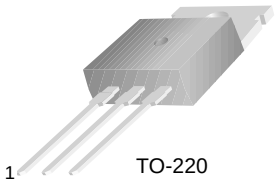
FAIRCHILD SEMICONDUCTOR™

TIP47/48/49/50

High Voltage and Switching Applications

- High Sustaining Voltage : V_{CEO}(sus) = 250 - 400V
- 1A Rated Collector Current



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	: TIP47	350	V
		: TIP48	400	V
		: TIP49	450	V
		: TIP50	500	V
V_{CEO}	Collector-Emitter Voltage	: TIP47	250	V
		: TIP48	300	V
		: TIP49	350	V
		: TIP50	400	V
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current (DC)		1	A
I_{CP}	Collector Current (Pulse)		2	A
I_B	Base Current		0.6	A
P_C	Collector Dissipation (T_C=25°C)		40	W
P_C	Collector Dissipation (T_a=25°C)		2	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.	Max.	Units
V_{CEX}(sus)	Collector-Emitter Sustaining Voltage				
	: TIP47	I_C = 30mA, I_B = 0	250		V
	: TIP48		300		V
	: TIP49		350		V
	: TIP50		400		V
I_{CEO}	Collector Cut-off Current : TIP47	V_{CE} = 150V, I_B = 0		1	mA
	: TIP48	V_{CE} = 200V, I_B = 0		1	mA
	: TIP49	V_{CE} = 250V, I_B = 0		1	mA
	: TIP50	V_{CE} = 300V, I_B = 0		1	mA
I_{CEX}	Collector Cut-off Current : TIP47	V_{CE} = 350V, V_{BE} = 0		1	mA
	: TIP48	V_{CE} = 400V, V_{BE} = 0		1	mA
	: TIP49	V_{CE} = 450V, V_{BE} = 0		1	mA
	: TIP50	V_{CE} = 500V, V_{BE} = 0		1	mA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V, I_C = 0		1	mA
h_{FE}	* DC Current Gain	V_{CE} = 10V, I_C = 0.3A	30	150	
		V_{CE} = 10V, I_C = 1A	10		
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A		1	V
V_{BE}(sat)	* Base-Emitter Saturation Voltage	V_{CE} = 10V, I_C = 1A		1.5	V
f_T	Current Gain Bandwidth Product	V_{CE} =10V, I_C = 0.2A	10		MHz
t_{ON}	Turn ON Time	V_{CC} = 400V		0.5	µs
t_{STG}	Storage Time	$5I_{B1}$ = $-2.5I_{B2}$ = I_C = 6A		3	µs
t_F	Fall Time	R_L = 66.7Ω		0.3	µs

* Pulse Test: PW≤300µs, duty Cycle≤2% Pulse

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Typical Characteristics

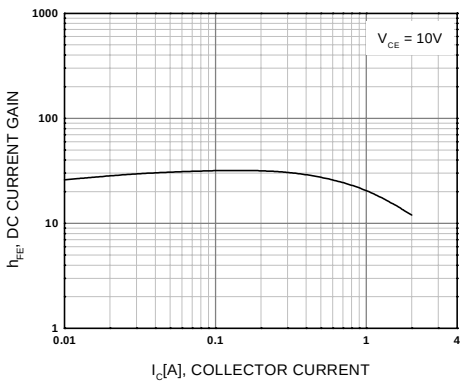


Figure 1. DC current Gain

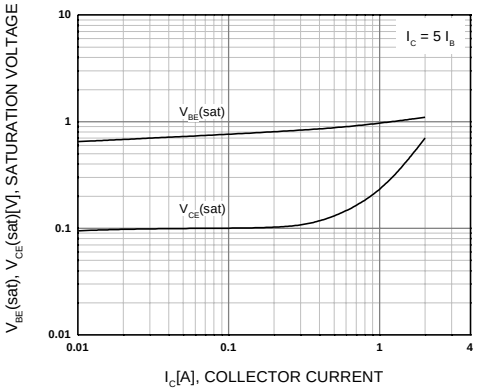


Figure 2. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

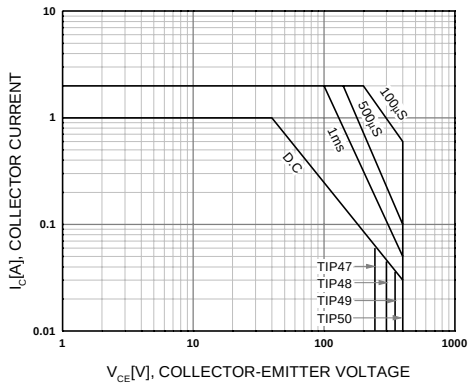


Figure 3. Safe Operating Area

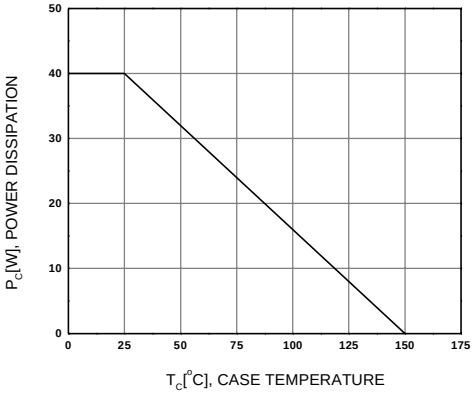
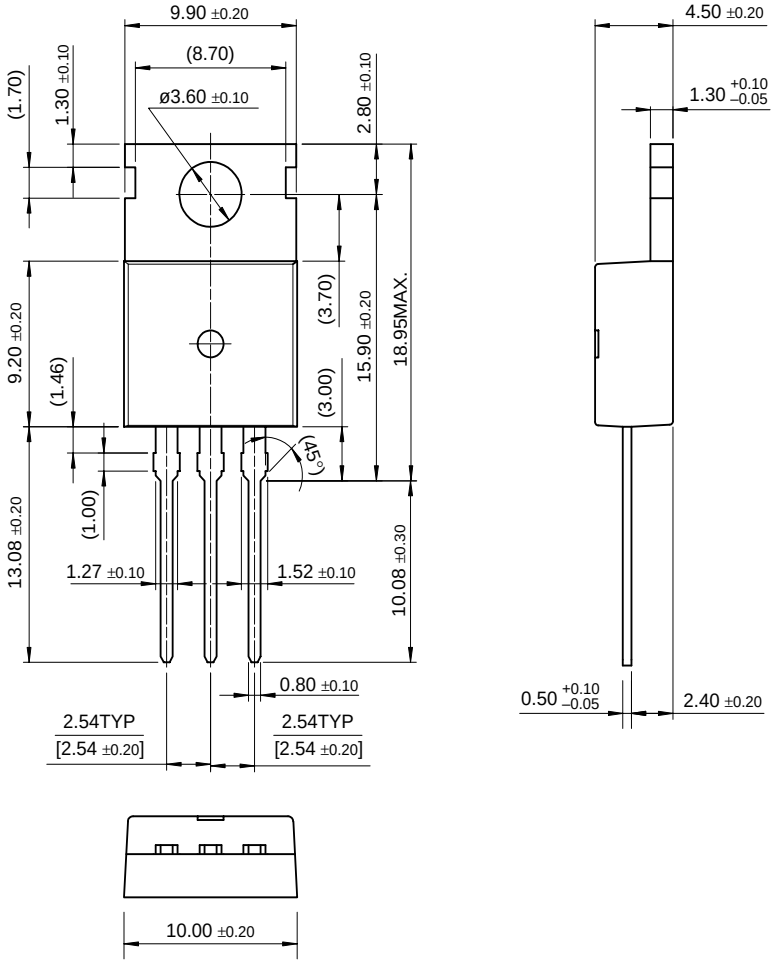


Figure 4. Power Derating

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Package Demensions

TO-220



Dimensions in Millimeters

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