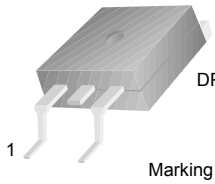
FAIRCHILD SEMICONDUCTOR®

May 2010

FJD5555
NPN Silicon Transistor

Features

- High Voltage Switch Mode Application
- Fast Speed Switching
- Wide Safe Operating Area
- Suitable for Electronic Ballast Application



Marking : J5555

1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* 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)	5	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current (DC)	2	A
I_{BP}	Collector Current (Pulse)	4	A
P_C	Collector Dissipation	1.34	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Junction Temperature Range	- 55 to 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	95	°C/W

* Device mounted on minimum pad size

Package Marking and Ordering Information

Part Number	Marking	Package	Packing Method	Remarks
FJD5555TM	J5555	D-PAK	Tape & Reel	

Electrical Characteristics* T_a=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=0.8A	20		40	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C=1A, I_B=0.2A		0.17	0.5	V
		I_C=3.5A, I_B=1.0A			1.5	V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C=3.5A, I_B=1.0A			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	6			mJ

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

Typical Characteristics

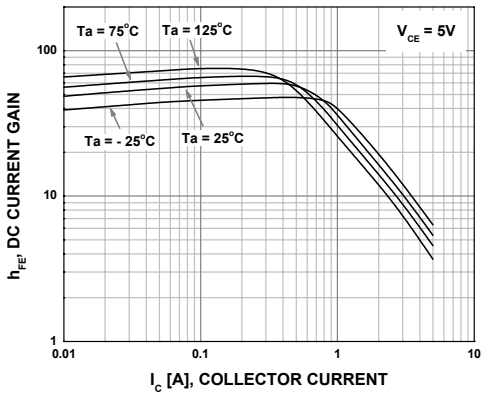


Figure 1. DC Current Gain

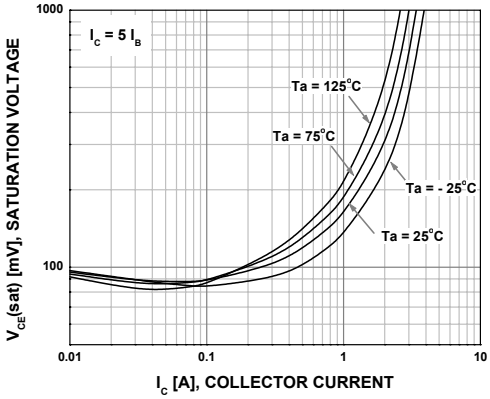


Figure 2. Saturation Voltage

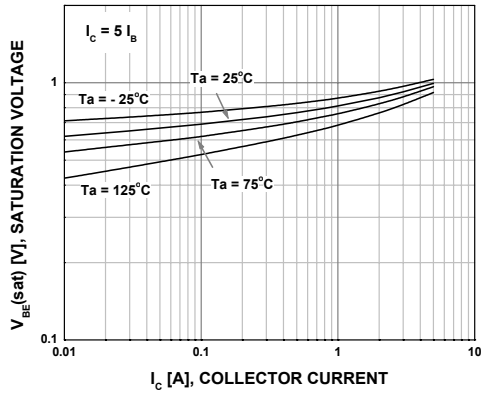


Figure 3. Saturation Voltage

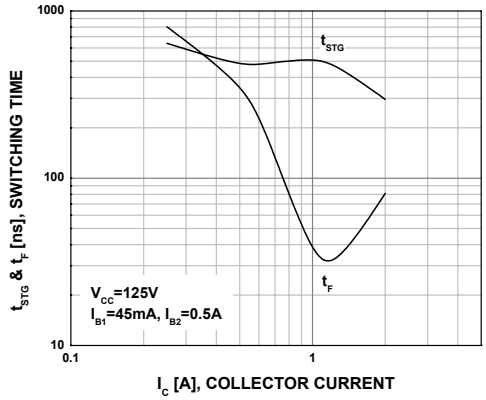


Figure 4. Resistive Load Switching

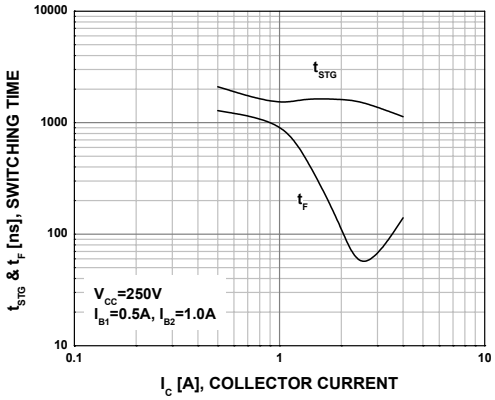


Figure 5. Resistive Load Switching

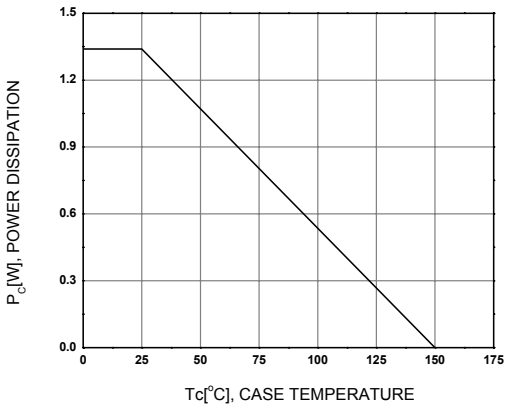


Figure 6. Power Derating

Typical Characteristics (Continued)

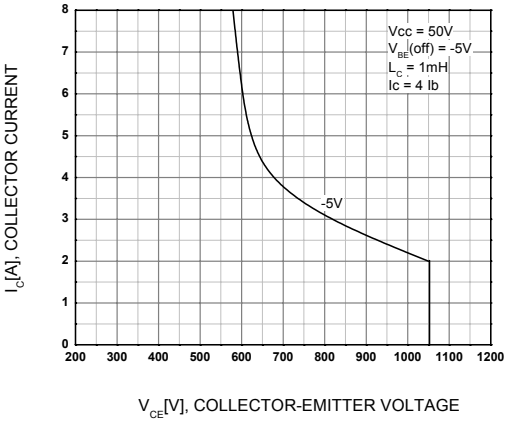


Figure 7. Reverse Bias Safe Operating

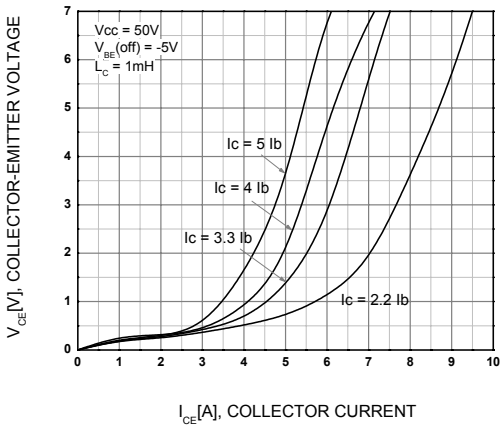
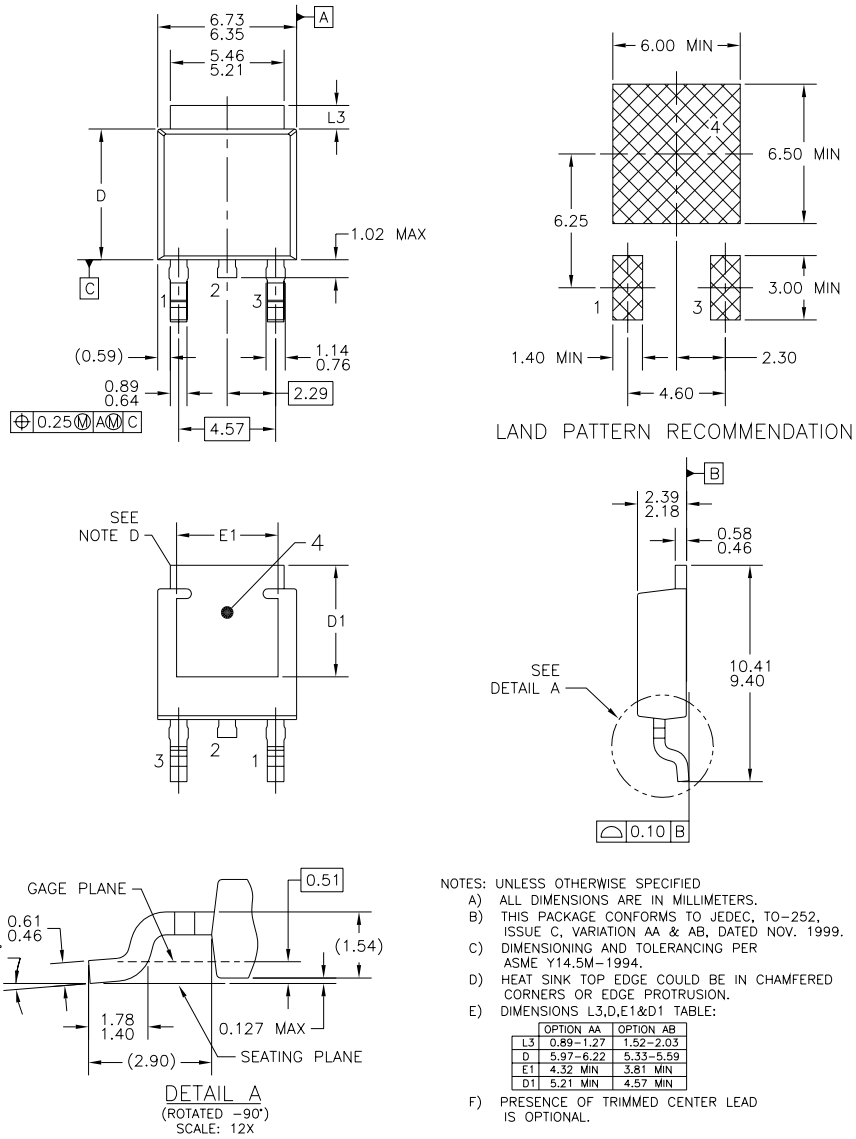


Figure 8. RBSOA Saturation

Physical 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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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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