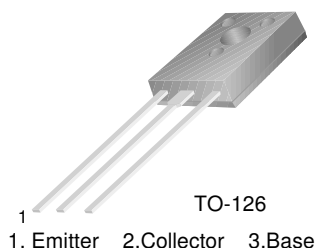


FJE3303

High Voltage Fast-Switching NPN Power Transistor

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



Absolute Maximum Ratings T_C = 25°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 Dissipation (T _C = 25°C)	20	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65 ~ 150	°C

* Pulse Test: Pulse Width = 5ms, Duty Cycle ≤ 10%

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

Symbol	Parameter	Conditions	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 *	$V_{CE} = 2\text{V}$, $I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$, $I_C = 1.0\text{A}$	8 5		21	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{A}$, $I_B = 0.1\text{A}$ $I_C = 1.0\text{A}$, $I_B = 0.25\text{A}$ $I_C = 1.5\text{A}$, $I_B = 0.5\text{A}$			0.5 1.0 3.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 0.5\text{A}$, $I_B = 0.1\text{A}$ $I_C = 1.0\text{A}$, $I_B = 0.25\text{A}$			1.0 1.2	V V
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}$, $I_C = 0.1\text{A}$	4			MHz
C_{ob}	Output Capacitance	$V_{CB} = 10\text{V}$, $f = 0.1\text{MHz}$		21		pF
t_{ON}	Turn On Time	$V_{CC} = 125\text{V}$, $I_C = 1\text{A}$ $I_{B1} = 0.2\text{A}$, $I_{B2} = -0.2\text{A}$ $R_L = 125\Omega$			1.1	μs
t_{STG}	Storage Time				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	H1	H2
h_{FE1}	8 ~ 16	14 ~ 21

Typical Performance Characteristics

Figure 1. Static Characteristic

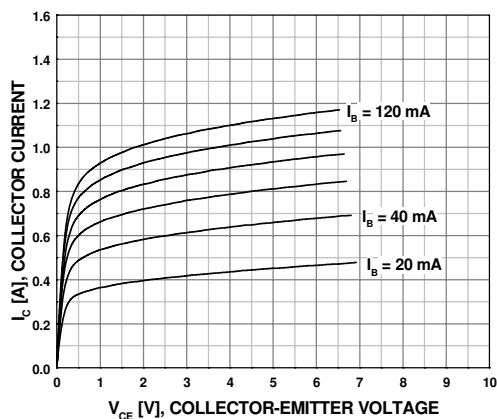


Figure 2. DC Current Gain

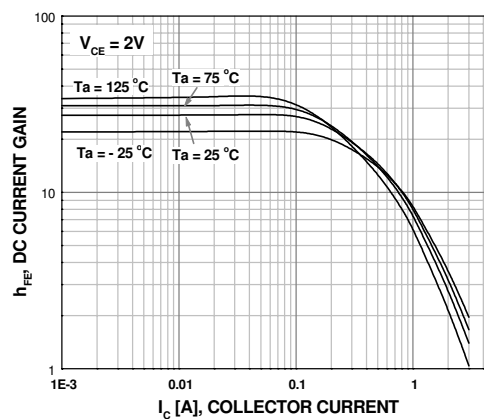


Figure 3. Collector-Emitter Saturation Voltage

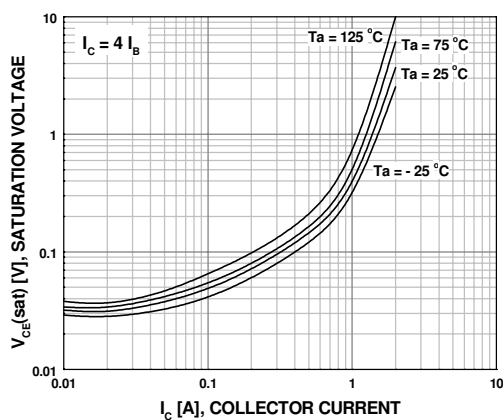


Figure 4. Base-Emitter Saturation Voltage

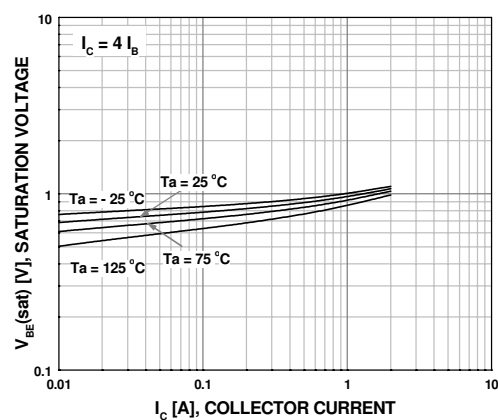


Figure 5. Resistive Load Switching Time

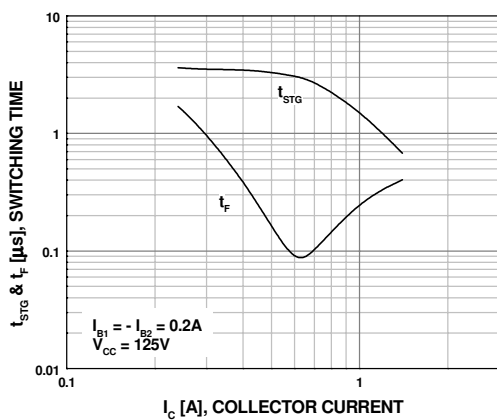
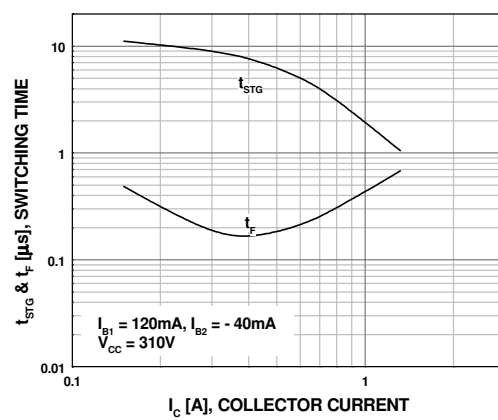


Figure 6. Resistive Load Switching Time



Typical Performance Characteristics (Continued)

Figure 7. Forward Biased Safe Operating Area

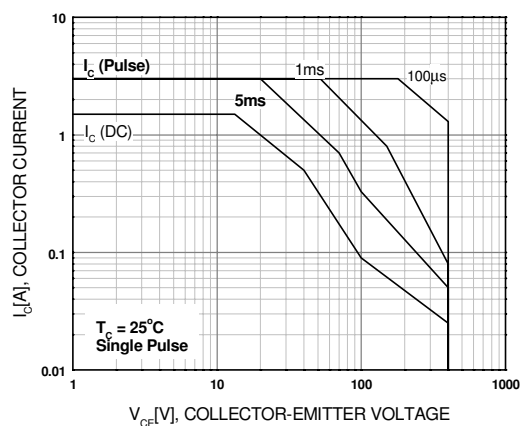


Figure 8. Reverse Biased Safe Operating Area

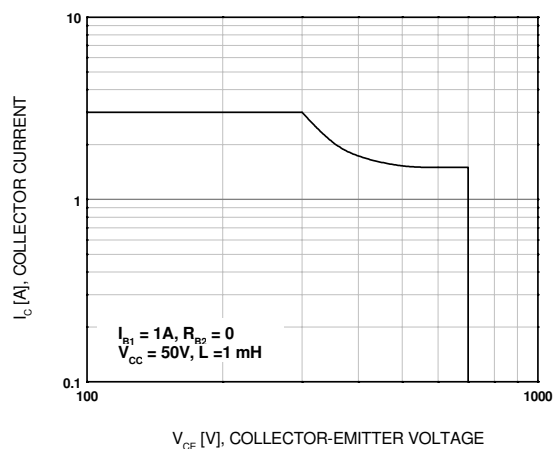
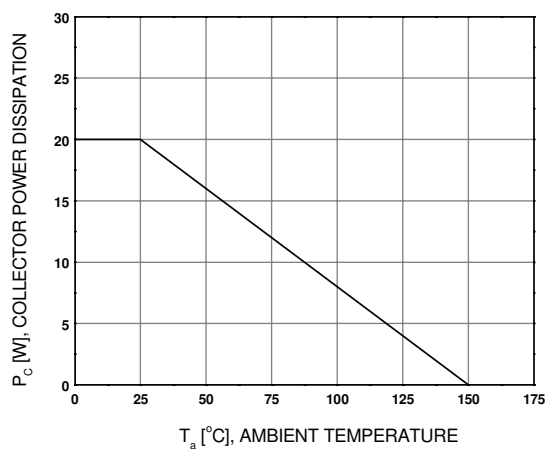
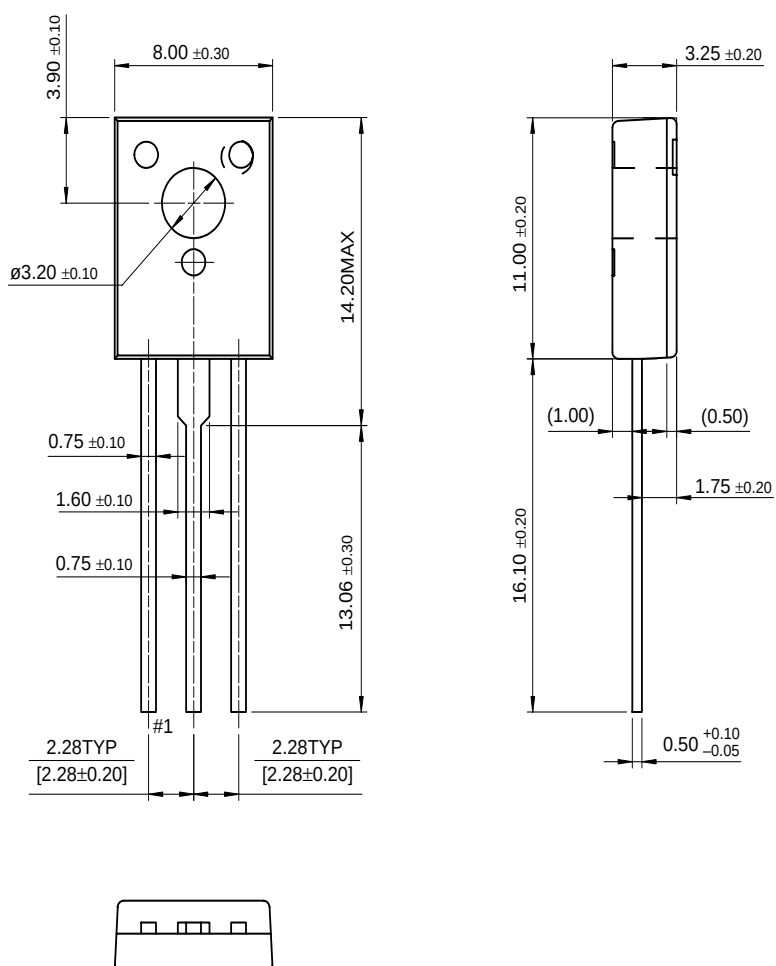


Figure 9. Power Derating



Mechanical Dimensions

TO-126



Dimensions in Millimeters

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