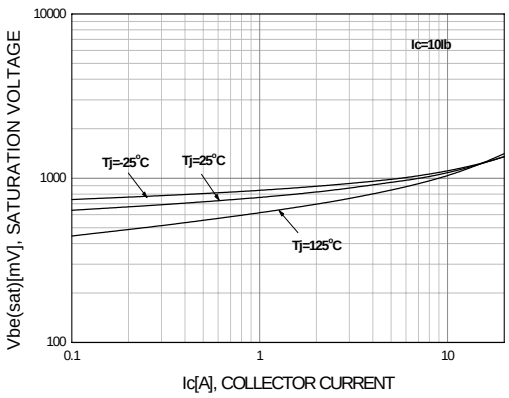


Figure 6. Base-Emitter Saturation Voltage

Typical Characteristics

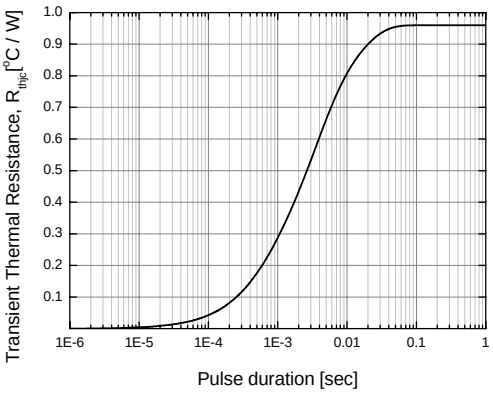


Figure 7. Thermal Resistance

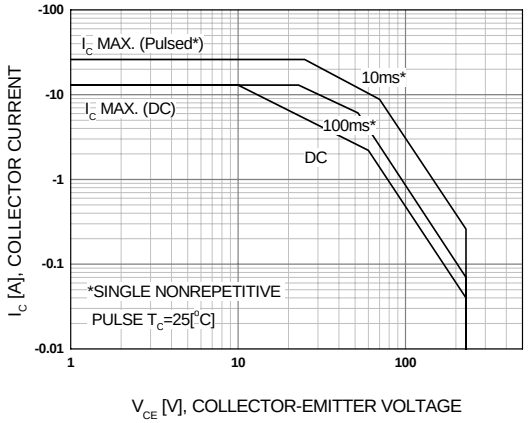


Figure 8. Safe Operating Area

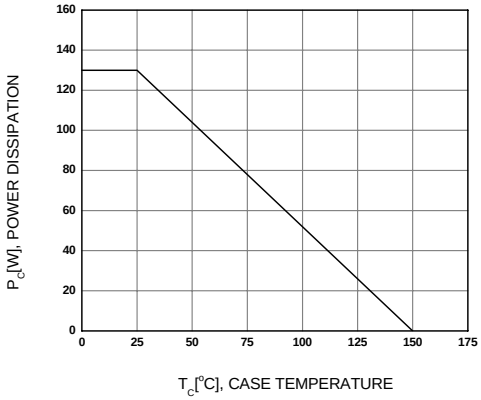
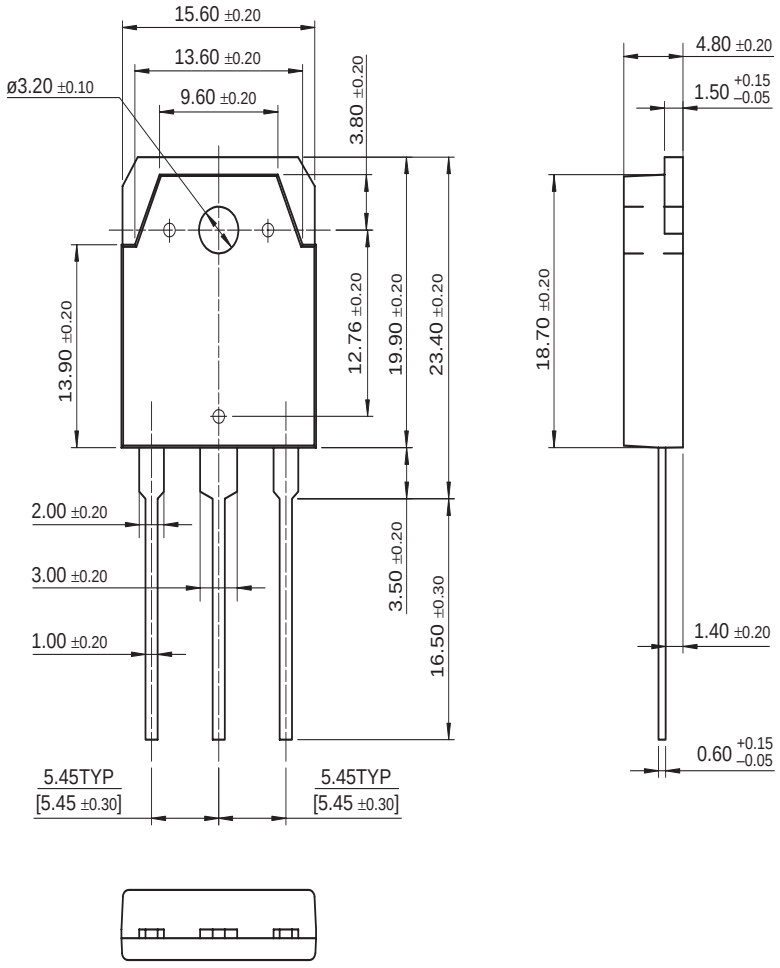


Figure 9. Power Derating

Package Dimensions

TO-3P



Dimensions in Millimeters

FAIRCHILD SEMICONDUCTOR®

TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

Build it Now™
CorePLUS™
CorePOWER™
CROSSVOLT™
CTL™
Current Transfer Logic™
EcoSPARK®
EfficentMax™
EZSWITCH™ *
E²™
F®
Fairchild®
Fairchild Semiconductor®
FACT Quiet Series™
FACT®
FAST®
FastvCore™
FlashWriter®*
FPS™
F-PFS™
FRFET®
Global Power Resource℠
Green FPS™
Green FPS™ e-Series™
GTO™
IntelliMAX™
ISOPLANAR™
MegaBuck™
MICROCOUPLER™
MicroFET™
MicroPak™
MillerDrive™
MotionMax™
Motion-SPM™
OPTOLOGIC®
OPTOPLANAR®
PDP SPM™
Power-SPM™
PowerTrench®
Programmable Active Droop™
QFET®
QS™
Quiet Series™
RapidConfigure™
Saving our world, 1mW at a time™
SmartMax™
SMART START™
SPM®
STEALTH™
SuperFET™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SupreMOS™
SyncFET™
SYSTEM ® GENERAL
The Power Franchise®
the power franchise
TinyBoost™
TinyBuck™
TinyLogic®
TINYOPTO™
TinyPower™
TinyPWM™
TinyWire™
µSerDes™
SerDes
UHC®
Ultra FRFET™
UniFET™
VCX™
VisualMax™

* EZSWITCH™ and FlashWriter® are trademarks of System General Corporation, used under license by Fairchild Semiconductor.

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ANTI-COUNTERFEITING POLICY

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I35

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
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5817−1050

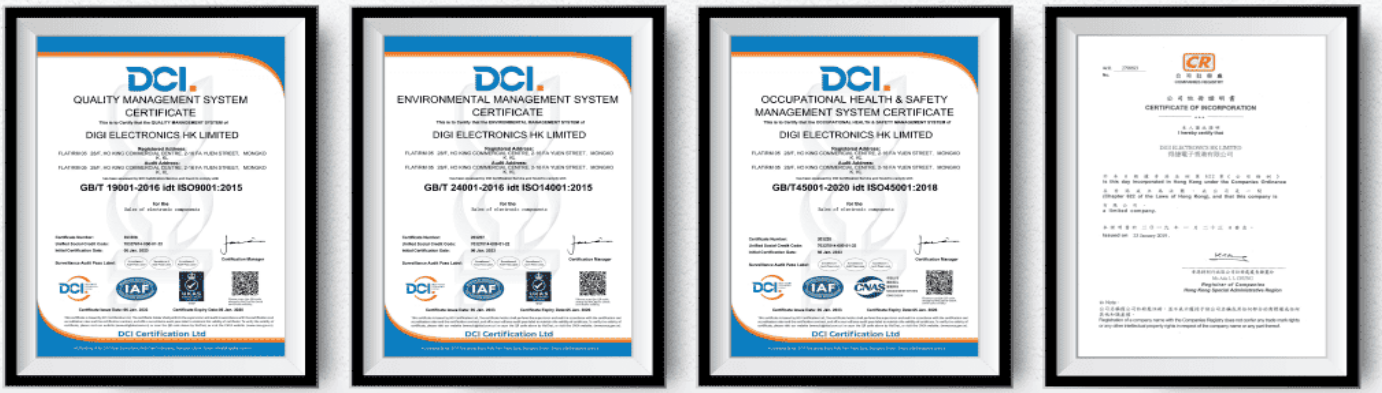
ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.