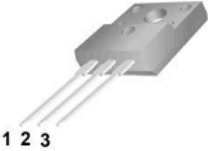
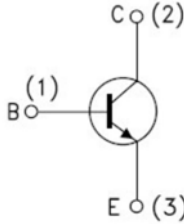


**WGF13009**

**High Voltage Switch Mode Application**

- High Speed Switching
- Suitable for Switching Regulator and Motor Control

TO-220F

1. Base (B)  
2. Collector (C)  
3. Emitter (E)

**Absolute Maximum Ratings** (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	700	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	9	V
I <sub>C</sub>	Collector Current (DC)	12	A
I <sub>CP</sub>	Collector Current (Pulse)	24	A
I <sub>B</sub>	Base Current	6	A
P <sub>C</sub>	Collector Dissipation (T <sub>C</sub> =25°C)	100	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	- 65 ~ 150	°C

**Electrical Characteristics** T<sub>C</sub>=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V <sub>CEO(sus)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0	400			V
I <sub>EBO</sub>	Emitter Cut-off Current	V <sub>EB</sub> = 9V, I <sub>C</sub> = 0			1	mA
h <sub>FE</sub>	* DC Current Gain	V <sub>CE</sub> = 5V, I <sub>C</sub> = 5A V <sub>CE</sub> = 5V, I <sub>C</sub> = 8A	8 6		40 30	
V <sub>CE(sat)</sub>	* Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A, I <sub>B</sub> = 1A I <sub>C</sub> = 8A, I <sub>B</sub> = 1.6A I <sub>C</sub> = 12A, I <sub>B</sub> = 3A			1 1.5 3	V V V
V <sub>BE(sat)</sub>	* Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A, I <sub>B</sub> = 1A I <sub>C</sub> = 8A, I <sub>B</sub> = 1.6A			1.2 1.6	V V
C <sub>ob</sub>	Output Capacitance	V <sub>CB</sub> = 10V, f = 0.1MHz		180		pF
f <sub>T</sub>	Current Gain Bandwidth Product	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.5A	4			MHz
t <sub>ON</sub>	Turn On Time	V <sub>CC</sub> = 125V, I <sub>C</sub> = 8A			1.1	μs
t <sub>STG</sub>	Storage Time	I <sub>B1</sub> = - I <sub>B2</sub> = 1.6A			3	μs
t <sub>F</sub>	Fall Time	R <sub>L</sub> = 15,6Ω			0.7	μs

\* Pulse test: PW≤300μs, Duty cycle≤2%

Typical Characteristics

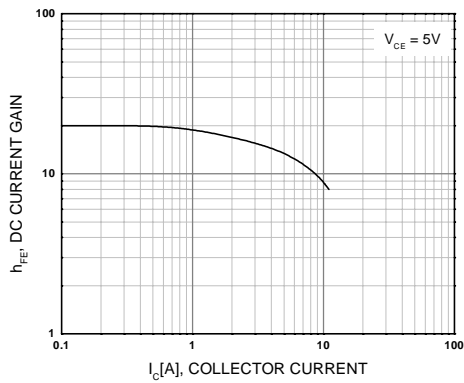


Figure 1. DC current Gain

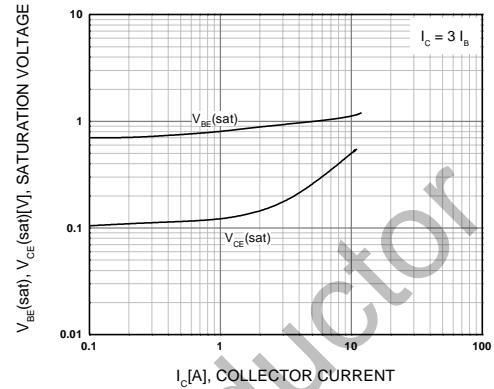


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

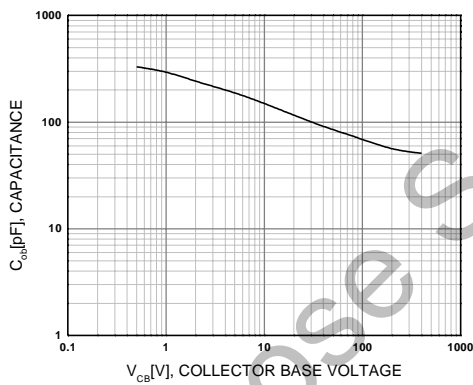


Figure 3. Collector Output Capacitance

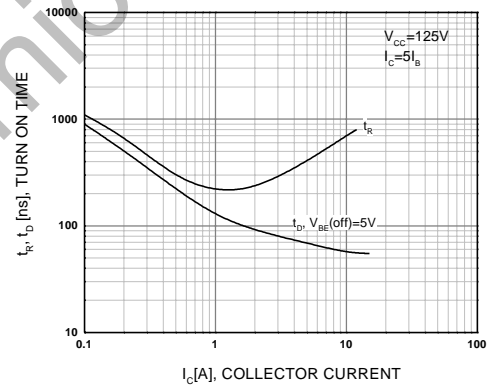


Figure 4. Turn On Time

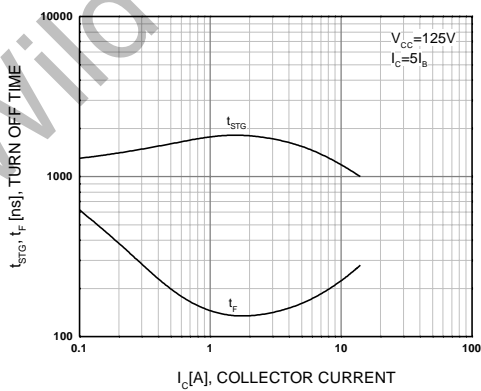


Figure 5. Turn Off Time

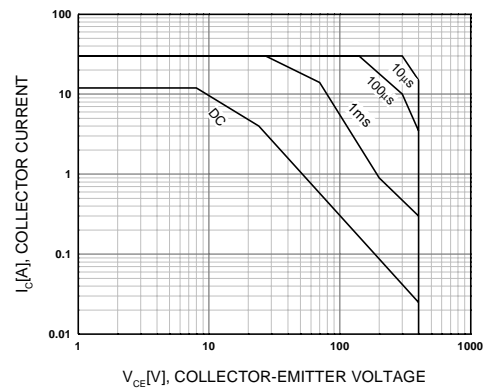


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics

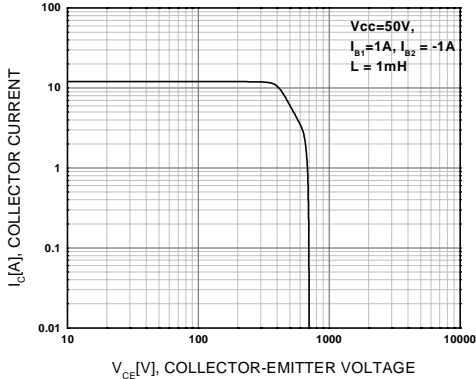


Figure 7. Reverse Bias Safe Operating Area

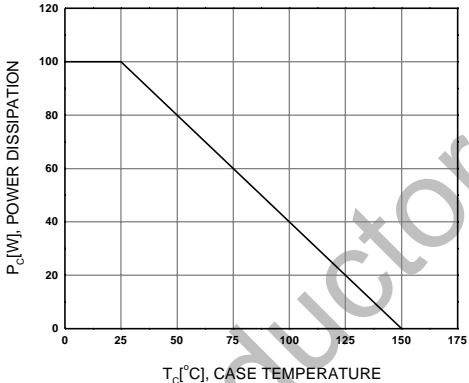


Figure 8. Power Derating

WildGoose Semiconductor

Package Dimension

TO-220F

Unit: mm

