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June 2013

FJD5553

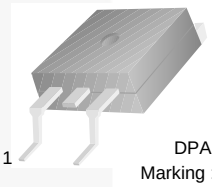
NPN Silicon Transistor

Features

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

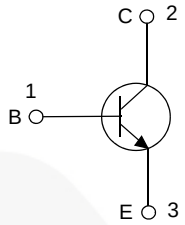
Application

- Electronic Ballast
- Switch Mode Power Supplies



DPAK
Marking : J5553

1. Base 2. Collector 3. Emitter



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°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	A
I_{CP}	Collector Current (Pulse)	6	A
I_B	Base Current (DC)	1	A
I_{BP}	Base Current (Pulse)	2	A
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

Note:

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

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Electrical Characteristics[2]

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

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 500 μA, I_E = 0	1050			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 5 mA, I_B = 0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 500 μA, I_C = 0	14			V
h_{FE}	DC Current Gain	V_{CE} = 5 V, I_C = 10 mA	10			
		V_{CE} = 3 V, I_C = 0.4 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 V, I_C = 0.5 A, I_{B1} = 45 mA, I_{B2} = 0.5 A, R_L = 250 Ω			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 V, I_C = 2.5 A, I_{B1} = 0.5 A, I_{B2} = 1.0 A, R_L = 100 Ω			2.0	μs
t_{STG}	Storage Time				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 ≤ 300 μs, duty cycle ≤ 2%.

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Typical Performance Characteristics

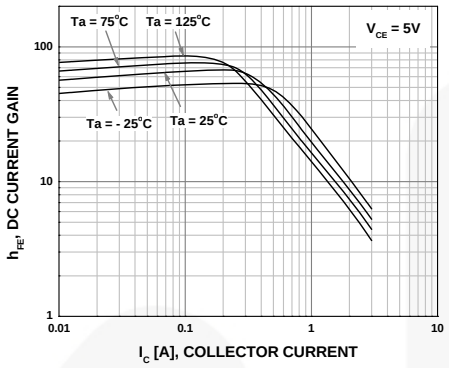


Figure 1. DC Current Gain

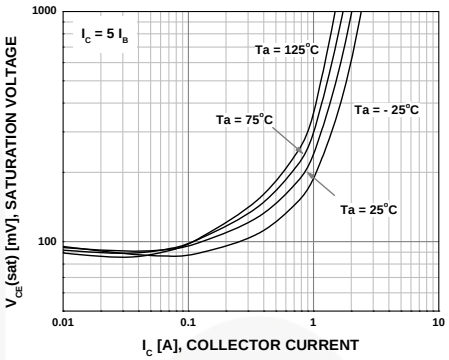


Figure 2. Saturation Voltage

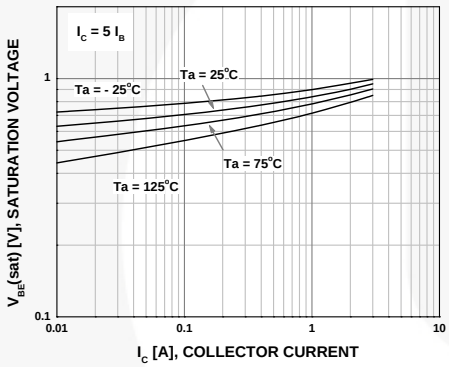


Figure 3. Saturation Voltage

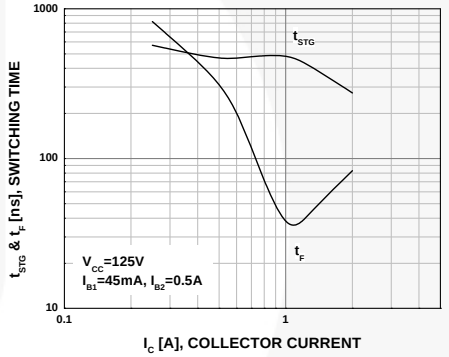


Figure 4. Resistive Load Switching

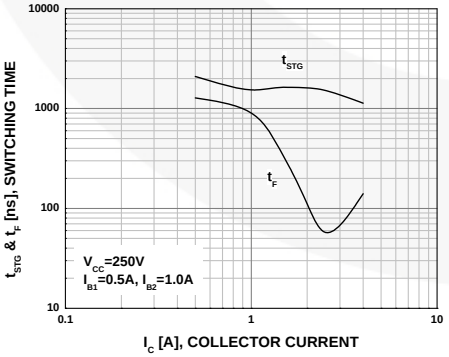


Figure 5. Resistive Load Switching

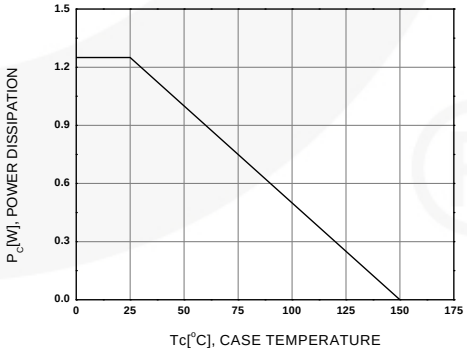
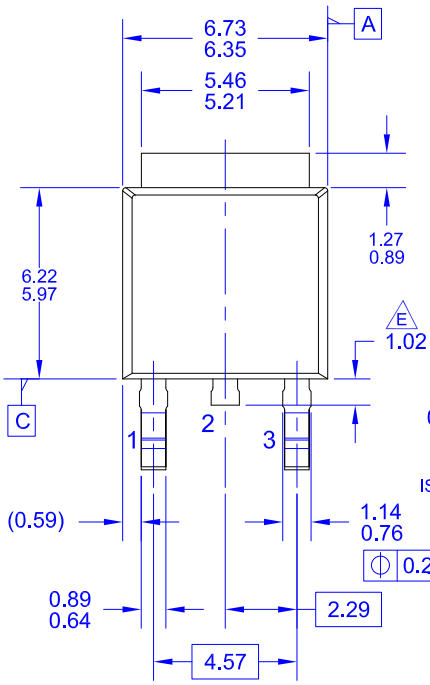
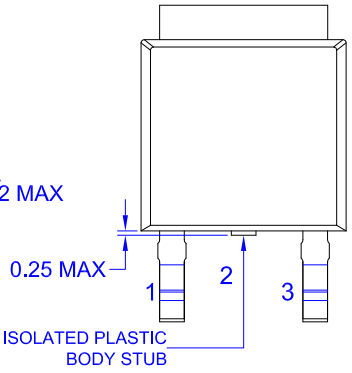


Figure 6. Power Derating

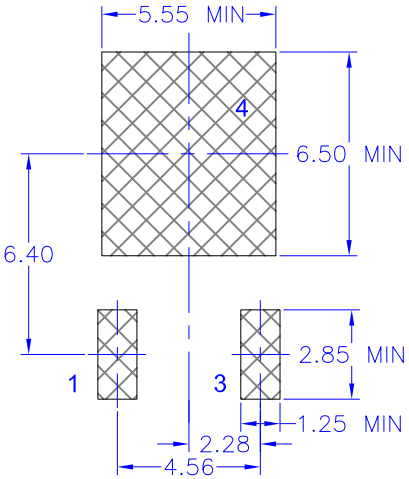
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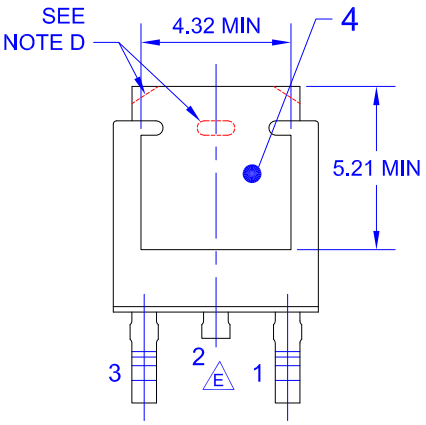
NON-DIODE PRODUCTS VERSION



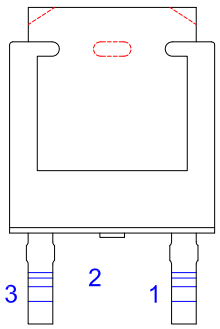
DIODE PRODUCTS VERSION



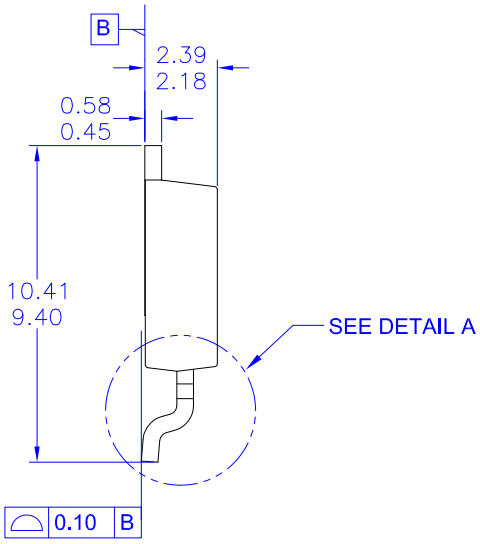
LAND PATTERN RECOMMENDATION



NON-DIODE PRODUCTS VERSION

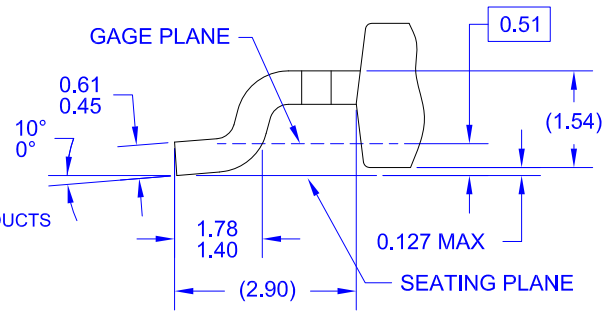


DIODE PRODUCTS VERSION



NOTES: UNLESS OTHERWISE SPECIFIED

A) THIS PACKAGE CONFORMS TO JEDEC, TO-252, ISSUE C, VARIATION AA.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
D) SUPPLIER DEPENDENT MOLD LOCKING HOLES OR CHAMFERED CORNERS OR EDGE PROTRUSION.
E) TRIMMED METAL CENTER LEAD IS PRESENT ON FOR NON-DIODE PRODUCTS
F) DIMENSIONS ARE EXCLUSIVE OF BURS, MOLD FLASH AND TIE BAR EXTRUSIONS.
G) LAND PATTERN RECOMMENDATION IS BASED ON IPC7351A STD TO228P991X239-3N.
H) DRAWING NUMBER AND REVISION: MKT-TO252A03REV11



DETAIL A
(ROTATED -90°)
SCALE: 12X

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