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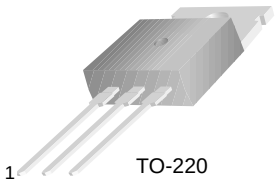
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FAIRCHILD
SEMICONDUCTOR®

BUT11/11A

High Voltage Power Switching Applications



TO-220

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		V
	: BUT11	850	
	: BUT11A	1000	
V_{CEO}	Collector-Emitter Voltage		V
	: BUT11	400	
	: BUT11A	450	
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)	100	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					
	: BUT11	I_C = 100mA, I_B = 0	400			V
	: BUT11A		450			V
I_{CES}	Collector Cut-off Current					
	: BUT11	V_{CE} = 850V, V_{BE} = 0			1	mA
	: BUT11A				1	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 9V, I_C = 0			10	mA
V_{CE}(sat)	Collector-Emitter Saturation Voltage					
	: BUT11	I_C = 3A, I_B = 0.6A			1.5	V
	: BUT11A	I_C = 2.5A, I_B = 0.5A			1.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage					
	: BUT11	I_C = 3A, I_B = 0.6A			1.3	V
	: BUT11A	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		1.25	°C/W

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Typical Characteristics

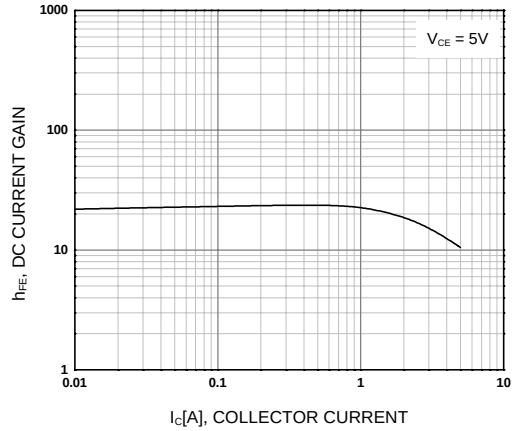


Figure 1. DC current Gain

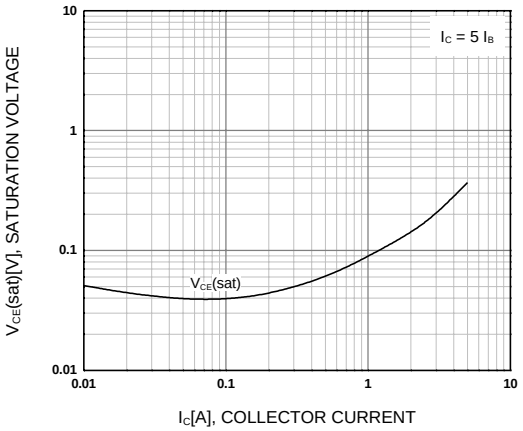


Figure 2. Collector-Emitter Saturation Voltage

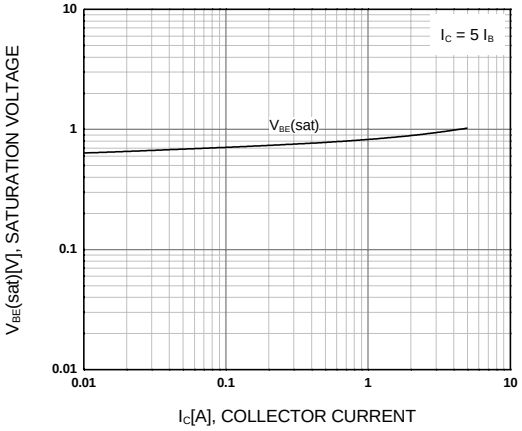


Figure 3. Base-Emitter Saturation Voltage

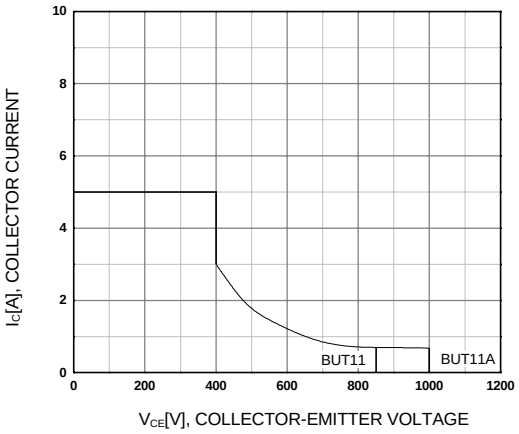


Figure 4. Reverse Biased Safe OPerating Area

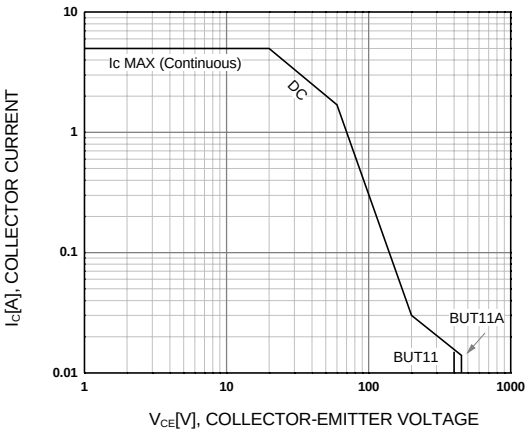


Figure 5. Safe Operating Area

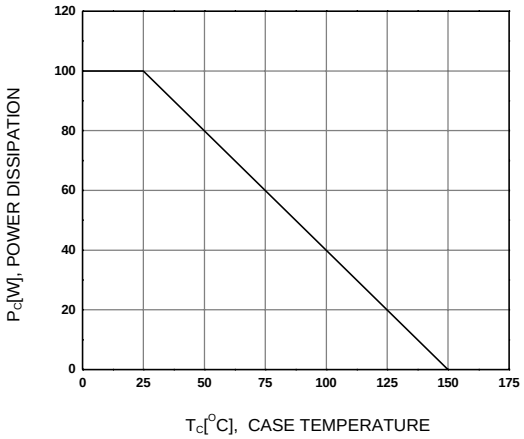
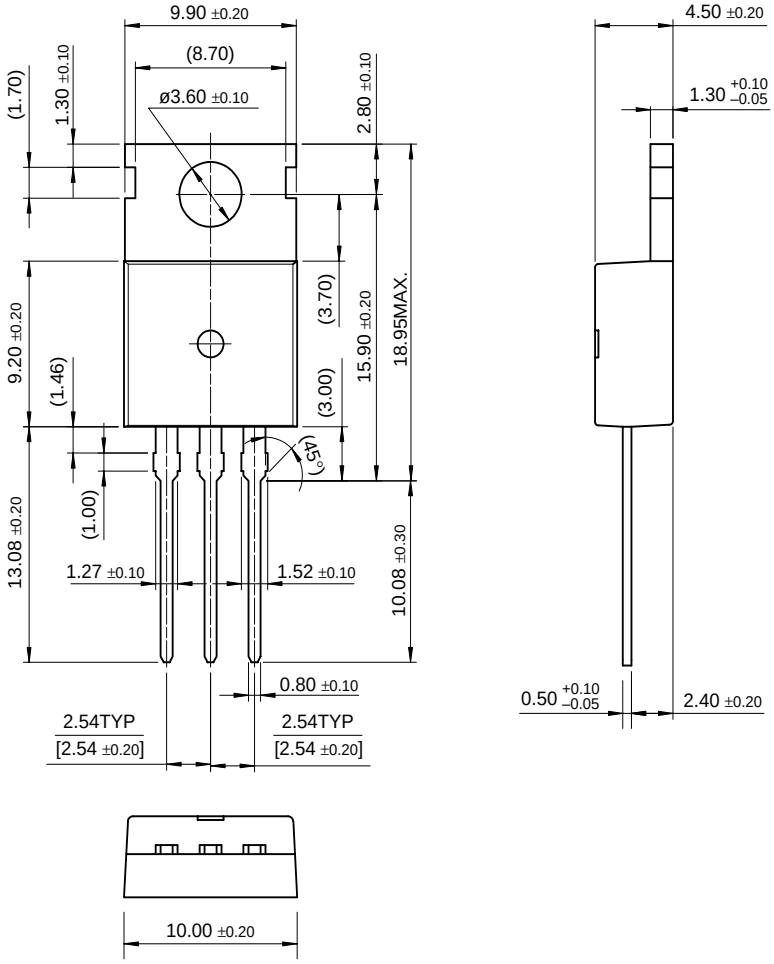


Figure 6. Power Derating

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Package Demensions

TO-220



Dimensions in Millimeters

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