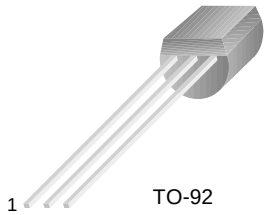
FAIRCHILD
SEMICONDUCTOR®

FJN13003

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Electronic Ballast up to 21W



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1. Emitter 2. Collector 3.Base

NPN Silicon Transistor Planar Silicon Transistor

Absolute Maximum Ratings T_C=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
P_C	Collector Power Dissipation(T_a=25°C)	1.1	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

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

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=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_{EBO}	Emitter Cut-off Current	V_{EB}=9V, I_C=0			10	μA
h_{FE}	DC Current Gain	V_{CE}=2V, I_C=0.5A	9		21	
		V_{CE}=2V, I_C=1.0A	5			
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C=0.5A, I_B=0.1A			0.5	V
		I_C=1.0A, I_B=0.25A			1.0	V
		I_C=1.5A, I_B=0.5A			3.0	V
V_{BE} (sat)	Base-Emitter Saturation Voltage	I_C=0.5A, I_B=0.1A			1.0	V
		I_C=1.0A, I_B=0.25A			1.2	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}=0.2A, 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 Characteristics (Continued)

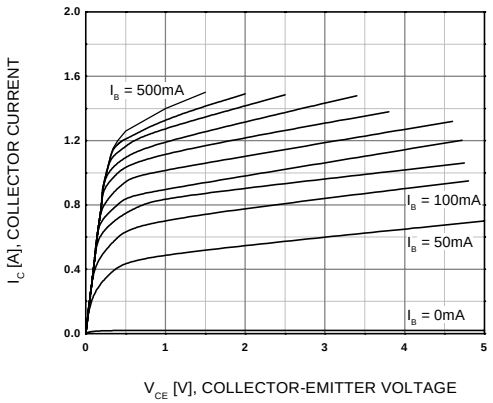

Figure 1. Static Characteristic

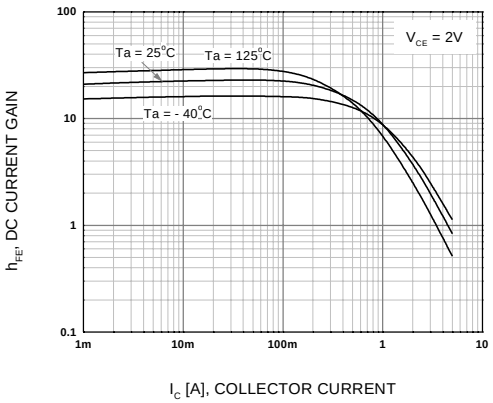

Figure 2. DC current Gain

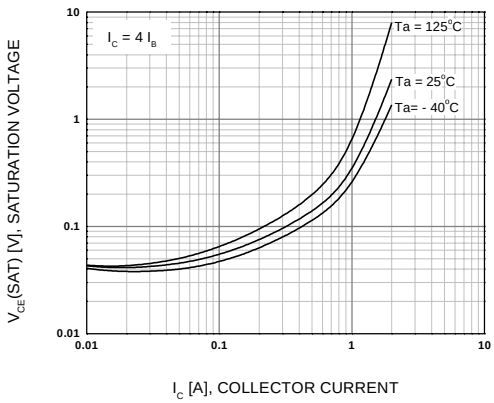

Figure 3. Collector-Emitter Saturation Voltage

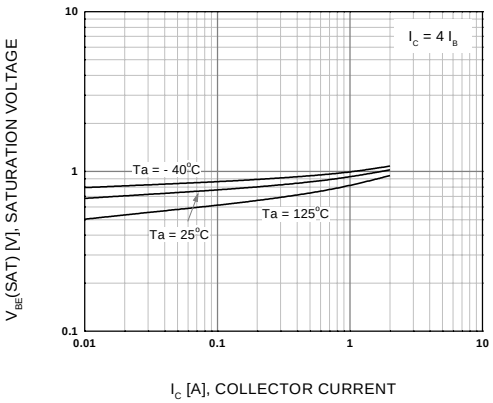

Figure 4. Base-Emitter Saturation Voltage

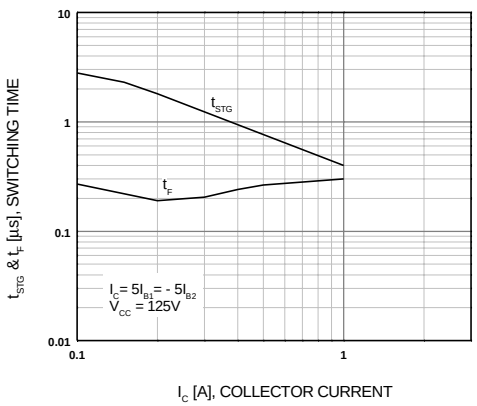

Figure 5. Resistive Load Switching Time

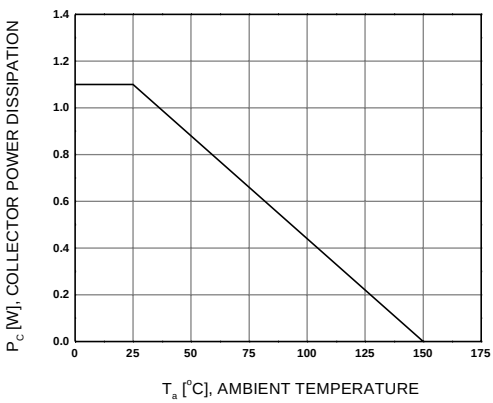

Figure 6. Power Derating

Typical Characteristics

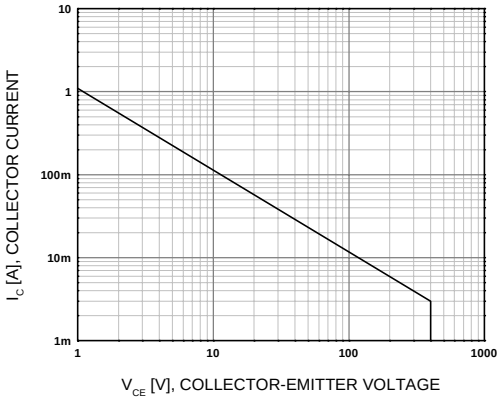

Figure 7. Forward Bias Safe Operating Area

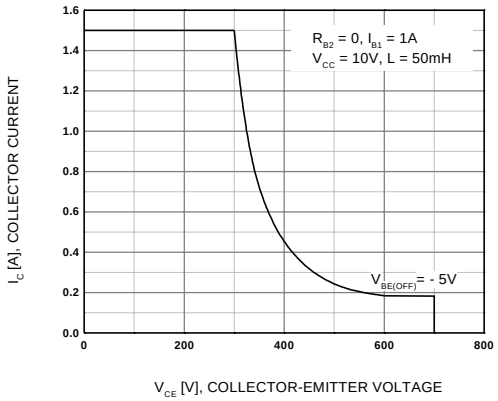

Figure 8. Reverse Bias Safe Operating Area

Package Demensions

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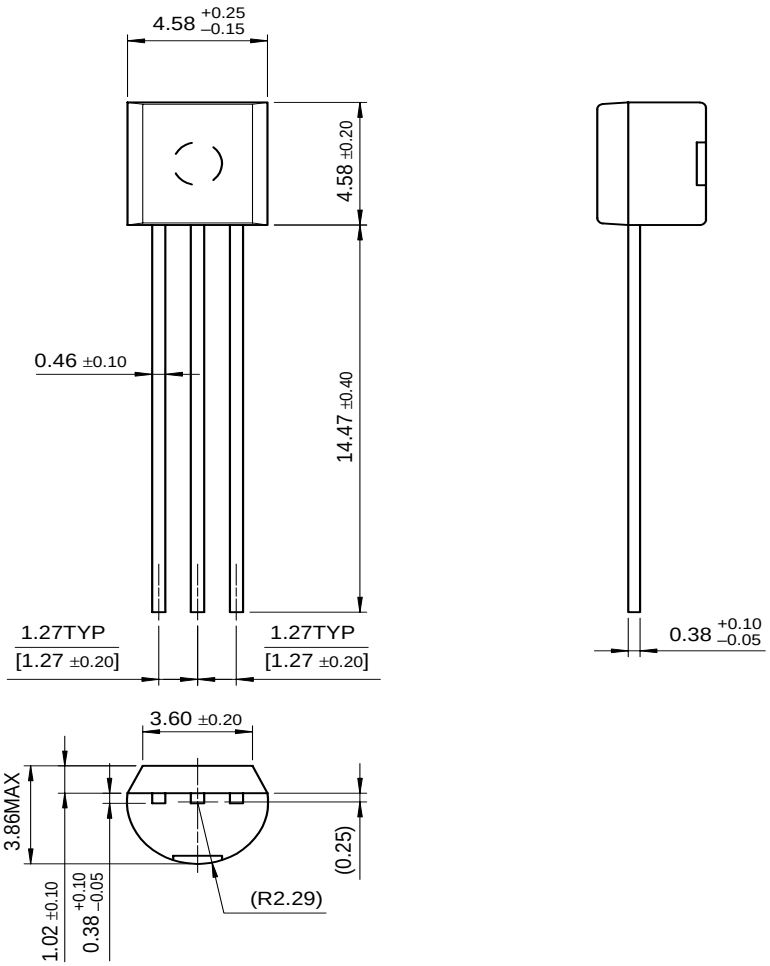

Dimensions in Millimeters

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Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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NPN Silicon Transistor

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Features

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Electronic Ballast up to 21W

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Product status/pricing/packaging

Product	Product status	Package type	Leads	Packing method
FJN13003BU	Full Production	TO-92	3	BULK
FJN13003TA	Full Production	TO-92	3	TAPE REEL

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Models

Package & leads	Condition	Temperature range	Software version	Revision date
PSPICE				
TO-92-3	Electrical	-25°C to 125°C	9.2	Dec 17, 2001

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