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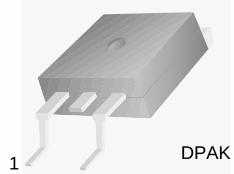
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

April 2012

FJD3305H1
NPN Silicon Transistor

Features

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



1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* T_C = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	4	A
I_{CP}	Collector Current (Pulse)	8	A
I_B	Base Current	2	A
P_C	Collector Dissipation, T_a = 25°C T_c = 25°C	1.1 50	W W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 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	110	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.0	°C/W

* Device mounted on minimum pad size

Ordering Information

Part Number	Marking	Package	Packing Method	Remarks
FJD3305H1TM	J3305H1	D-PAK	Tape & Reel	

Electrical Characteristics* T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdwon Voltage	I_C = 500μA, I_E = 0	700			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	9			V
I_{CBO}	Collector Cut-off Current	V_{CB} = 700V, I_E = 0			1	μA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			1	μA
h_{FE1} h_{FE2}	DC Current Gain *	V_{CE} = 5V, I_C = 1A V_{CE} = 5V, I_C = 2A	19 8		28 40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A I_C = 4A, I_B = 1A			0.5 0.6 1.0	V V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A			1.2 1.6	V V
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.5A	4			MHz
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 1MHz		65		pF
t_{ON}	Turn On Time	V_{CC} = 125V, I_C = 2A I_{B1} = -I_{B2} = 0.4A R_L = 62.5Ω			0.8	μs
t_{STG}	Storage Time				4.0	μs
t_F	Fall Time				0.9	μs

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

Typical Performance Characteristics

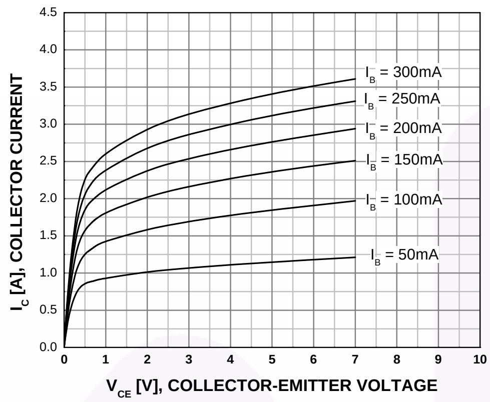


Figure 1. Static Characteristic

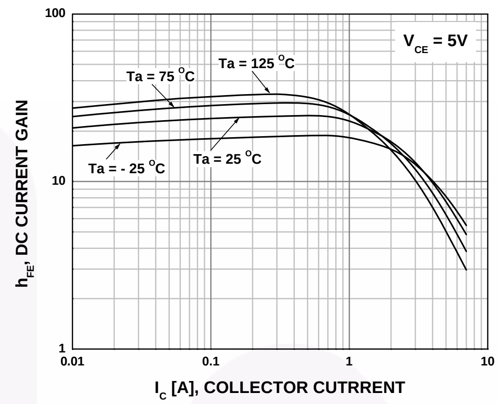


Figure 2. DC Current Gain

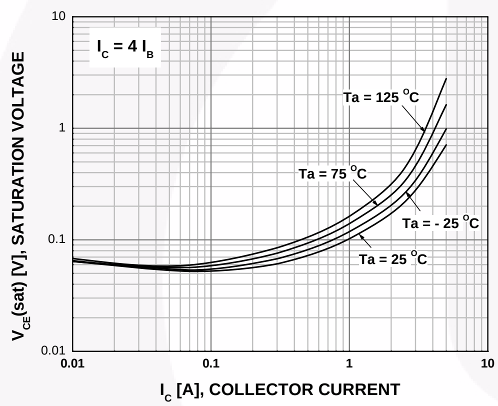


Figure 3. Collector- Emitter Saturation Voltage

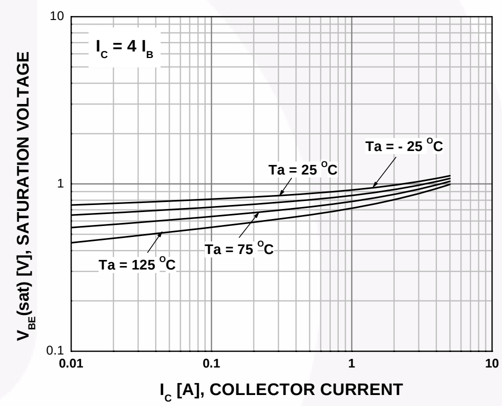


Figure 4. Base - EmitterSaturation Voltage

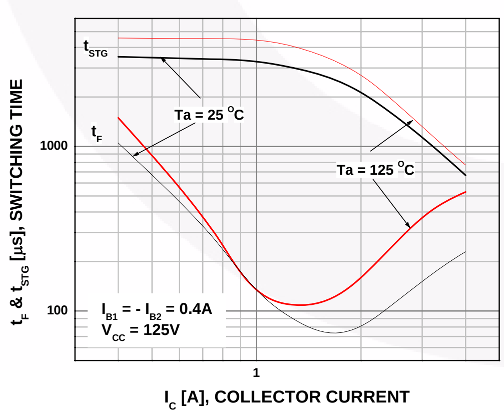


Figure 5. Switching Time

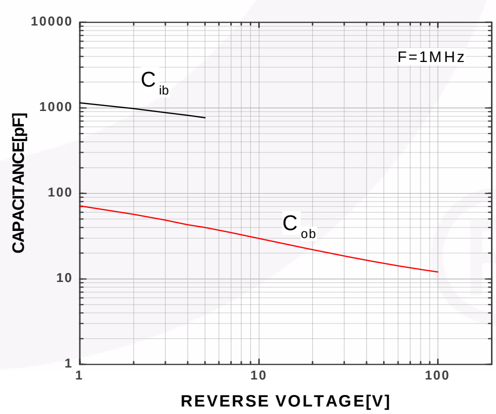


Figure 6. Capacitance

Typical Performance Characteristics (Continued)

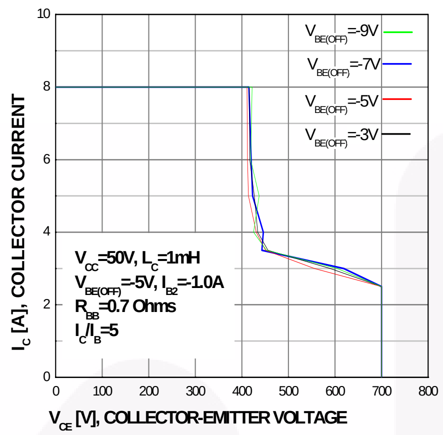


Figure 7. Reverse Biased Safe Operating Area

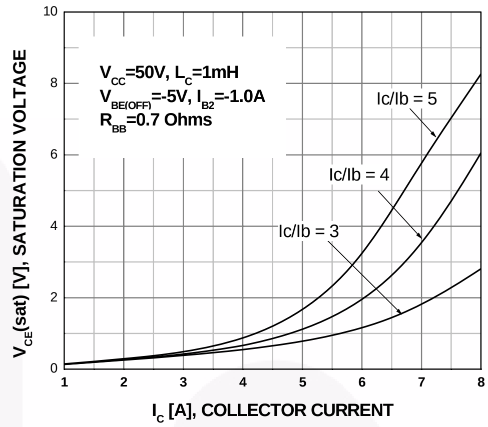


Figure 8. Collector- Emitter Saturation Voltage at RBSOA

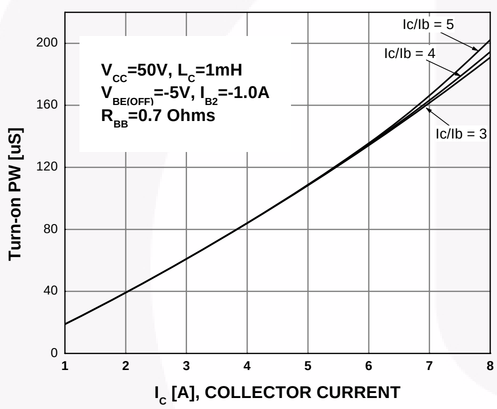


Figure 9. Input Pulse width vs Correct current at RBSOA

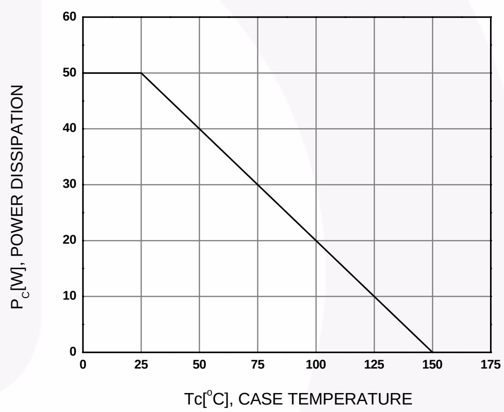


Figure 10. Power Derating

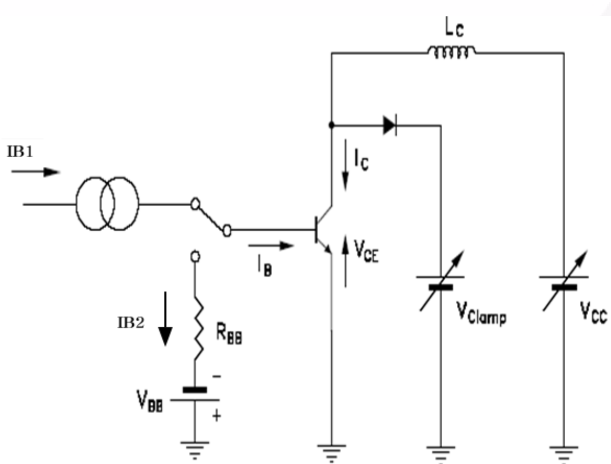
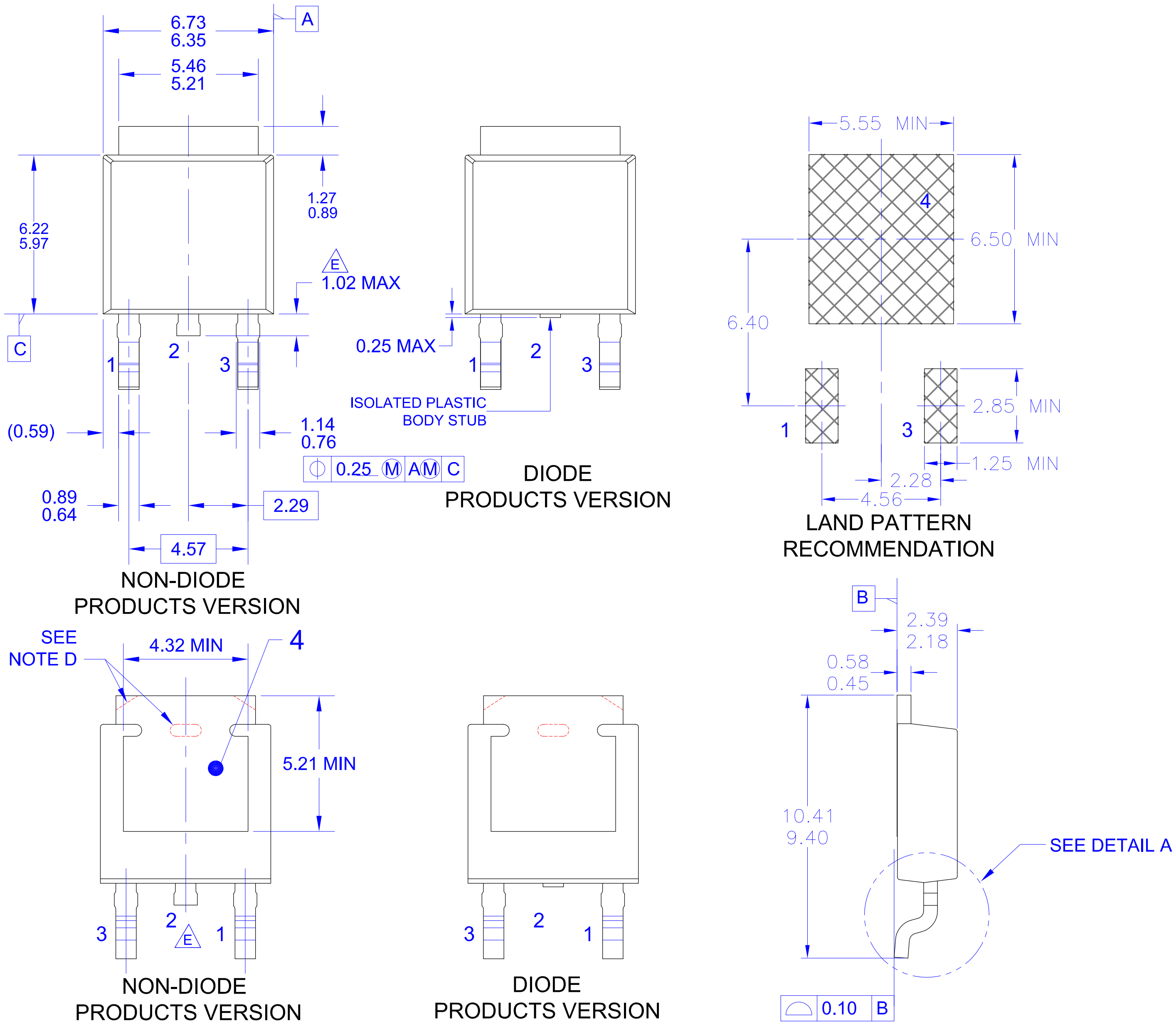


Figure 11. RBSOA Test Circuit



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.

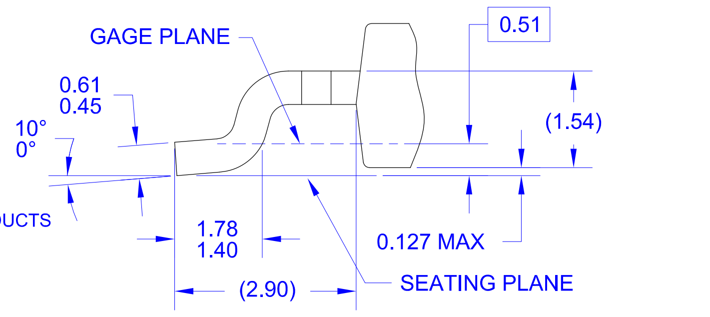
D) SUPPLIER DEPENDENT MOLD LOCKING HOLES OR CHAMFERED CORNERS OR EDGE PROTRUSION.

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

PUBLICATION ORDERING INFORMATION

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