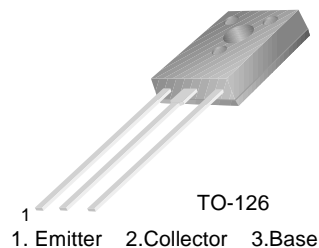


FJE3303

High Voltage Switch Mode Applications

- High Speed Switching
- Suitable for Electronic Ballast and Switching Regulator



NPN Silicon Transistor Planar Silicon Transistor

Absolute Maximum Ratings $T_C=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	1.5	A
I_{CP}	*Collector Current (Pulse)	3	A
I_B	Base Current (DC)	0.75	A
I_{BP}	*Base Current (Pulse)	1.5	A
P_C	Collector Power Dissipation($T_a=25^{\circ}\text{C}$)	20	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^{\circ}\text{C}$

* Pulse Test: Pulse Width=5ms, Duty Cycle $\leq 10\%$

Electrical Characteristics $T_a=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=500\mu\text{A}$, $I_E=0$	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C=5\text{mA}$, $I_B=0$	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=500\mu\text{A}$, $I_C=0$	9			V
I_{CBO}	Collector Cut-off Current	$V_{CB}=700\text{V}$, $I_E=0$			10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=9\text{V}$, $I_C=0$			10	μA
h_{FE1} h_{FE2}	*DC Current Gain	$V_{CE}=2\text{V}$, $I_C=0.5\text{A}$	8		21	
		$V_{CE}=2\text{V}$, $I_C=1.0\text{A}$	5			
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=0.5\text{A}$, $I_B=0.1\text{A}$			0.5	V
		$I_C=1.0\text{A}$, $I_B=0.25\text{A}$			1.0	V
		$I_C=1.5\text{A}$, $I_B=0.5\text{A}$			3.0	V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C=0.5\text{A}$, $I_B=0.1\text{A}$			1.0	V
		$I_C=1.0\text{A}$, $I_B=0.25\text{A}$			1.2	V
f_T	Current Gain Bandwidth Product	$V_{CE}=10\text{V}$, $I_C=0.1\text{A}$	4			MHz
t_{ON}	Turn ON Time	$V_{CC}=125\text{V}$, $I_C=1\text{A}$, $I_{B1}=0.2\text{A}$, $I_{B2}=-0.2\text{A}$,			1.1	μs
t_{STG}	Storage Time	$R_L = 125\Omega$			4.0	μs
t_F	Fall Time				0.7	μs

* Pulse test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

h_{FE} Classification

Classification	R	O
h_{FE1}	8 ~ 16	14 ~ 21

Typical Characteristics (Continued)

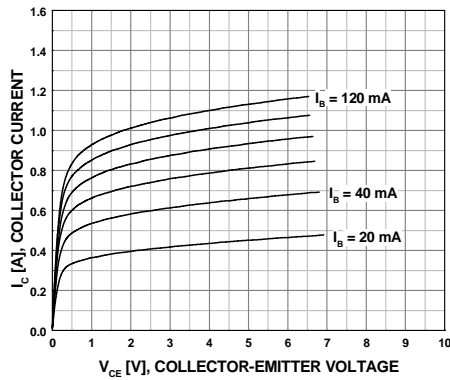


Figure 1. Static Characteristic

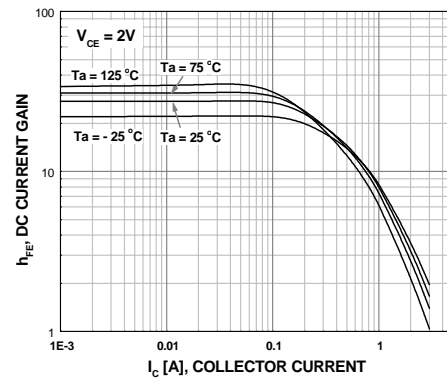


Figure 2. DC current Gain

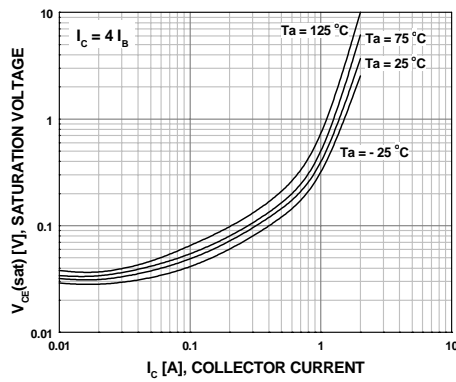


Figure 3. Collector-Emitter Saturation Voltage

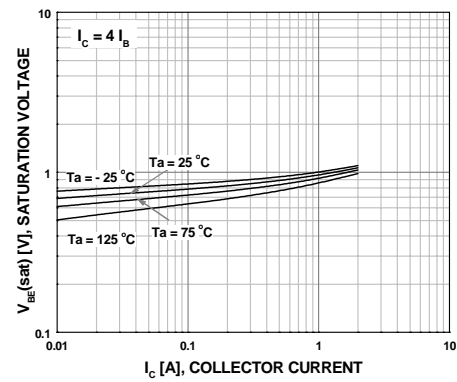


Figure 4. Base-Emitter Saturation Voltage

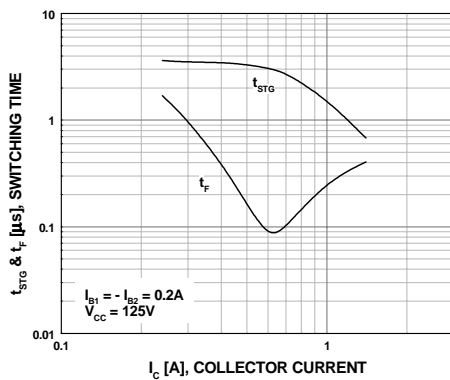


Figure 5. Resistive Load Switching Time

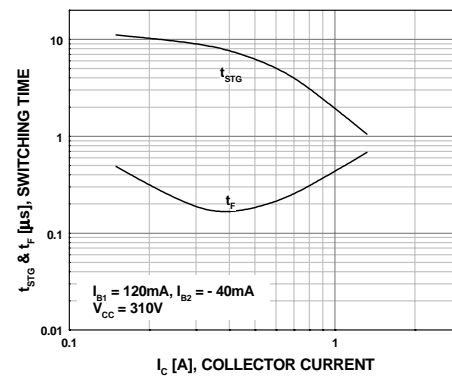


Figure 6. Resistive Load Switching Time

Typical Characteristics

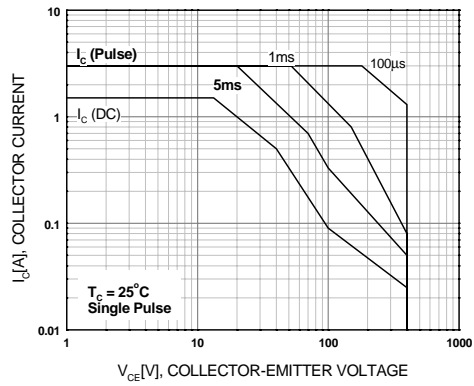


Figure 7. Forward Biased Safe Operating Area

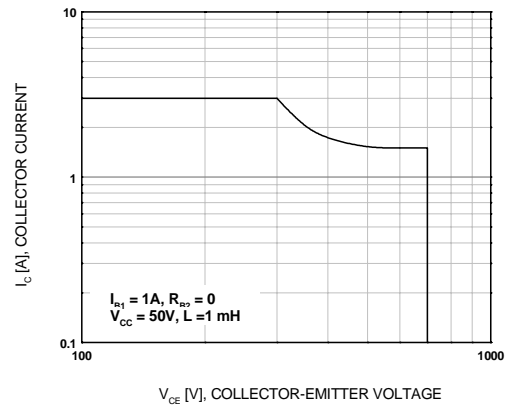


Figure 8. Reverse Biased Safe Operating Area

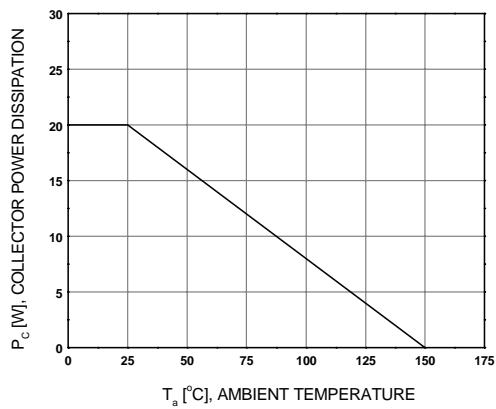


Figure 9. Power Derating

[illegible]

Rev. A, March 2004

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