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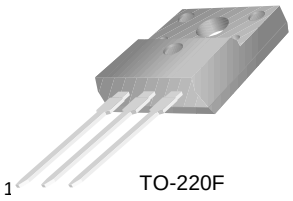
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes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

KSC3569

High Speed Switching Application

- Low Collector Saturation Voltage
- Specified of Reverse Biased SOA With Inductive Loads



TO-220F

1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	500	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	2	A
I_{CP}	*Collector Current (Pulse)	4	A
I_B	Base Current	1	A
P_C	Collector Dissipation (T_C=25°C)	15	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 55 ~ 150	°C

* PW≤350μs, Duty Cycle≤10%

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage	I_C = 0.5A, I_{B1} = 0.1A, L = 1mH	400		V
V_{CEX}(sus)1	Collector-Emitter Sustaining Voltage	I_C = 0.5A, I_{B1} = -I_{B2} = 0.1A T_a= 125°C, L = 180μH, Clamped	450		V
V_{CEX}(sus)2	Collector-Emitter Sustaining Voltage	I_C = 1A, I_{B1} = -I_{B2} = 0.2A, T_a= 125°C, L = 180μH, Clamped	400		V
I_{CBO}	Collector Cut-off Current	V_{CB} = 400V, I_E = 0		10	μA
I_{CER}	Collector Cut-off Current	V_{CE} = 400V, R_{BE} = 51Ω @ T_C = 125°C		1	mA
I_{CEX1}	Collector Cut-off Current	V_{CE} = 400V, V_{BE} (off) = -5V		10	μA
I_{CEX2}	Collector Cut-off Current	V_{CE} = 400V, V_{BE} (off) = -5V @ T_C= 125°C		1	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 5V, I_C = 0		10	μA
h_{FE1} h_{FE2}	* DC Current Gain	V_{CE} = 5V, I_C = 0.1A V_{CE} = 5V, I_C = 0.5A	20 10	80	
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A		1	V
V_{BE}(sat)	* Base-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A	-	1.2	V
t_{ON}	Turn ON Time	V_{CC} = 150V, I_C = 0.5A I_{B1} = -I_{B2} = 0.1A R_L = 300Ω		1	μs
t_{STG}	Storage Time			2.5	μs
t_F	Fall Time			1	μs

* Pulse Test: PW≤350μs, Duty Cycle≤2% Pulsed

h_{FE} Classification

Classification	R	O	Y
h_{FE1}	20 ~ 40	30 ~ 60	40 ~ 80

Typical Characteristics

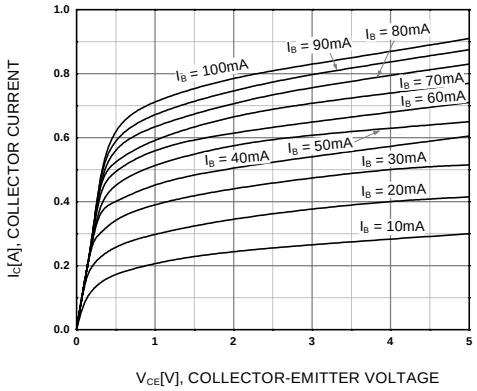


Figure 1. Static Characteristic

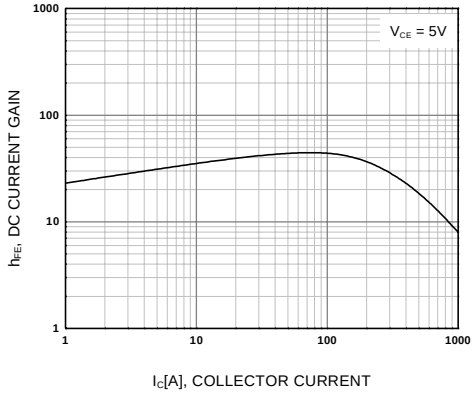


Figure 2. DC current Gain

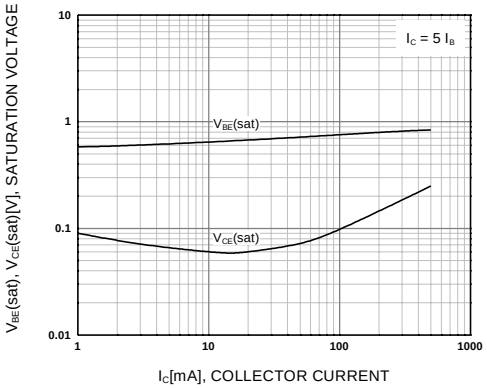


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

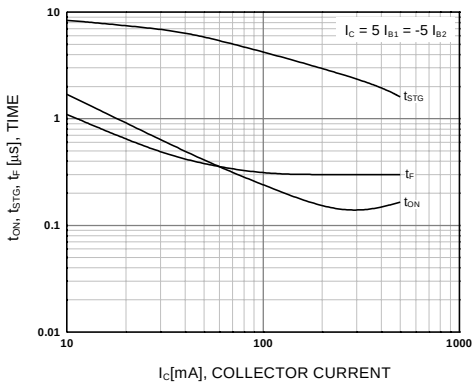


Figure 4. Switching Time

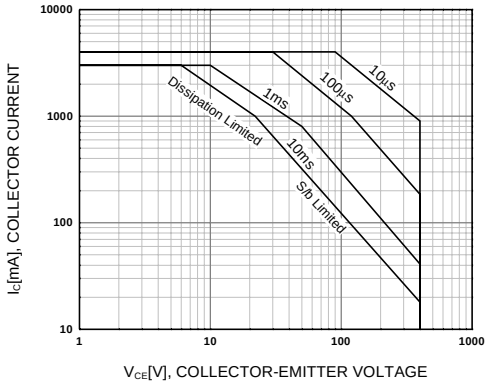


Figure 5. Safe Operating Area

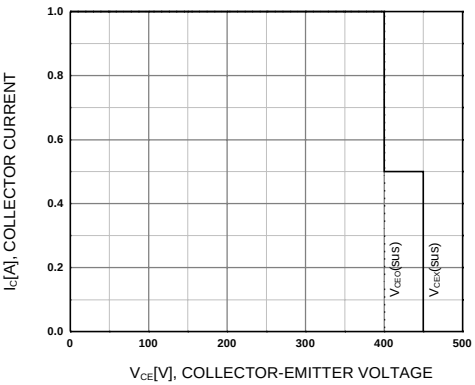


Figure 6. Reverse Bias Safe Operating Area

Typical Characteristics (Continued)

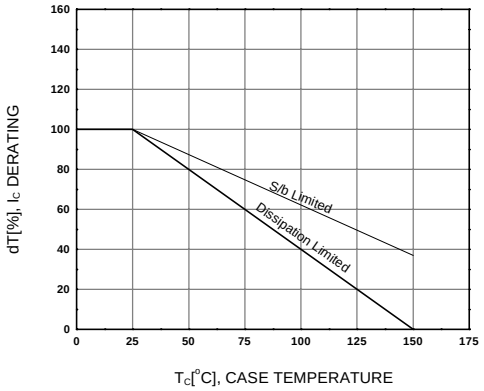


Figure 7. Derating Curve of Safe Operating Area

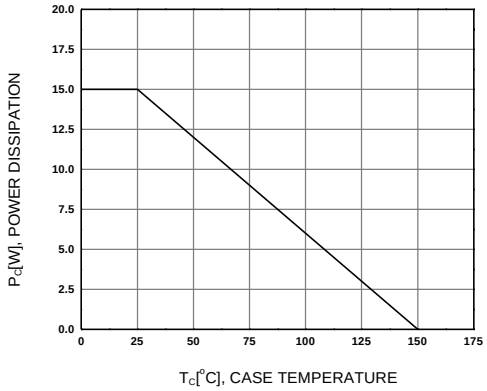
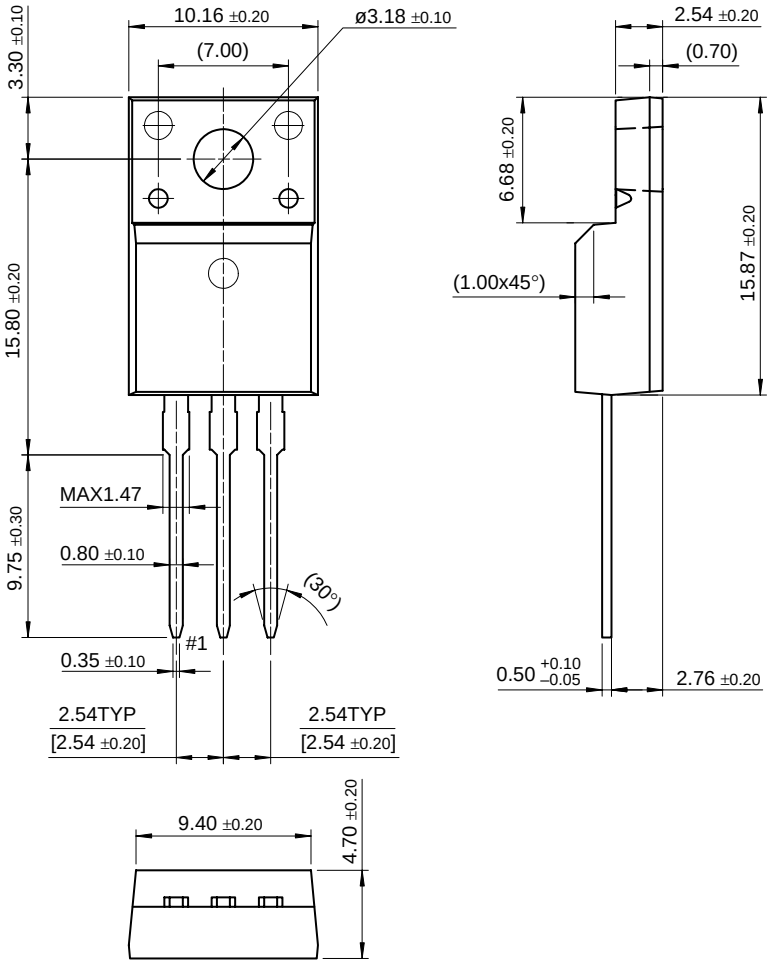


Figure 8. Power Derating

Package Demensions

TO-220F



Dimensions in Millimeters

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2. A critical component is 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.

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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.
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