FJN3303FBU Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	FJN3303FBU-DG
Manufacturer	onsemi
Manufacturer Product Number	FJN3303FBU
Description	TRANS NPN 400V 1.5A TO92-3
Detailed Description	Bipolar (BJT) Transistor NPN 400 V 1.5 A 4MHz 650 m W Through Hole TO-92-3

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
FJN3303FBU	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	1.5 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
400 V	3V @ 500mA, 1.5A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
10µA (ICBO)	14 @ 500mA, 2V
Power - Max:	Frequency - Transition:
650 mW	4MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-226-3, TO-92-3 (TO-226AA)	TO-92-3
Base Product Number:	
FJN330	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

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ON Semiconductor®

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www.onsemi.com

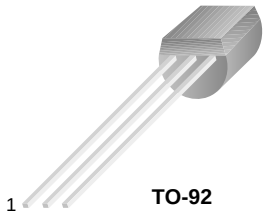
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes 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.

December 2009

FJN3303F
High Voltage Fast-Switching NPN Power Transistor

Features

- High Voltage Capability
- High Switching Speed
- Suitable for Electronic Ballast and Charger
- Green packaging



TO-92

1. Emitter 2. Collector 3.Base

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	1.5	A
I_{CP}	Collector Current (Pulse) *	3	A
I_B	Base Current (DC)	0.75	A
I_{BP}	Base Current (Pulse) *	1.5	A
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature range	-65 to +150	°C

* Pulse Test: Pulse Width = 5ms, Duty Cycle ≤ 10%

Thermal Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter		Value	Units
P_D	Total Device Dissipation	T_C = 25°C T_A = 25°C	1.1 650	W mW
$R_{\theta JC}$	Thermal Resistance Junction-Case		48	°C/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		190	°C/W

Ordering Information

Part Number	Marking Info.	Package	Packing Method	Remarks
FJN3303FBU	J3303F	TO-92 (Straight)	BULK	Green EMC
FJN3303FTA	J3303F	TO-92 (Form)	AMMO	Green EMC

Electrical Characteristics T_A = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 500μA, I_E = 0	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5mA, I_B = 0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 500μA, I_C = 0	9			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 700V, I_E = 0			10	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			10	μA
h_{FE1} h_{FE2}	DC Current Gain	V_{CE} = 2V, I_C = 0.5A V_{CE} = 2V, I_C = 1.0A	14 5		23	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1.0A, I_B = 0.25A I_C = 1.5A, I_B = 0.5A			0.5 1.0 3.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1.0A, I_B = 0.25A			1.0 1.2	V V
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.1A	4			MHz
t_{ON}	Turn On Time	V_{CC} = 125V, I_C = 1A I_{B1} = - I_{B2} = -0.2A R_L = 125Ω			1.1	μs
t_{STG}	Storage Time				4.0	μs
t_F	Fall Time				0.7	μs

Typical Performance Characteristics

Figure 1. Static Characteristic

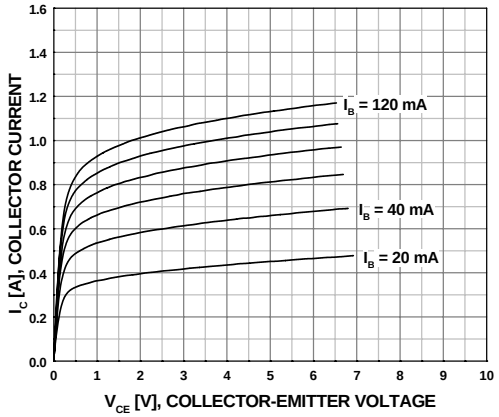


Figure 2. DC Current Gain

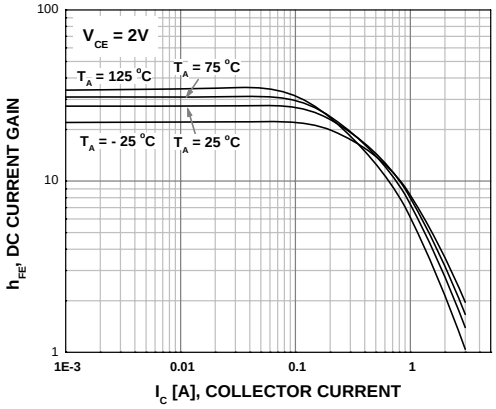


Figure 3. Collector-Emitter Saturation Voltage

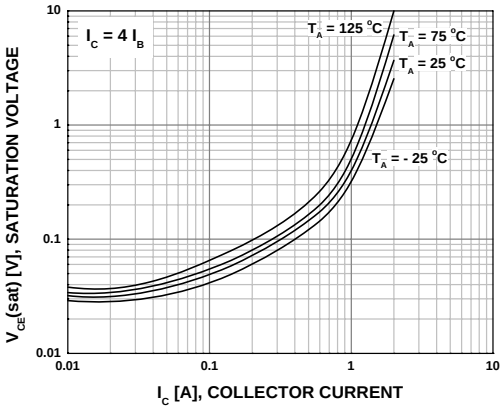


Figure 4. Base-Emitter Saturation Voltage

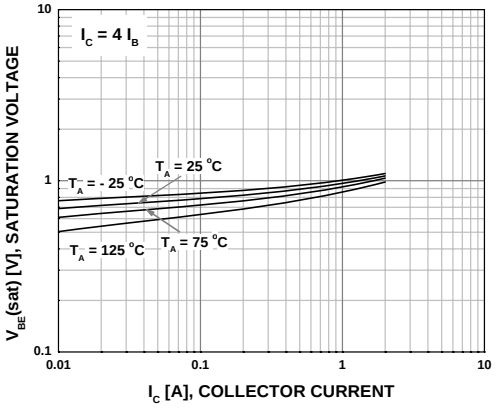


Figure 5. Resistive Load Switching Time

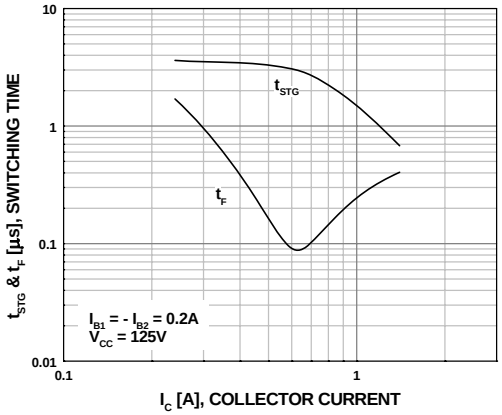
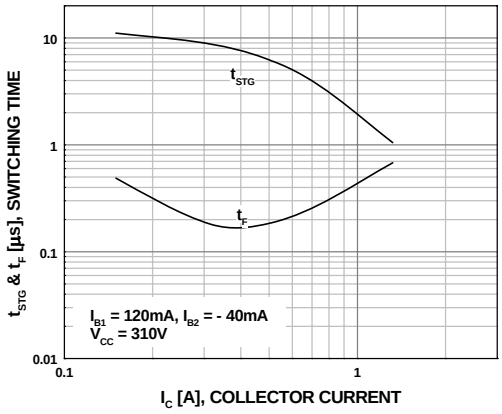


Figure 6. Resistive Load Switching Time



Typical Performance Characteristics (Continued)

Figure 7. Forward Biased Safe Operating Area

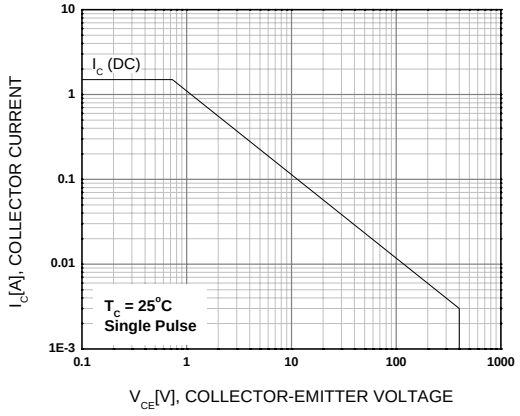


Figure 8. Reverse Biased Safe Operating Area

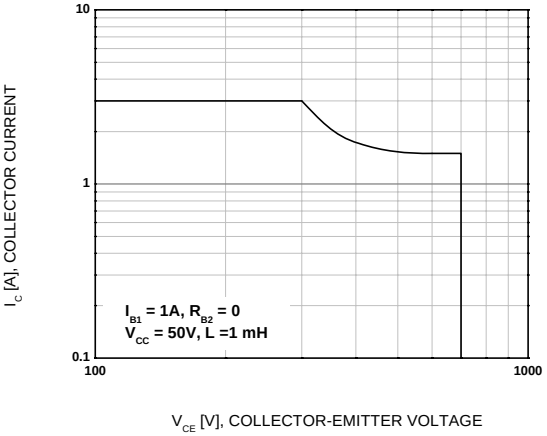
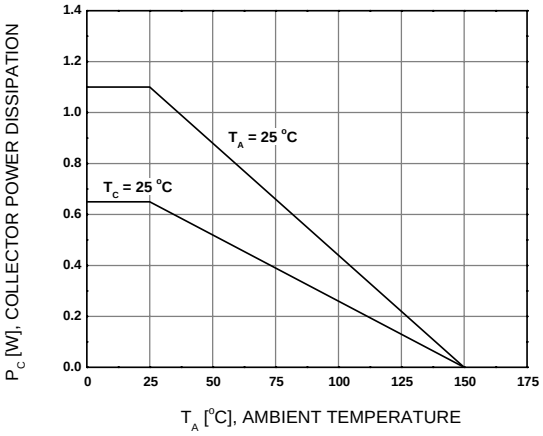
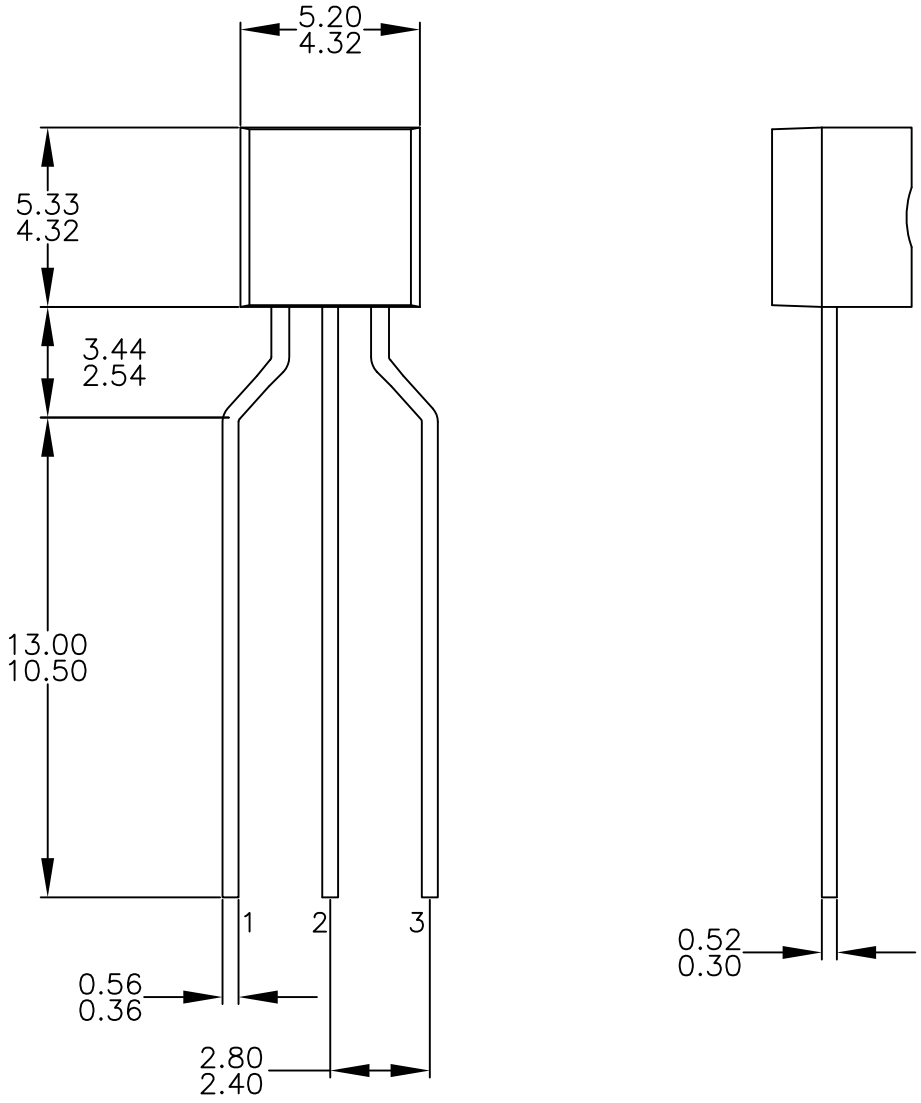
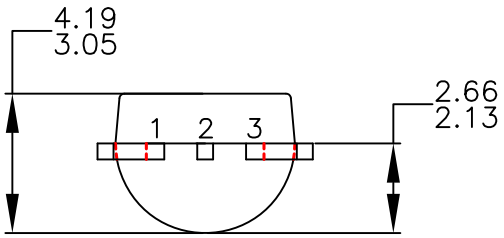


Figure 9. Power Derating







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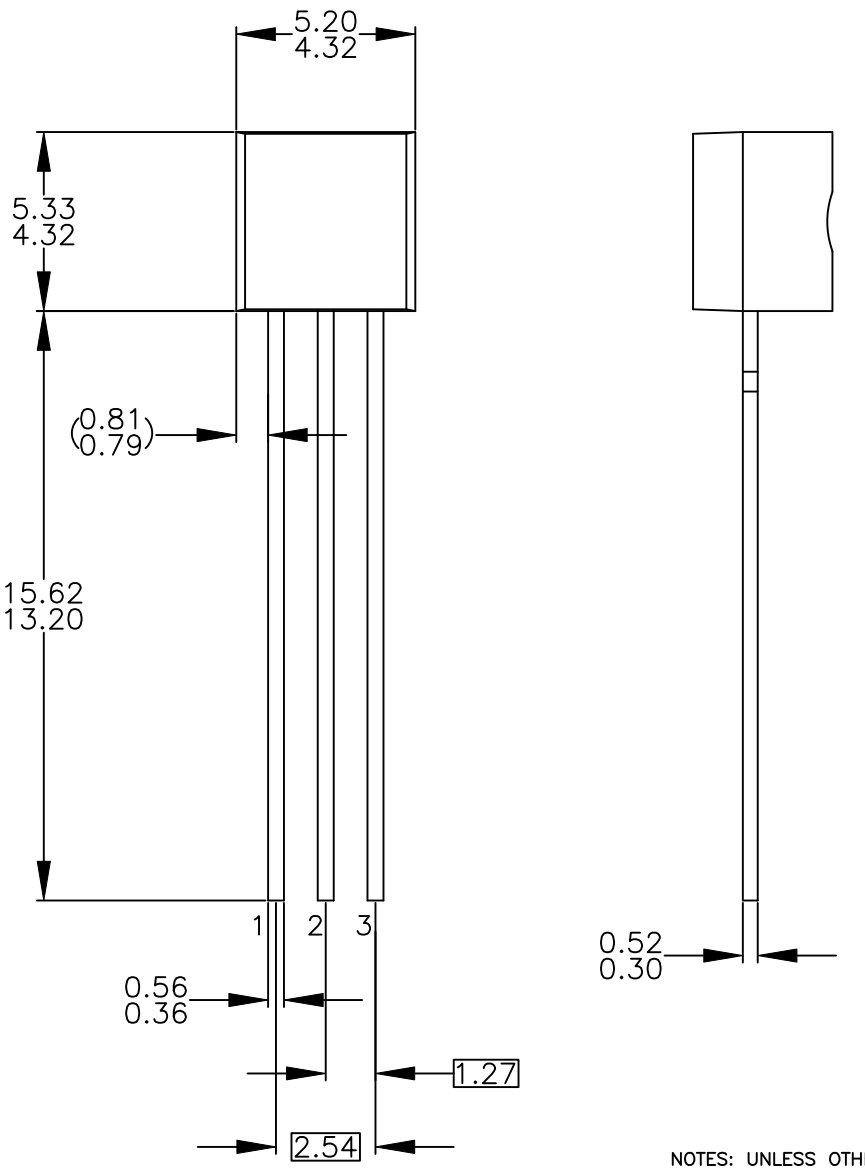
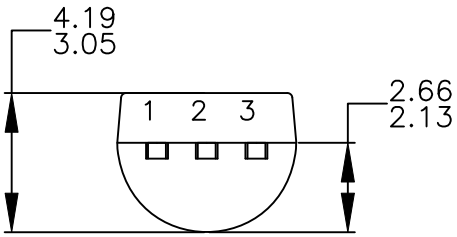
E. FAIRCHILD SEMICONDUCTOR.





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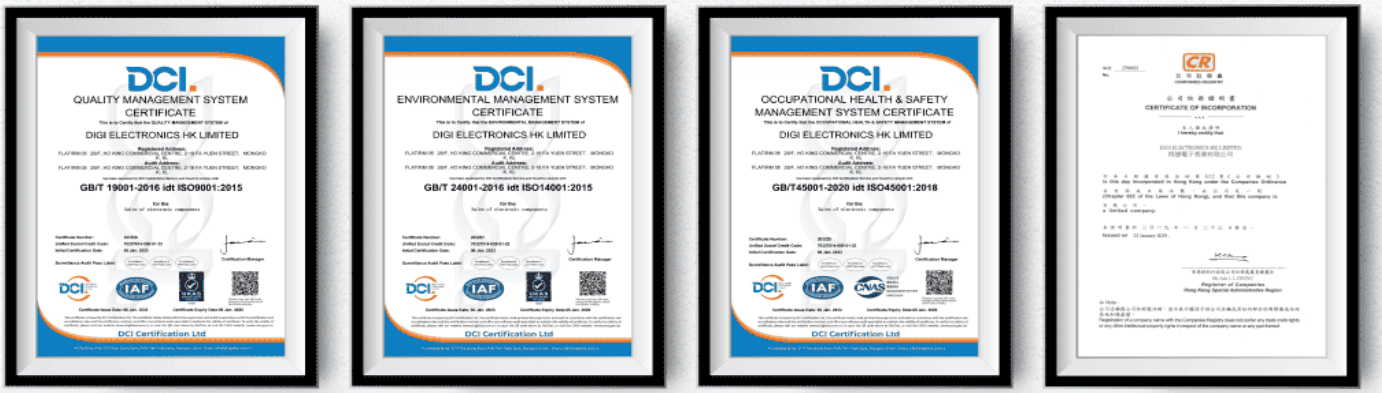

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