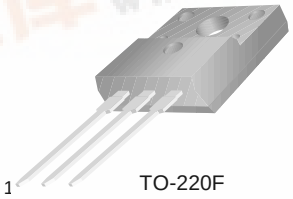
FAIRCHILD SEMICONDUCTOR®

BUT11F/11AF

High Voltage Power Switching Applications



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TO-220F

1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage		
	: BUT11F	850	V
	: BUT11AF	1000	V
V_{CEO}	Collector-Emitter Voltage		
	: BUT11F	400	V
	: BUT11AF	450	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	5	A
I_{CP}	*Collector Current (Pulse)	10	A
I_B	Base Current (DC)	2	A
I_{BP}	*Base Current (Pulse)	4	A
P_C	Collector Dissipation (T_C=25°C)	40	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	* Collector-Emitter Sustaining Voltage					
	: BUT11F	I_C = 100mA, I_B = 0	400			V
	: BUT11AF		450			V
I_{CES}	Collector Cut-off Current					
	: BUT11F	V_{CE} = 850V, V_{BE} = 0			1	mA
	: BUT11AF	V_{CE} = 1000V, V_{BE} = 0			1	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 9V, I_C = 0			10	mA
V_{CE}(sat)	Collector-Emitter Saturation Voltage					
	: BUT11F	I_C = 3A, I_B = 0.6A			1.5	V
	: BUT11AF	I_C = 2.5A, I_B = 0.5A			1.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage					
	: BUT11F	I_C = 3A, I_B = 0.6A			1.3	V
	: BUT11AF	I_C = 2.5A, I_B = 0.5A			1.3	V
t_{ON}	Turn On Time	V_{CC} = 250V, I_C = 2.5A			1	µs
t_{STG}	Storage Time	I_{B1} = -I_{B2} = 0.5A			4	µs
t_F	Fall Time	R_L = 100Ω			0.8	µs

* Pulsed: pulsed duration = 300µs, duty cycle = 1.5%

Thermal Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Typ	Max	Units
$R_{\theta jC}$	Thermal Resistance, Junction to Case		3.125	°C/W

Typical Characteristics

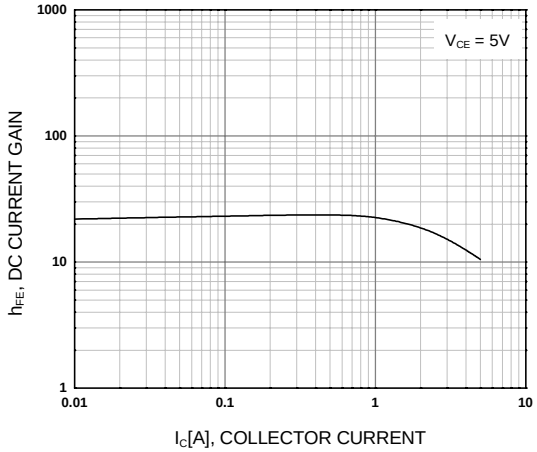


Figure 1. DC current Gain

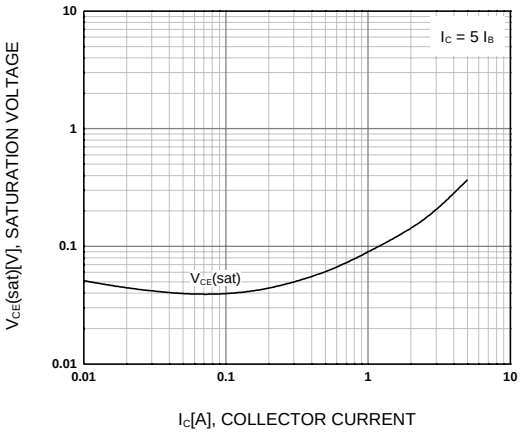


Figure 2. Collector-Emitter Saturation Voltage

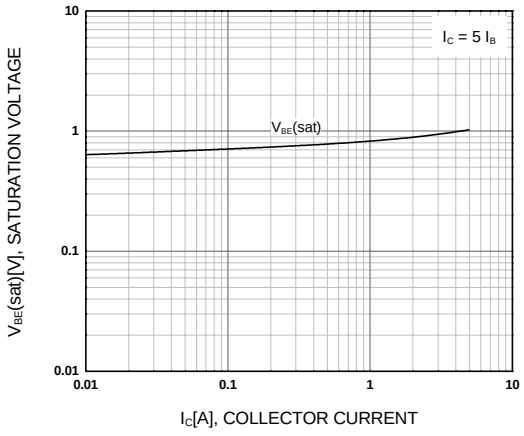


Figure 3. Base-Emitter Saturation Voltage

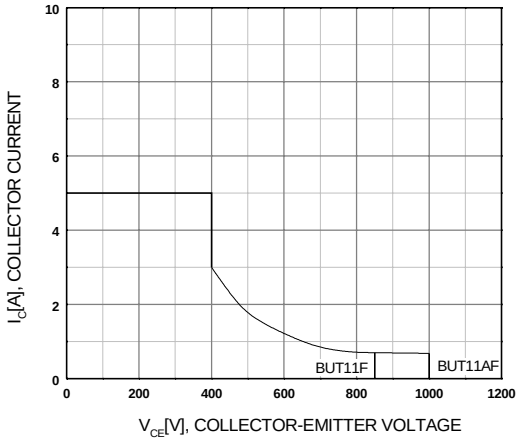


Figure 4. Reverse Biased Safe Operating Area

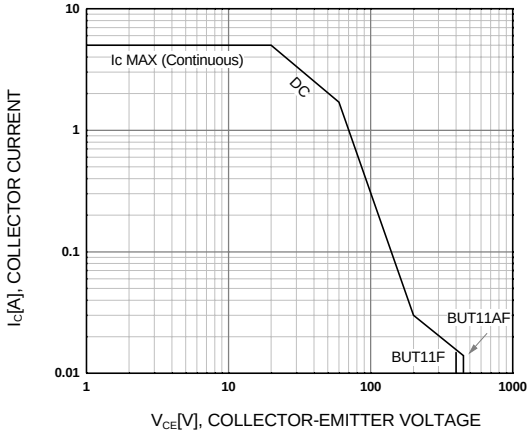


Figure 5. Safe Operating Area

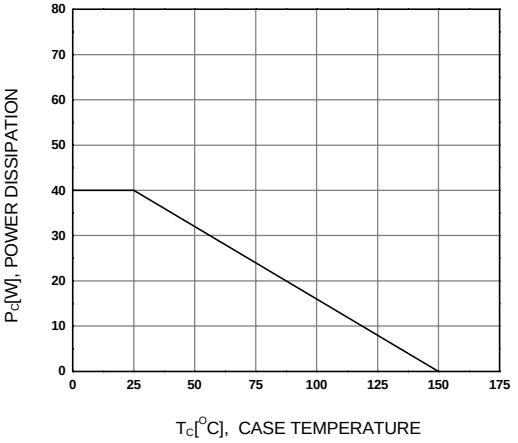
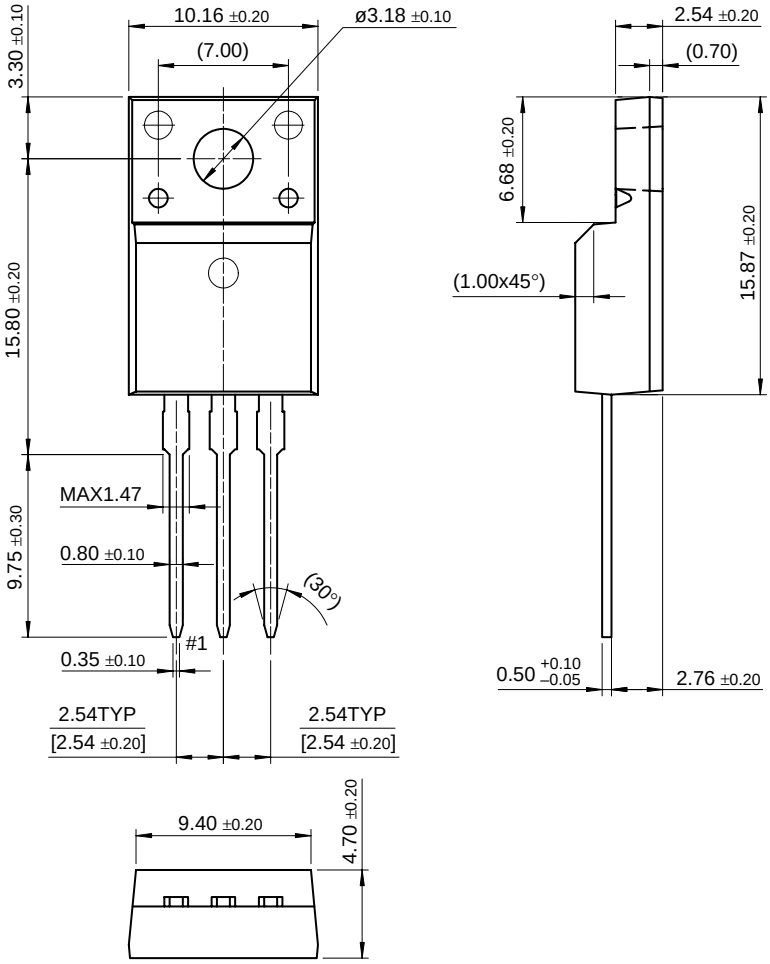


Figure 6. Power Derating

Package Demensions

TO-220F



Dimensions in Millimeters

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