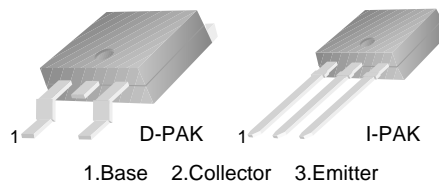


MJD47/50

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



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Emitter Voltage		
	: MJD47	350	V
	: MJD50	500	V
V_{CEO}	Collector-Emitter Voltage		
	: MJD47	250	V
	: MJD50	400	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 ($T_C = 25^\circ\text{C}$)	15	W
	Collector Dissipation ($T_a = 25^\circ\text{C}$)	1.56	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 to 150	$^\circ\text{C}$

Ordering Information

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

Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

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

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

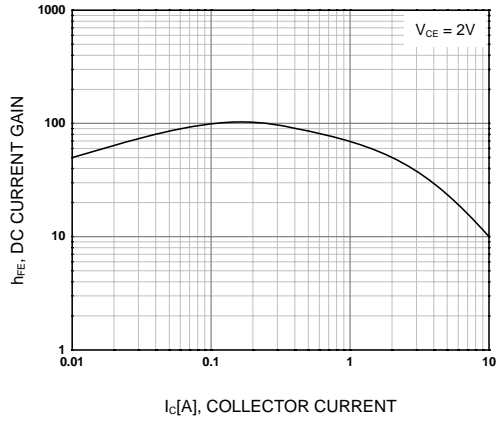
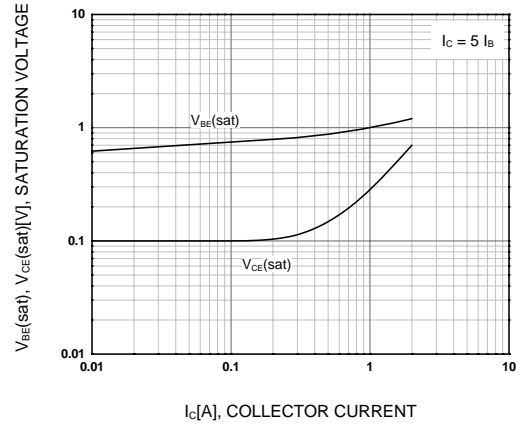


Figure 1. DC current Gain



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

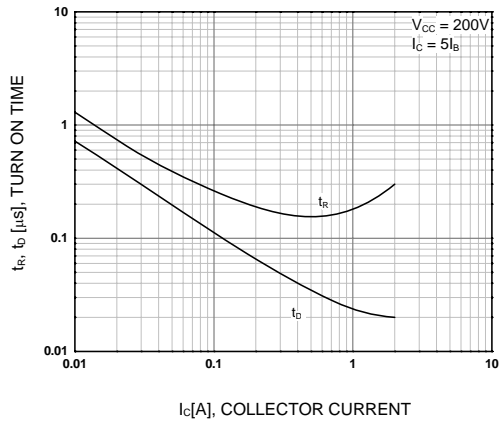


Figure 3. Turn On Time

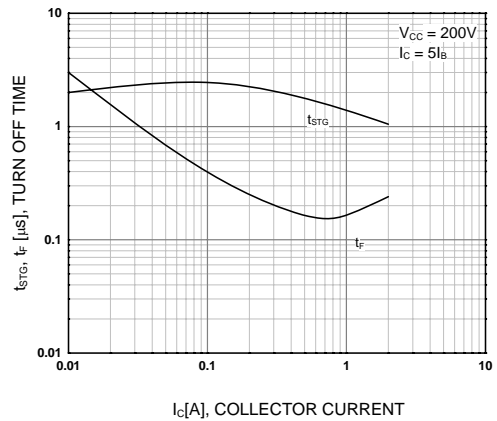


Figure 4. Turn Off Time

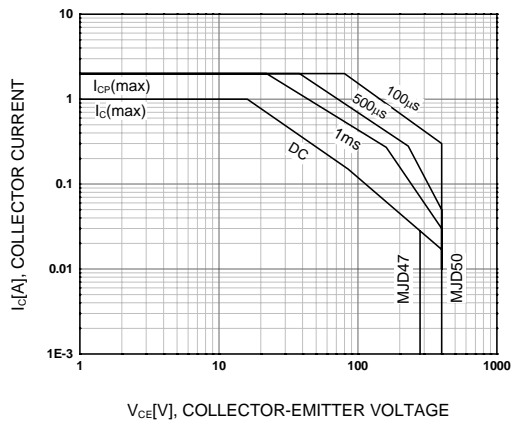


Figure 5. Safe Operating Area

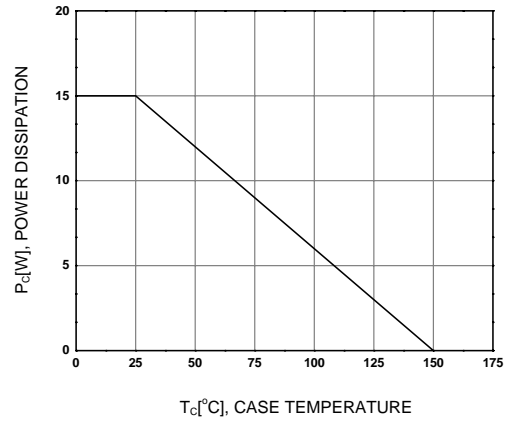
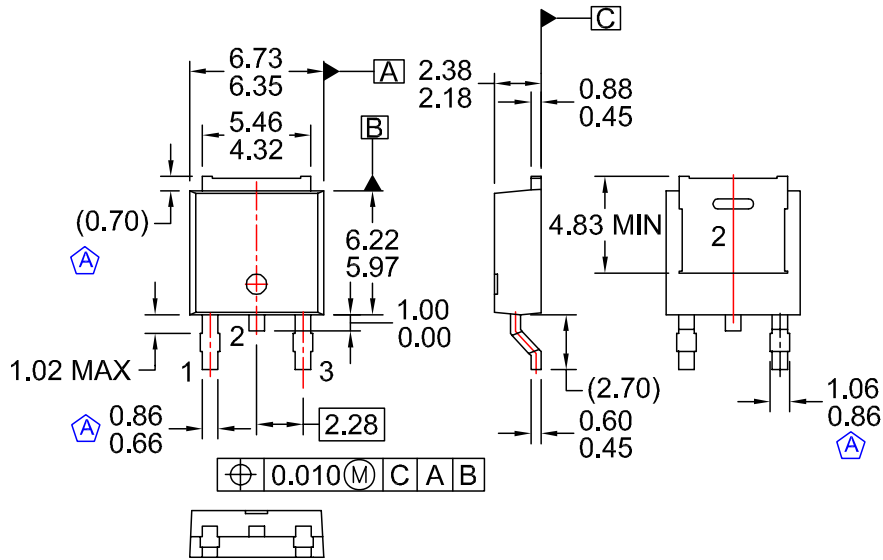


Figure 6. Power Derating

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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