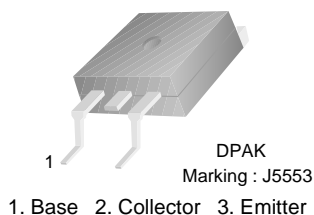


# FJD5553

## NPN Silicon Transistor

### High Voltage Switch Mode Application

- Fast Speed Switching
- Wide Safe Operating Area
- Suitable for Electronic Ballast Application



### Absolute Maximum Ratings \* $T_C=25^\circ\text{C}$ 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	A
$I_{CP}$	Collector Current (Pulse)	6	A
$I_B$	Base Current (DC)	1	A
$I_{BP}$	Collector Current (Pulse)	2	A
$P_C$	Collector Dissipation	1.25	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Junction Temperature Range	- 55 ~ 150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	100	$^\circ\text{C}/\text{W}$

\* Device mounted on minimum pad size

### Ordering Information

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

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

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C=500\mu\text{A}$ , $I_E=0$	1050			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=5\text{mA}$ , $I_B=0$	400			V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E=500\mu\text{A}$ , $I_C=0$	14			V
$h_{FE}$	* DC Current Gain	$V_{CE}=5\text{V}$ , $I_C=10\text{mA}$	10			
		$V_{CE}=3\text{V}$ , $I_C=0.4\text{A}$	30		60	
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}$ , $I_B=0.2\text{A}$		0.23	0.5	V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C=1\text{A}$ , $I_B=0.2\text{A}$			1.2	V
$C_{ob}$	Output Capacitance	$V_{CB}=10\text{V}$ , $f=1\text{MHz}$		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	$\mu\text{s}$
$t_{STG}$	Storage Time				1.2	$\mu\text{s}$
$t_F$	Fall Time			0.3		$\mu\text{s}$
$t_{ON}$	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	$\mu\text{s}$
$t_{STG}$	Storage Time				2.5	$\mu\text{s}$
$t_F$	Fall Time				0.3	$\mu\text{s}$
EAS	Avalanche Energy	$L=2\text{mH}$	3.5			mJ

\* Pulse Test: Pulse Width $\leq 300\mu\text{s}$ , Duty Cycle $\leq 2\%$

# Typical Characteristics

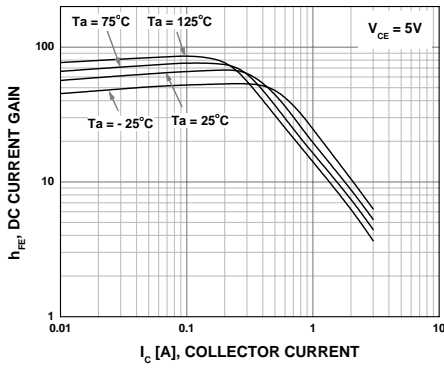


Figure 1. DC Current Gain

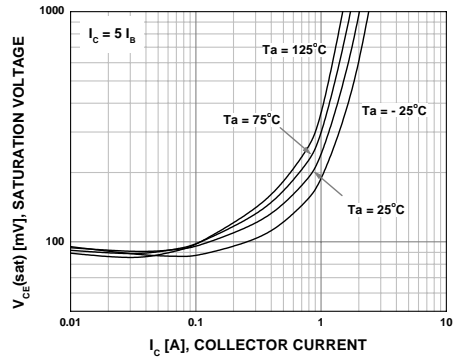


Figure 2. Saturation Voltage

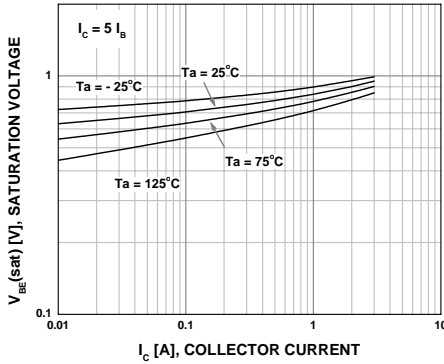


Figure 3. Saturation Voltage

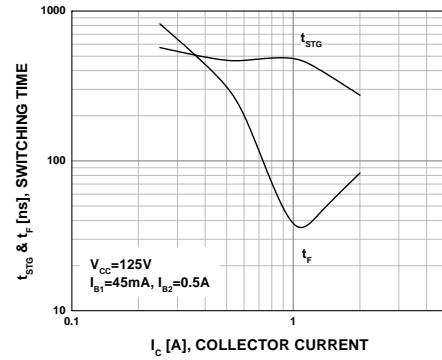


Figure 4. Resistive Load Switching

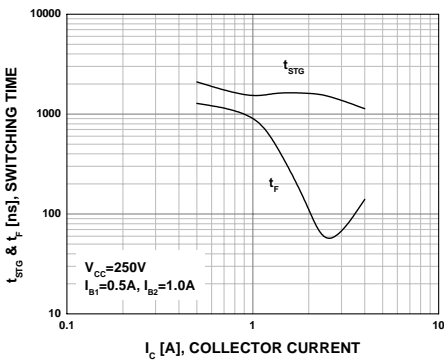


Figure 5. Resistive Load Switching

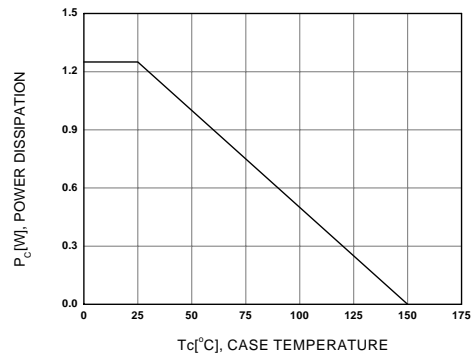
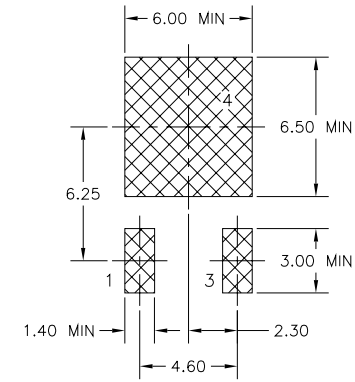
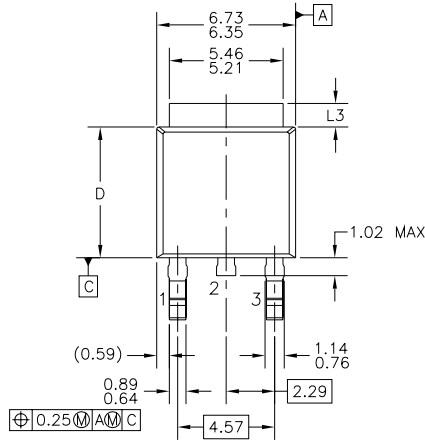


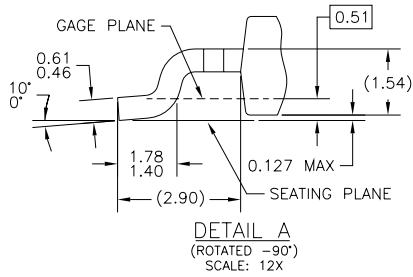
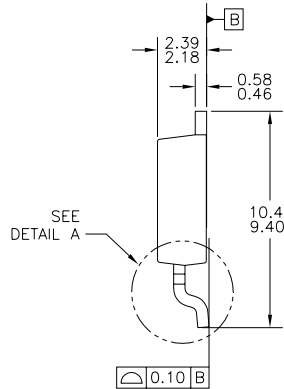
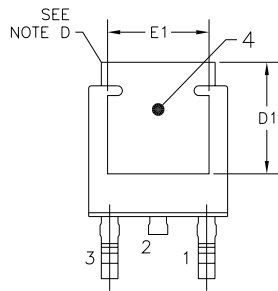
Figure 6. Power Derating

**Mechanical Dimensions**

**D-PAK**



LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A) ALL DIMENSIONS ARE IN MILLIMETERS.
  - B) THIS PACKAGE CONFORMS TO JEDEC, TO-252, ISSUE C, VARIATION AA & AB, DATED NOV. 1999.
  - C) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
  - D) HEAT SINK TOP EDGE COULD BE IN CHAMFERED CORNERS OR EDGE PROTRUSION.
  - E) DIMENSIONS L3,D,E1&D1 TABLE:
- |    | OPTION AA | OPTION AB |
|----|-----------|-----------|
| L3 | 0.89-1.27 | 1.52-2.03 |
| D  | 5.97-6.22 | 5.33-5.59 |
| E1 | 4.32 MIN  | 3.81 MIN  |
| D1 | 5.21 MIN  | 4.57 MIN  |
- F) PRESENCE OF TRIMMED CENTER LEAD IS OPTIONAL.

Dimensions in Millimeters



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CorePLUS <sup>™</sup>	GTO <sup>™</sup>	Power-SPM <sup>™</sup>	The Power Franchise <sup>®</sup>
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FastvCore <sup>™</sup>	OPTOPLANAR <sup>®</sup>	SuperFET <sup>™</sup>	UniFET <sup>™</sup>
FPS <sup>™</sup>	 <sup>®</sup>	SuperSOT <sup>™</sup> -3	VCX <sup>™</sup>
FRFET <sup>®</sup>	PDP-SPM <sup>™</sup>	SuperSOT <sup>™</sup> -6	
Global Power Resource <sup>SM</sup>	Power220 <sup>®</sup>		

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