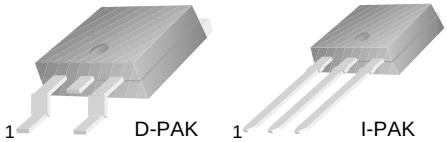
FAIRCHILD SEMICONDUCTOR®

February 2012

MJD47/50
NPN Epitaxial Silicon Transistor

Features

- High Voltage and High Reliability D-PAK for Surface Mount Applications
- Load Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK, "- I" Suffix)
- Electrically Similar to Popular TIP47 and TIP50



1.Base 2.Collector 3.Emitter

Absolute Maximum Ratings T_a = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Emitter Voltage : MJD47 : MJD50	 350 500	 V V
V_{CEO}	Collector-Emitter Voltage : MJD47 : MJD50	 250 400	 V V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	1	A
I_{CP}	Collector Current (Pulse)	2	A
I_B	Base Current	0.6	A
P_C	Collector Dissipation (T_C = 25°C)	15	W
	Collector Dissipation (T_a = 25°C)	1.56	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 to 150	°C

Ordering Information

Part Number	Marking	Package	Packing Method	Remarks
MJD47TF	MJD47	D-PAK	Tape & Reel	
MJD50TF	MJD50	D-PAK	Tape & Reel	

Electrical Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
V_{CEO}(sus)	* Collector-Emitter Sustaining Voltage				
	: MJD47	I_C = 30mA, I_B = 0	250		V
	: MJD50	I_C = 30mA, I_B = 0	400		V
I_{CEO}	Collector Cut-off Current				
	: MJD47	V_{CE} = 150V, I_B = 0		0.2	mA
	: MJD50	V_{CE} = 300V, I_B = 0		0.2	mA
I_{CES}	Collector Cut-off Current				
	: MJD47	V_{CE} = 350, V_{EB} = 0		0.1	mA
	: MJD50	V_{CE} = 500, V_{EB} = 0		0.1	mA
I_{EBO}	Emitter Cut-off Current	V_{BE} = 5V, I_C = 0		1	mA
h_{FE}	* DC Current Gain	V_{CE} = 10V, I_C = 0.3A	30	150	
		V_{CE} = 10V, I_C = 1A	10		
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 1A, I_B = 0.2A		1	V
V_{BE}(sat)	* Base-Emitter Saturation Voltage	V_{CE} = 10A, I_C = 1A		1.5	V
f_T	Current Gain Bandwidth Product	V_{CE} =10V, I_C = 0.2A	10		MHz

* Pulse Test: PW≤300μs, Duty Cycle≤2%

Typical Performance Characteristics

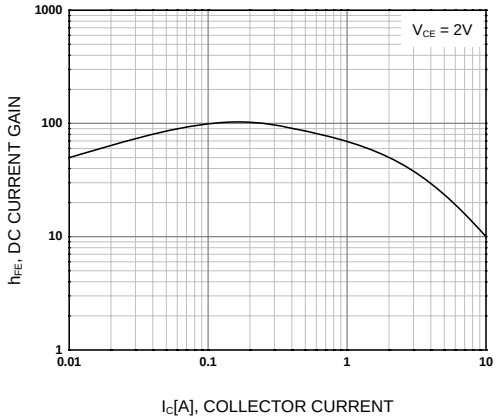


Figure 1. DC current Gain

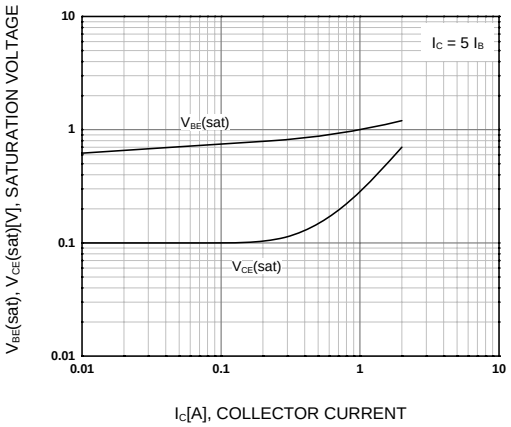


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

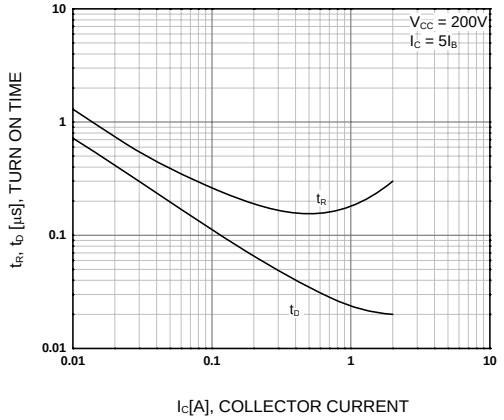


Figure 3. Turn On Time

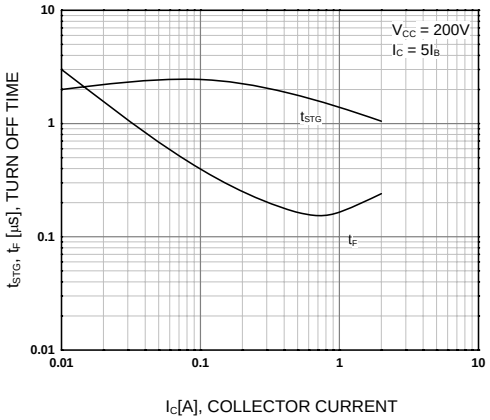


Figure 4. Turn Off Time

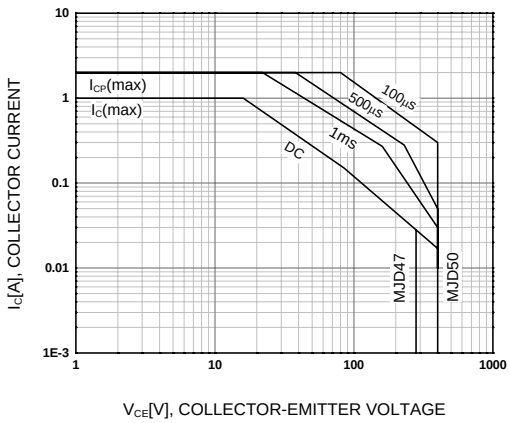


Figure 5. Safe Operating Area

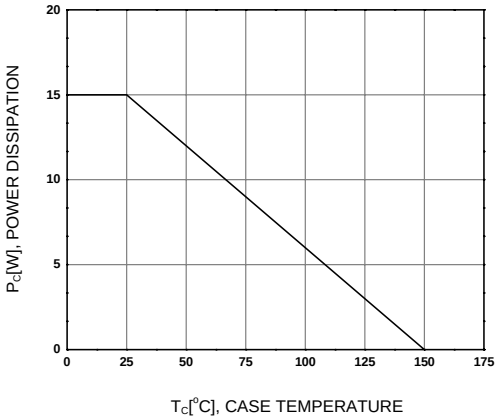
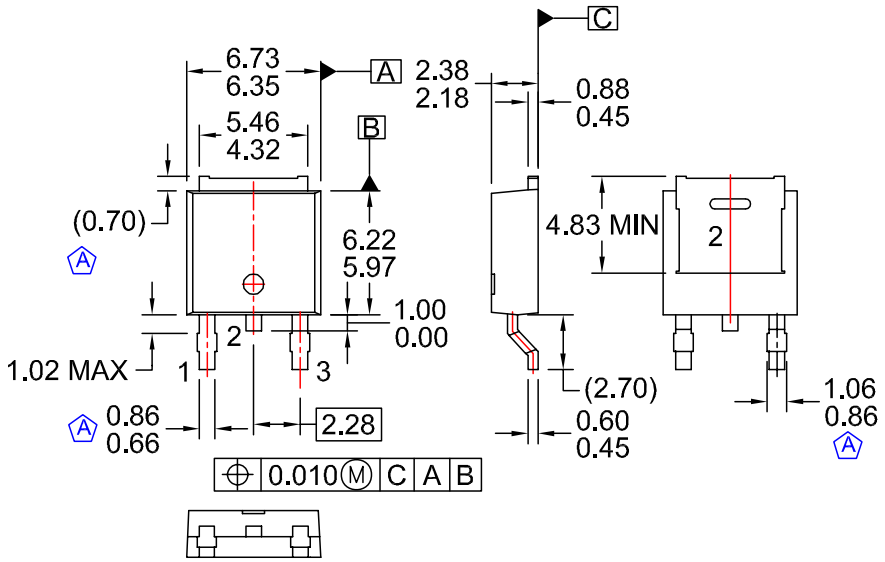


Figure 6. Power Derating

Physical Dimensions

D-PAK



NOTES: UNLESS OTHERWISE SPECIFIED

A) CONFORMS TO JEDEC TO-252 VARIATION AB EXCEPT WHERE NOTED

B) ALL DIMENSIONS ARE IN MILLIMETERS.

C) DRAWING CONFORMS TO ASME Y14.5M-1994

D) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

E) FORMERLY NAMED BD1733

F) DRAWING FILE NAME: MKT-TO252D03REV1

Dimensions in Millimeters

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