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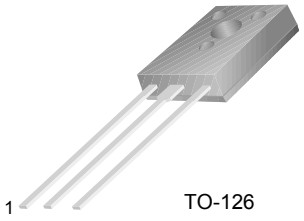
FJE5304D
NPN Triple Diffused Planar Silicon Transistor

High Voltage High Speed Power Switch Application

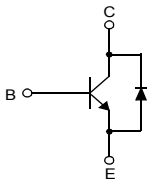
- Wide Safe Operating Area
- Built-in Free Wheeling diode
- Suitable for Electronic Ballast Application
- Small Variance in Storage Time



TO-126

1.Emitter 2.Collector 3.Base

Equivalent Circuit



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	12	V
I_C	Collector Current (DC)	4	A
I_{CP}	* Collector Current (Pulse)	8	A
I_B	Base Current (DC)	2	A
I_{BP}	* Base Current (Pulse)	4	A
P_C	Collector Dissipation (T_C=25°C)	30	W
T_{STG}	Storage Temperature	- 65 ~ 150	°C

* Pulse Test Pulse Width = 5ms, Duty Cycle ≥ 1.0%

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 1mA, I_E = 0	700			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5mA, I_B = 0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 1mA, I_C = 0	12			V
I_{CES}	Collector Cut-off Current	V_{CE} = 700V, V_{EB} = 0			100	μA
I_{CEO}	Collector Cut-off Current	V_{CE} = 400V, I_B = 0			250	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 12V, I_C = 0			100	μA
h_{FE}	DC Current Gain	V_{CE} = 5V, I_C = 10mA V_{CE} = 5V, I_C = 2A	10 8		 40	

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Electrical Characteristics (Continued) T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1A, I_B = 0.2A I_C = 2.5A, I_B = 0.5A			0.7 1.0 1.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A I_C = 1A, I_B = 0.2A I_C = 2.5A, I_B = 0.5A			1.1 1.2 1.3	V
V_f	Internal Diode Forward Voltage Drop	I_F = 2A			2.5	V
Inductive Load Switching (V_{CC} = 200V)						
t_{stg}	Storage Time	I_C = 2A, I_{B1} = 0.4A V_{BE}(off) = -5V, L = 200µH		0.6		µs
tf	Fall Time			0.1		
Resistive Load Switching (V_{CC} = 250V)						
t_{stg}	Storage Time	I_C = 2A, I_{B1} = I_{B2} = 0.4A T_P = 30µs			2.9	µs
tf	Fall Time			0.2		

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

Thermal Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4.17	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	83.3	°C/W

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
FJE5304D	FJE5304D	TO-126	--	--	--

Typical Performance Characteristics

Figure 1. Static Characteristic

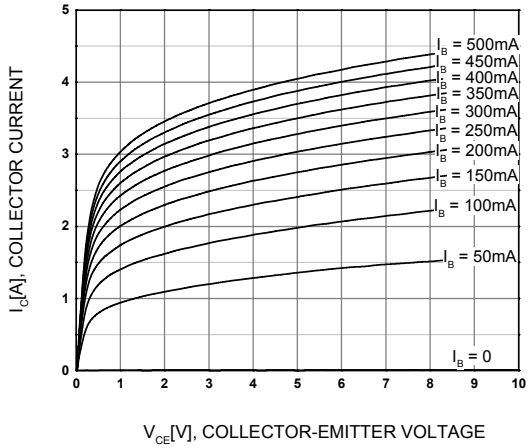


Figure 2. DC Current Gain

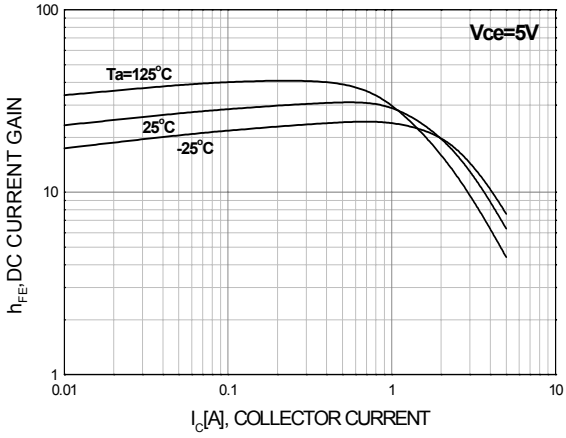


Figure 3. Collector-Emitter Saturation Voltage

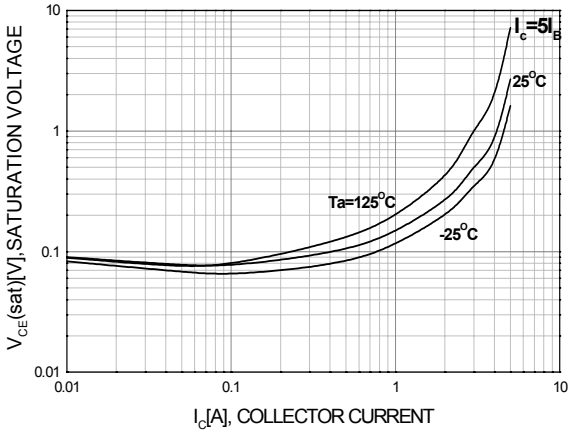


Figure 4. Base-Emitter Saturation Voltage

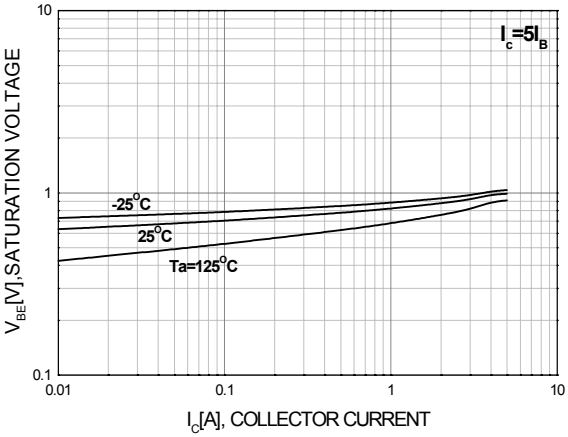


Figure 5. Resitive Load Switching Time

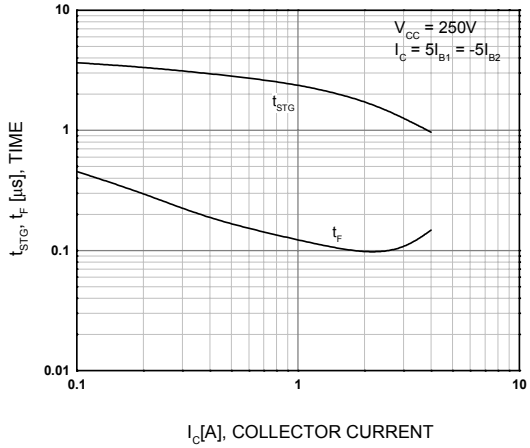
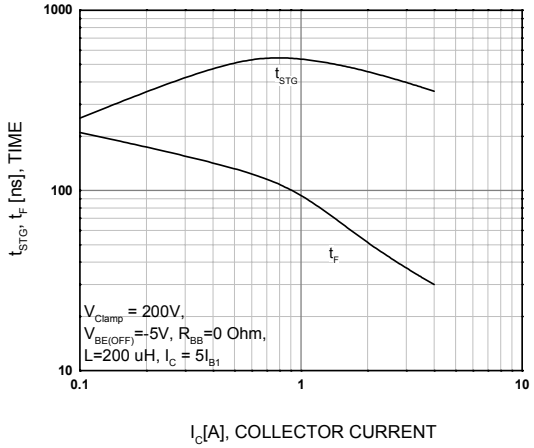


Figure 6. Inductive Load Switching Time



Typical Performance Characteristics

Figure 7. Forward Bias Safe Operating Area

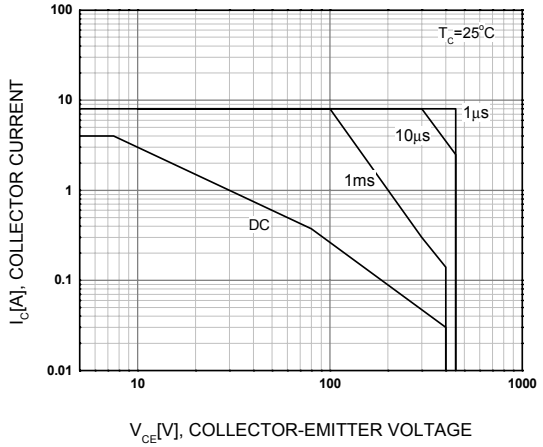


Figure 8. Reverse Bias Safe Operating Area

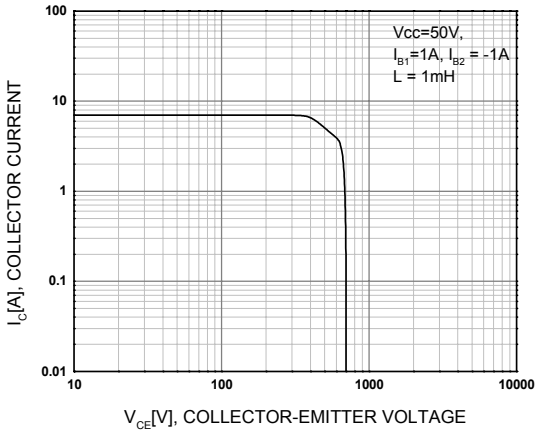
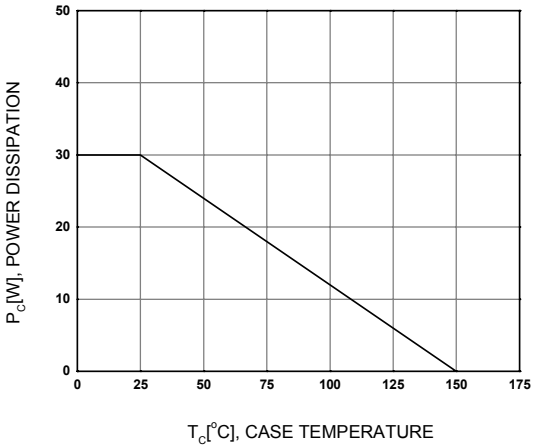
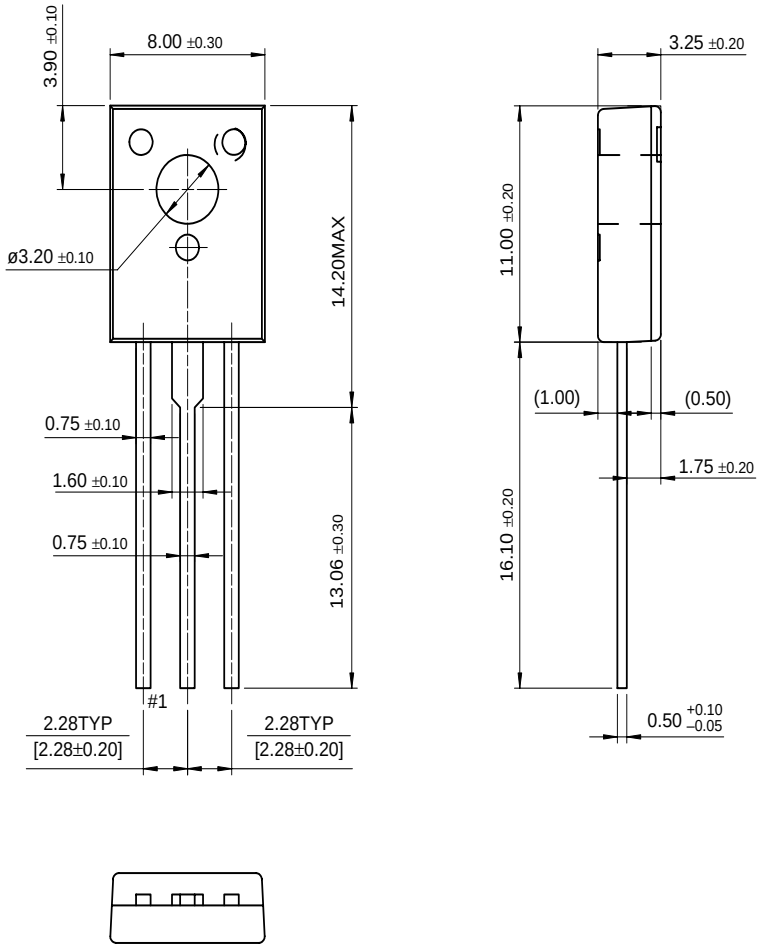


Figure 9. Power Derating



Mechanical Dimensions

TO-126



Dimensions in Millimeters

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