

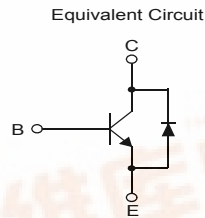
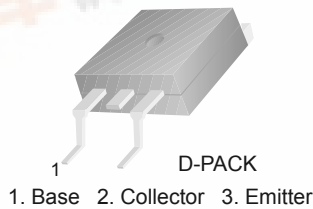


# FJD5304D

## High Voltage Fast Switching Transistor

### Features

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



### Absolute Maximum Ratings T<sub>C</sub> = 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	12	V
I <sub>C</sub>	Collector Current (DC)	4	A
I <sub>CP</sub>	* Collector Current (Pulse)	8	A
I <sub>B</sub>	Base Current (DC)	2	A
I <sub>BP</sub>	* Base Current (Pulse)	4	A
P <sub>C</sub>	Collector Dissipation (T <sub>C</sub> = 25°C)	30	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	-55 ~ 150	°C

\* Pulse Test: PW = 300µs, Duty Cycle = 2% Pulsed

### Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
J5304D	FJD5304DTM	D-PAK	13" Dia	-	2500
J5304D	FJD5304DTF	D-PAK	13" Dia	-	2000



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

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 1\text{mA}, I_E = 0$	700			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	400			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1\text{mA}, I_C = 0$	12			V
$I_{CES}$	Collector Cut-off Current	$V_{CB} = 700\text{V}, I_E = 0$			100	$\mu\text{A}$
$I_{CEO}$	Collector Cut-off Current	$V_{CB} = 400\text{V}, I_B = 0$			250	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 12\text{V}, I_C = 0$			1	mA
$h_{FE}$	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.0\text{A}$	10 8		40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$			0.7	V
		$I_C = 1.0\text{A}, I_B = 0.2\text{A}$			1.0	V
		$I_C = 2.5\text{A}, I_B = 0.5\text{A}$			1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 0.5\text{A}, I_B = 0.1\text{A}$			1.1	V
		$I_C = 1.0\text{A}, I_B = 0.2\text{A}$			1.2	V
		$I_C = 2.5\text{A}, I_B = 0.5\text{A}$			1.3	V
$t_{STG}$	Storage Time	$V_{CLAMP}=200\text{V}, I_C=2.0\text{A}$		0.6		$\mu\text{s}$
$t_F$	Fall Time	$I_{B1}=0.4\text{A}, V_{BE(off)}=-5\text{V}, L=200\mu\text{H}$		0.1		$\mu\text{s}$
$t_{STG}$	Storage Time	$V_{CC}=250\text{V}, I_C=2.0\text{A}$			2.9	$\mu\text{s}$
$t_F$	Fall Time	$I_{B1}=0.4\text{A}, I_{B2}=-0.4\text{A}, T_P=30\mu\text{s}$		0.2		$\mu\text{s}$

## Typical Performance Characteristics

Figure 1. Static Characteristic

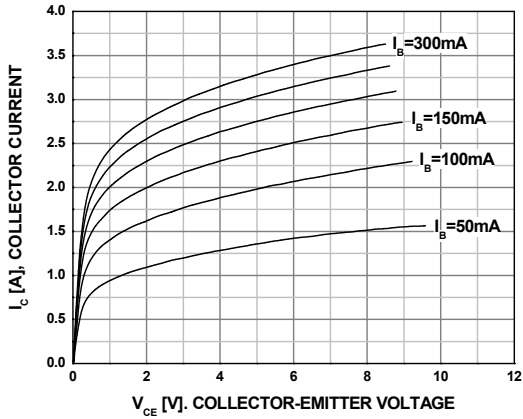


Figure 2. DC Current Gain

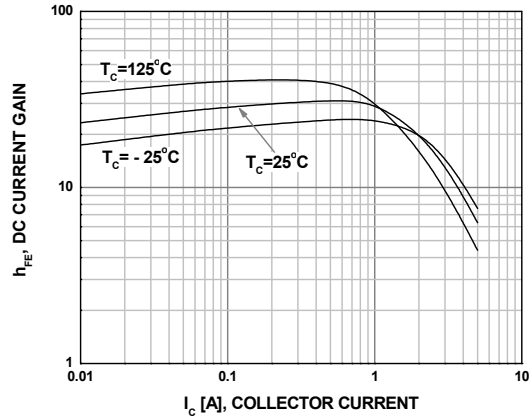


Figure 3. Collector-Emitter Saturation Voltage

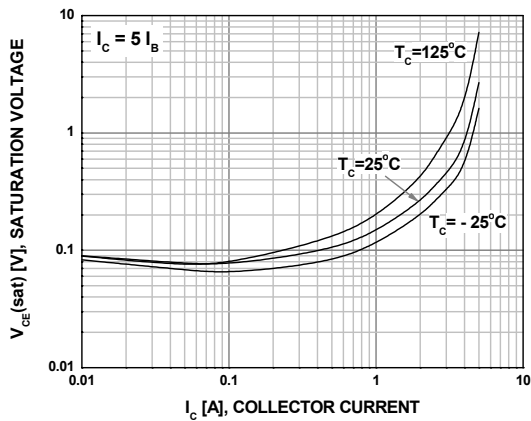


Figure 4. Base-Emitter Saturation Voltage

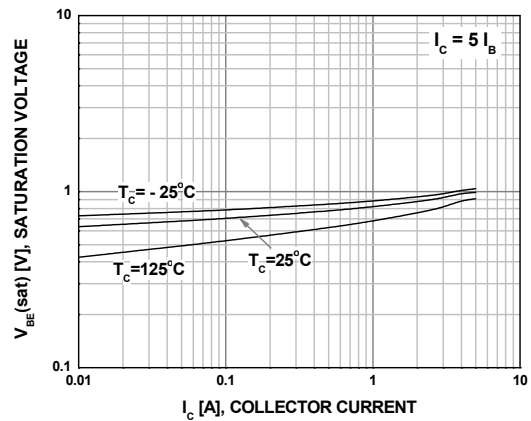


Figure 5. Resistive Load Switching Time

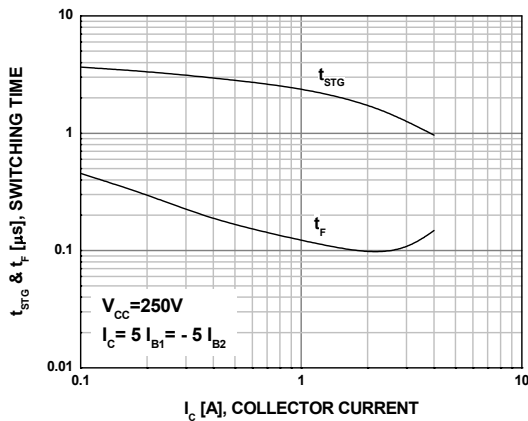
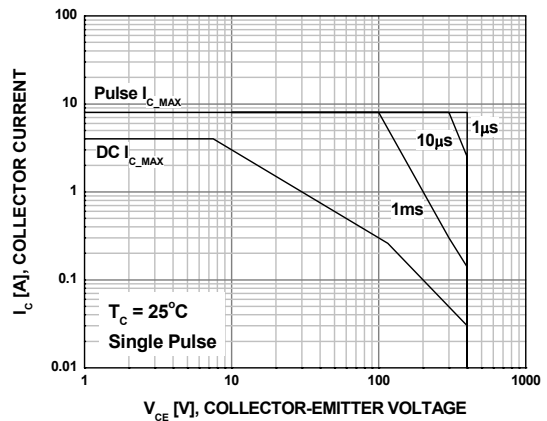
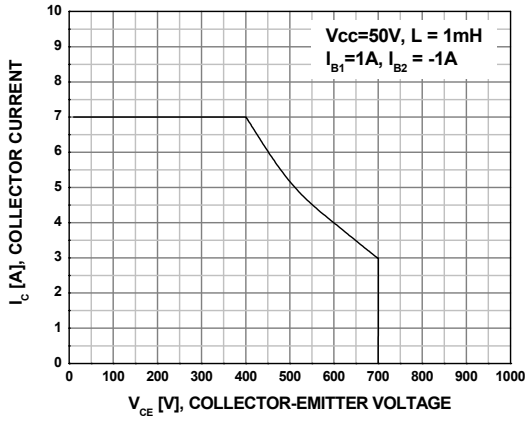


Figure 6. Forward Biased Safe Operating Area

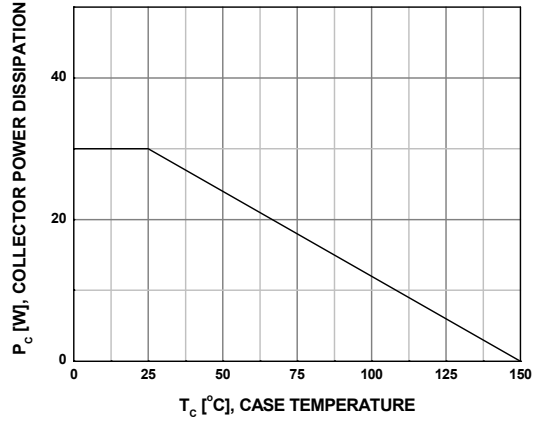


**Typical Performance Characteristics (Continued)**

**Figure 7. Reverse Biased Safe Operating Area**



**Figure 8. Power Derating Curve**





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FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
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