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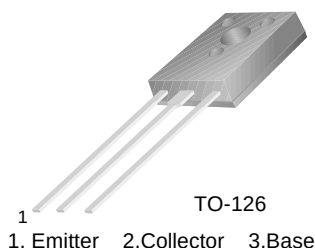
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FJE3303

High Voltage Fast-Switching NPN Power Transistor

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



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

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdwn 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

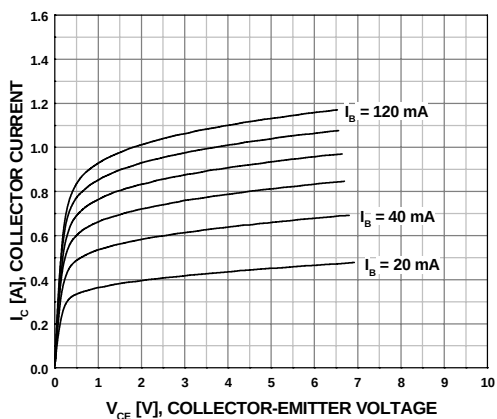


Figure 2. DC Current Gain

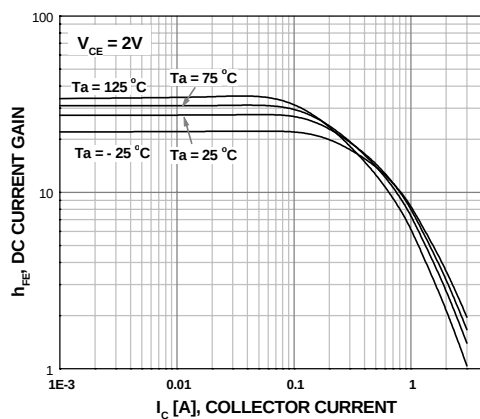


Figure 3. Collector-Emitter Saturation Voltage

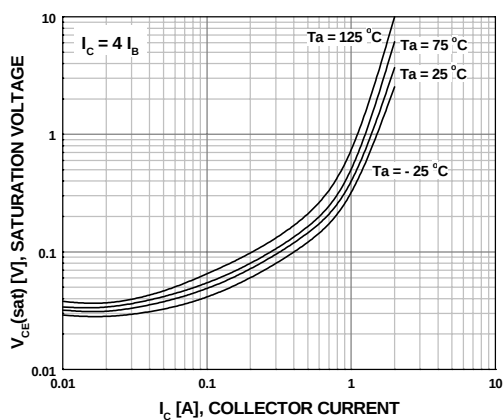


Figure 4. Base-Emitter Saturation Voltage

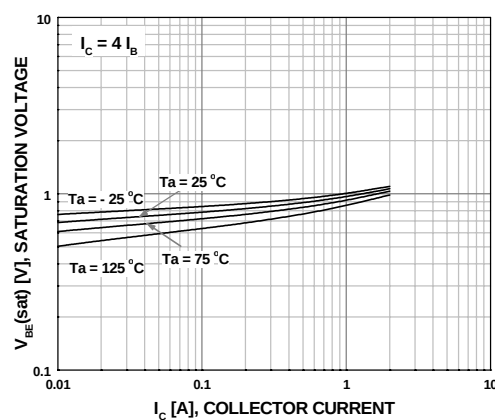


Figure 5. Resistive Load Switching Time

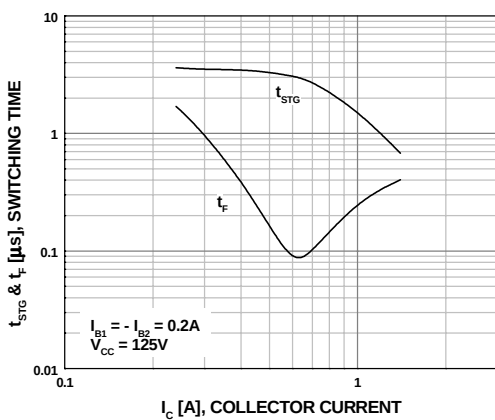
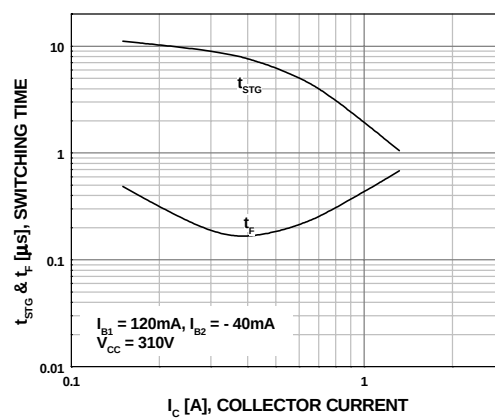


Figure 6. Resistive Load Switching Time



Typical Performance Characteristics (Continued)

Figure 7. Forward Biased Safe Operating Area

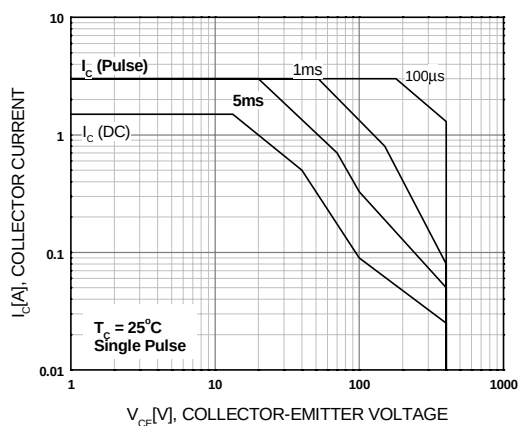


Figure 8. Reverse Biased Safe Operating Area

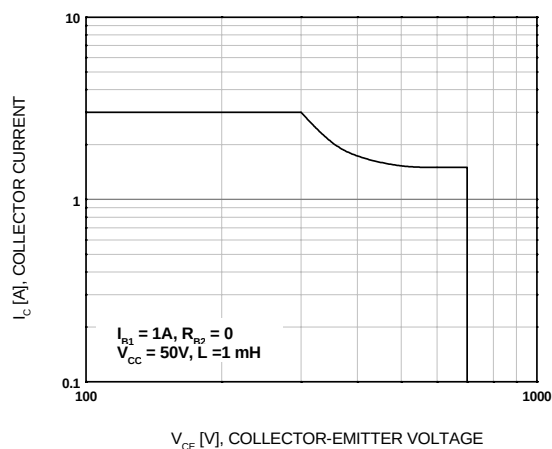
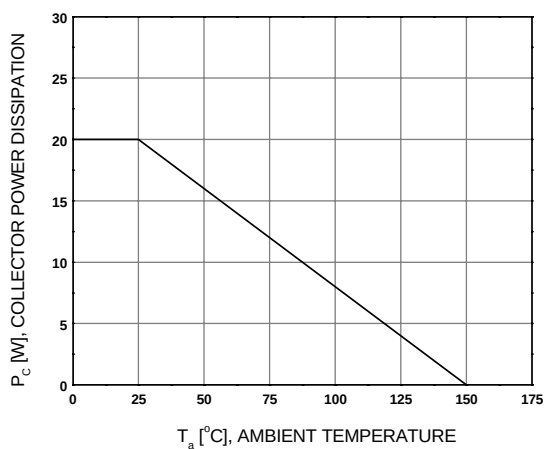
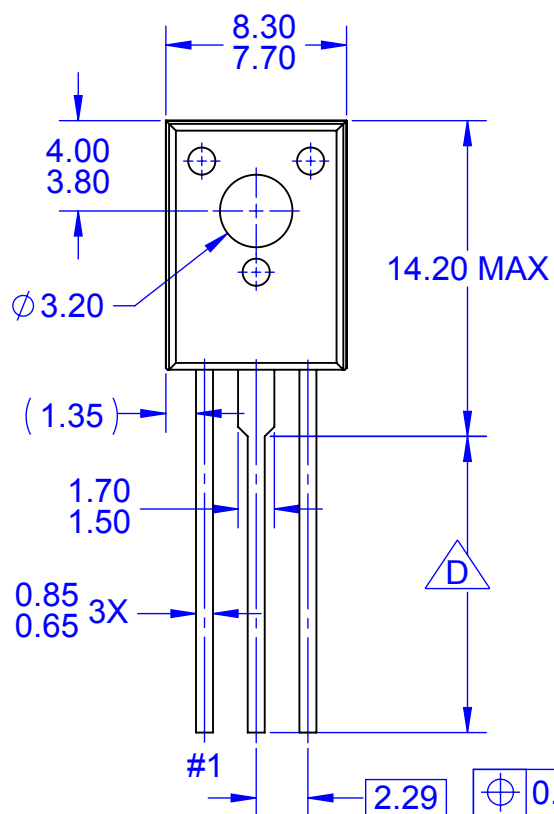
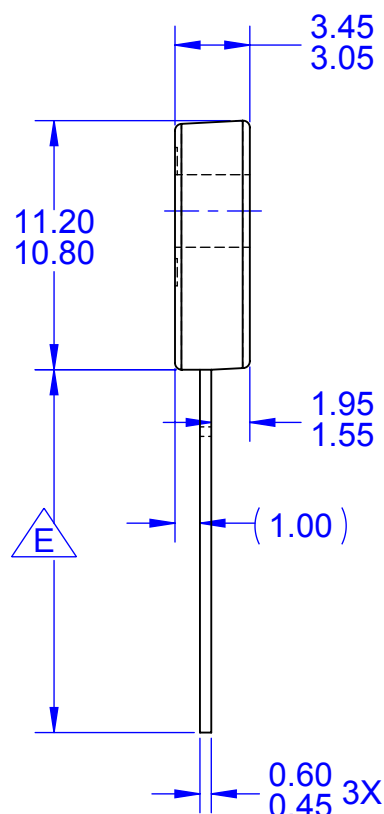


Figure 9. Power Derating

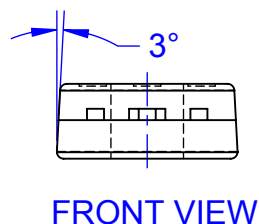




TOP VIEW



SIDE VIEW



FRONT VIEW

PRODUCTION CODE	TERMINAL LENGTH "D"	TERMINAL LENGTH "E"
TSSTU	3.45 - 4.05	6.45-7.45
TSTU	2.36 - 2.96	5.36-6.36
NONE (STD LENGTH)	12.76 - 13.36	15.76-16.76

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- B. ALL DIMENSIONS ARE IN MILLIMETERS
- C. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS

 FOR TERMINAL LENGTH "D", REFER TO TABLE

 FOR TERMINAL LENGTH "E", REFER TO TABLE

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