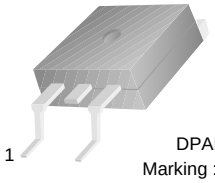
FAIRCHILD SEMICONDUCTOR®

April 2008

FJD5553
NPN Silicon Transistor

High Voltage Switch Mode Application

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



DPAK
Marking : J5553

1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings * T_C=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}	Collector Current (Pulse)	2	A
P_C	Collector Dissipation	1.25	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Junction Temperature Range	- 55 ~ 150	°C

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

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	100	°C/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°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV_{CBO}	Collector-Base Breakdown Voltage	I_C=500μA, I_E=0	1050			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C=5mA, I_B=0	400			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E=500μA, I_C=0	14			V
h_{FE}	* DC Current Gain	V_{CE}=5V, I_C=10mA	10			
		V_{CE}=3V, I_C=0.4A	30		60	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C=1A, I_B=0.2A		0.23	0.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C=1A, I_B=0.2A			1.2	V
C_{ob}	Output Capacitance	V_{CB}=10V, f=1MHz		45		pF
t_{ON}	Turn On Time	V_{CC}=125V, I_C=0.5A I_{B1}=45mA, I_{B2}=0.5A R_L=250Ω			1.0	μs
t_{STG}	Storage Time				1.2	μs
t_F	Fall Time			0.3		μs
t_{ON}	Turn On Time	V_{CC}=250V, I_C=2.5A I_{B1}=0.5A, I_{B2}=1.0A R_L=100Ω			2.0	μs
t_{STG}	Storage Time				2.5	μs
t_F	Fall Time				0.3	μs
EAS	Avalanche Energy	L= 2mH	3.5			mJ

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Characteristics

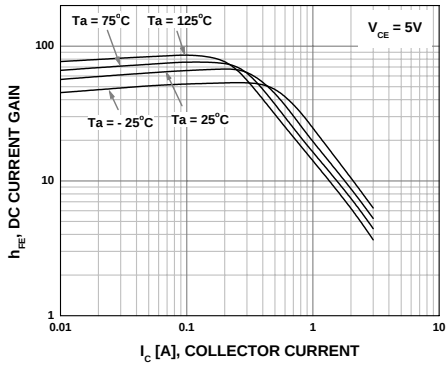


Figure 1. DC Current Gain

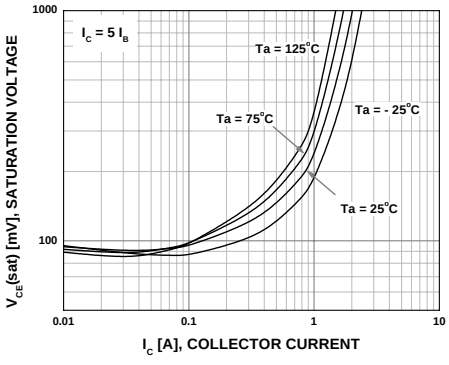


Figure 2. Saturation Voltage

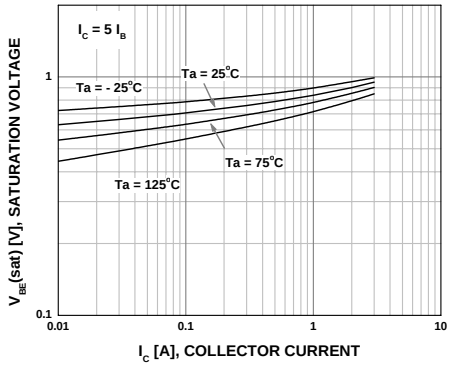


Figure 3. Saturation Voltage

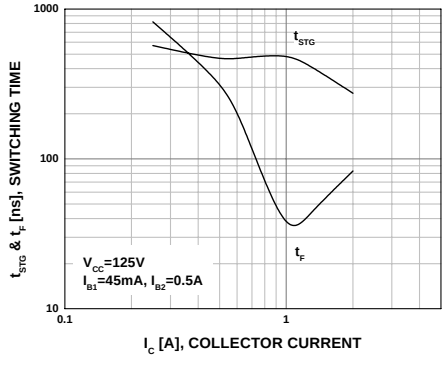


Figure 4. Resistive Load Switching

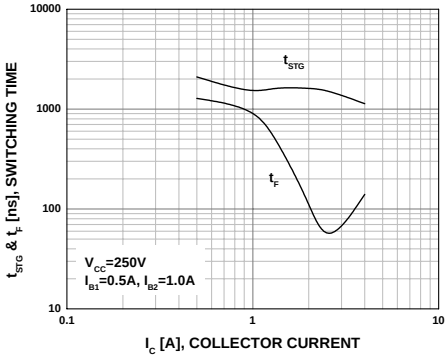


Figure 5. Resistive Load Switching

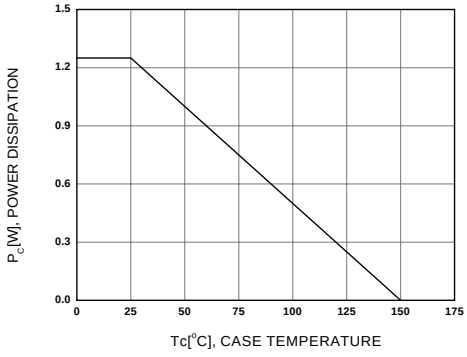
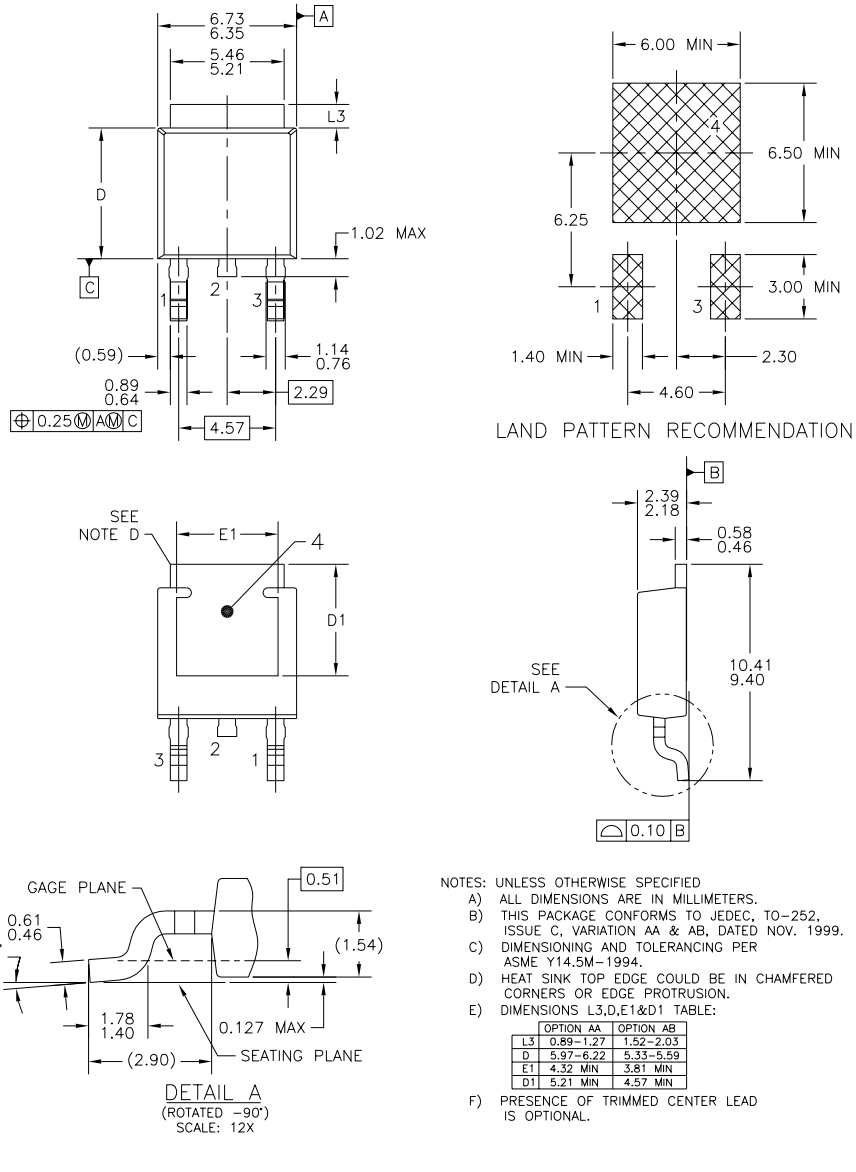


Figure 6. Power Derating

Mechanical Dimensions

D-PAK



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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2. 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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Rev. I31