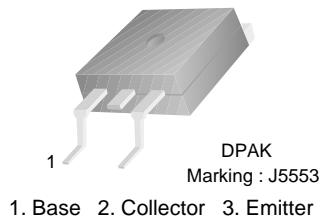


FJD5553

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	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}	Storage Time				2.5	μs
t_F	Fall Time				0.3	μs
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

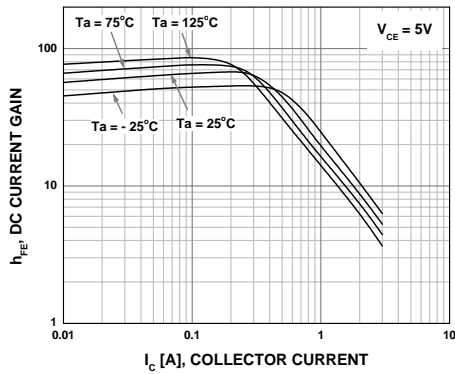


Figure 1. DC Current Gain

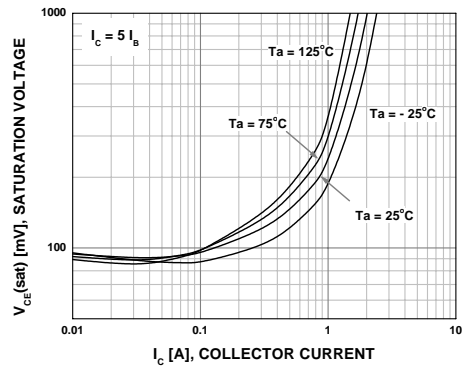


Figure 2. Saturation Voltage

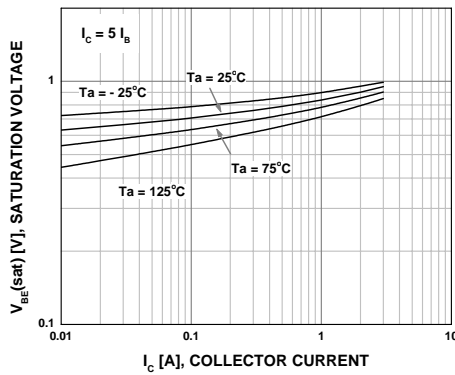


Figure 3. Saturation Voltage

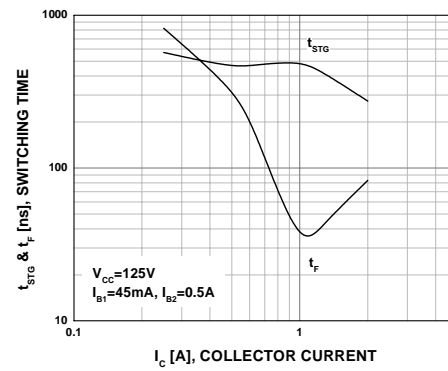


Figure 4. Resistive Load Switching

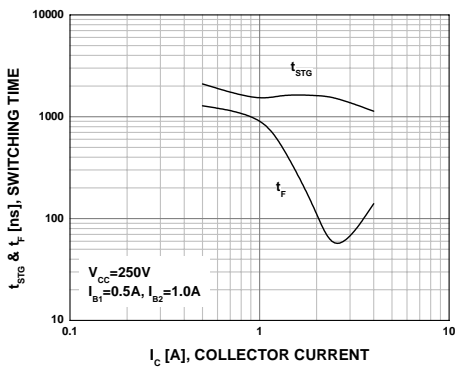


Figure 5. Resistive Load Switching

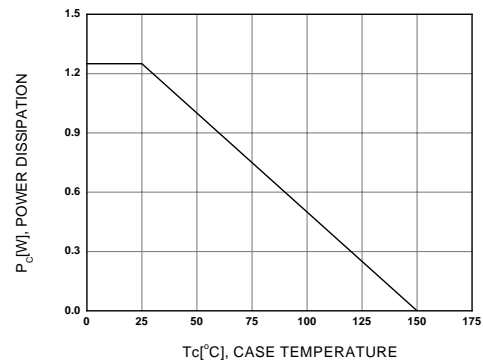
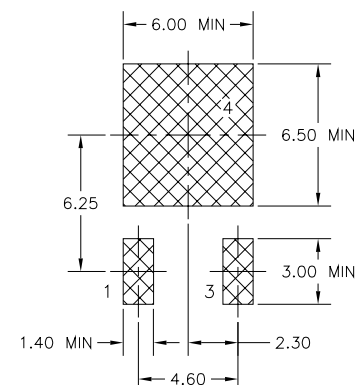
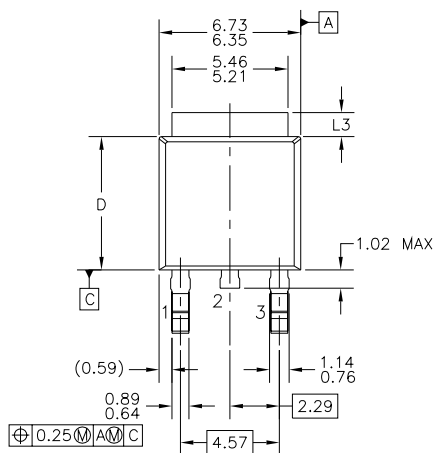


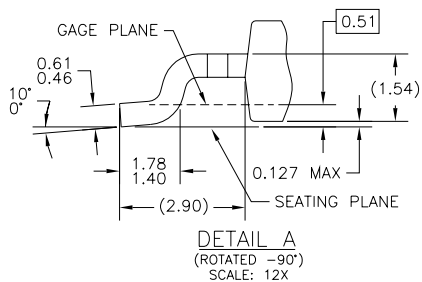
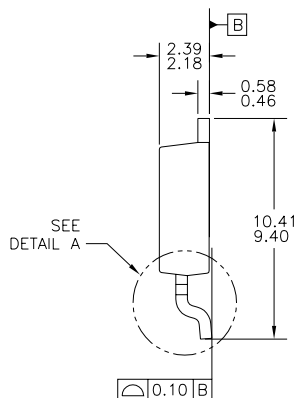
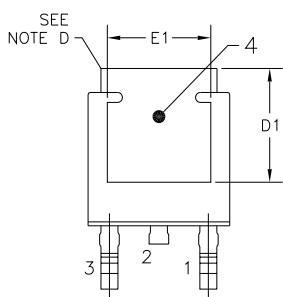
Figure 6. Power Derating

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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FACT®	MillerDrive™	SMART START™	TinyWire™
FAST®	Motion-SPM™	SPM®	μSerDes™
FastvCore™	OPTOLOGIC®	STEALTH™	UHC®
FPST™	OPTOPLANAR®	SuperFET™	UniFET™
FRFET®	 ®	SuperSOT™-3	VCX™
Global Power Resource SM	PDP-SPM™	SuperSOT™-6	
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- A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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