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June 2013

FJD5553

NPN Silicon Transistor

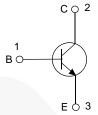
Features

- · Fast Speed Switching
- · Wide Safe Operating Area
- · High Voltage Capability

Application

- · Electronic Ballast
- · Switch Mode Power Supplies





Ordering Information

Part Number	Marking	Package	Packing Method
FJD5553TM	J5553	D-PAK	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^{\circ}\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Units
BV _{CBO}	Collector-Base Voltage	1050	V
BV _{CEO}	Collector-Emitter Voltage	400	V
BV _{EBO}	Emitter-Base Voltage	14	V
I _C	Collector Current (DC)	3	Α
I _{CP}	Collector Current (Pulse)	6	Α
I _B	Base Current (DC)	1	Α
I _{BP}	Base Current (Pulse)	2	Α
T _J	Junction Temperature	150	°C
T _{STG}	Storage Junction Temperature Range	- 55 to +150	°C

Thermal Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value	Units
P _D	Total Device Dissipation T _A	= 25°C	1.25	W
$R_{\theta ja}^{(1)}$	Thermal Resistance, Junction to Ambient		100	°C/W

1

Note:

1. $R_{\theta ja}$ test board and fixture under natural convection; JESD51-3 recommended thermal test board.

Electrical Characteristics(2)

Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Тур.	Max	Units
BV _{CBO}	Collector-Base Breakdown Voltage	$I_C = 500 \mu A, I_E = 0$	1050			٧
BV _{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5 \text{ mA}, I_B = 0$	400			V
BV _{EBO}	Emitter-Base Breakdown Voltage	$I_E = 500 \mu\text{A}, I_C = 0$	14			V
L	DC Current Gain	$V_{CE} = 5 \text{ V}, I_{C} = 10 \text{ mA}$	10			
h _{FE}		$V_{CE} = 3 \text{ V, } I_{C} = 0.4 \text{ A}$	30		60	
V _{CE} (sat)	Collector-Emitter Saturation Voltage	I _C = 1 A, I _B = 0.2 A		0.23	0.50	V
V _{BE} (sat)	Base-Emitter Saturation Voltage	I _C = 1 A, I _B = 0.2 A			1.2	V
C _{ob}	Output Capacitance	V _{CB} = 10 V, f = 1 MHz		45		pF
t _{ON}	Turn-On Time	$V_{CC} = 125 \text{ V}, I_{C} = 0.5 \text{ A},$ $I_{B1} = 45 \text{ mA}, I_{B2} = 0.5 \text{ A},$ $R_{L} = 250 \Omega$			1.0	μs
t _{STG}	Storage Time				1.2	μs
t _F	Fall Time			0.3		μs
t _{ON}	Turn-On Time	$V_{CC} = 250 \text{ V}, I_{C} = 2.5 \text{ A},$ $I_{B1} = 0.5 \text{ A}, I_{B2} = 1.0 \text{ A},$ $R_{L} = 100 \Omega$			2.0	μs
t _{STG}					2.5	μs
t _F	Fall Time				0.3	μs
EAS	Avalanche Energy	L = 2 mH	3.5			mJ

Note:

2. Pulse test: pulse width \leq 300 μ s, duty cycle \leq 2%.

Typical Performance Characteristics

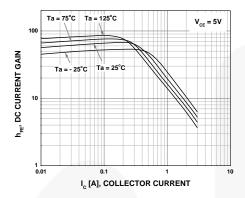


Figure 1. DC Current Gain

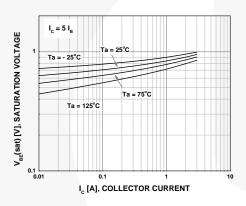


Figure 3. Saturation Voltage

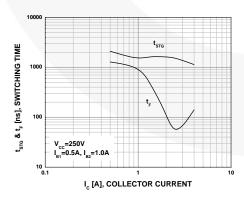


Figure 5. Resistive Load Switching

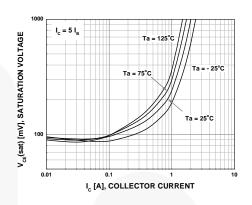


Figure 2. Saturation Voltage

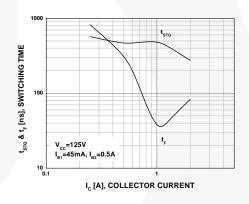


Figure 4. Resistive Load Switching

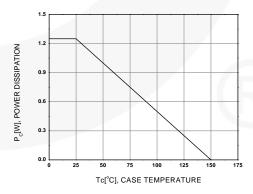
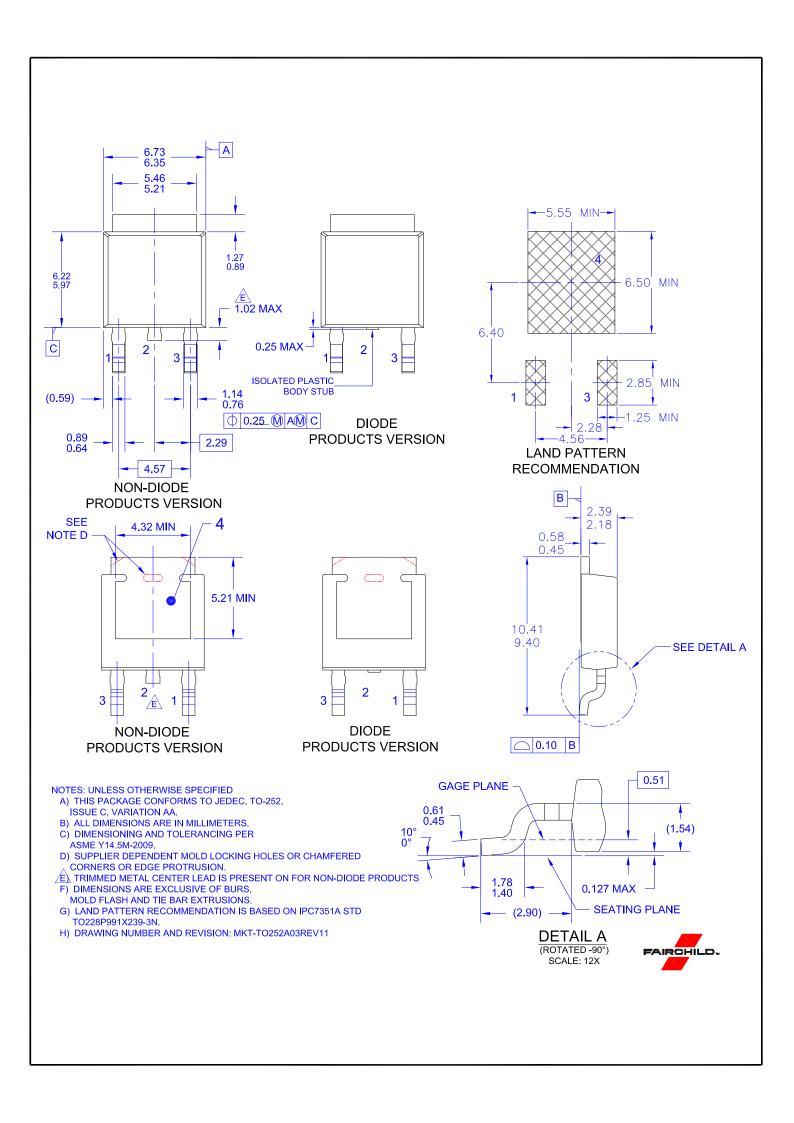


Figure 6. Power Derating



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