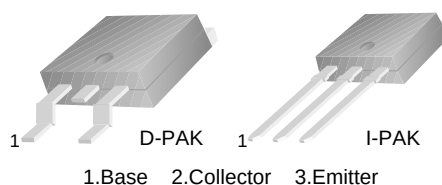


MJD47/50

NPN Epitaxial Silicon Transistor

Features

- High Voltage and High Reliability D-PAK for Surface Mount Applications
- Lead 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°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
V _{CEO(sus)}	* Collector-Emitter Sustaining Voltage : MJD47 : MJD50	I _C = 30mA, I _B = 0 I _C = 30mA, I _B = 0	250 400		V V
I _{CEO}	Collector Cut-off Current : MJD47 : MJD50	V _{CE} = 150V, I _B = 0 V _{CE} = 300V, 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} = 5V, I _C = 0		1	mA
h _{FE}	* DC Current Gain	V _{CE} = 10V, I _C = 0.3A V _{CE} = 10V, I _C = 1A	30 10	150	
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

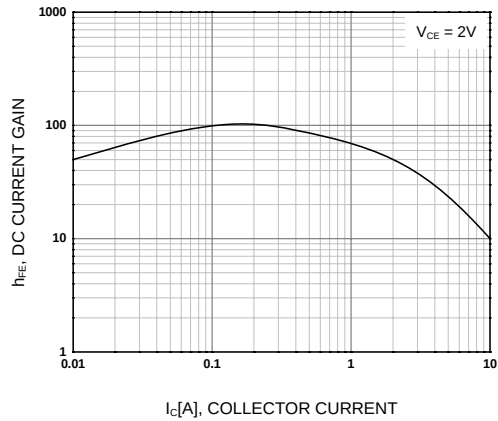


Figure 1. DC current Gain

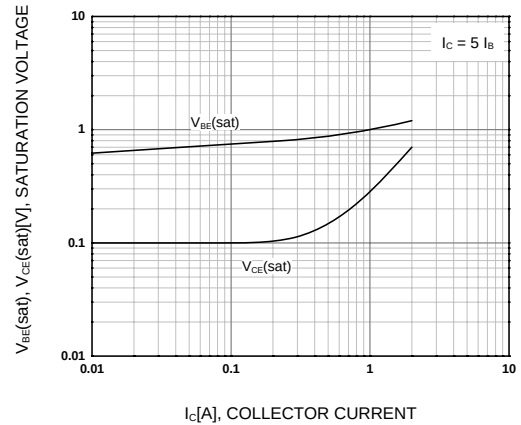


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

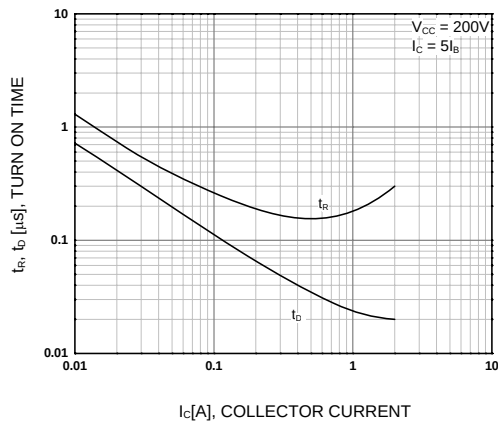


Figure 3. Turn On Time

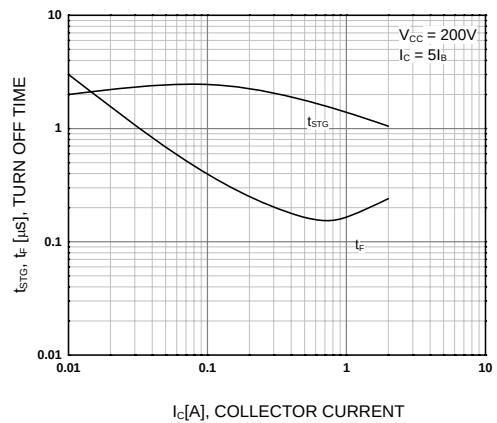


Figure 4. Turn Off Time

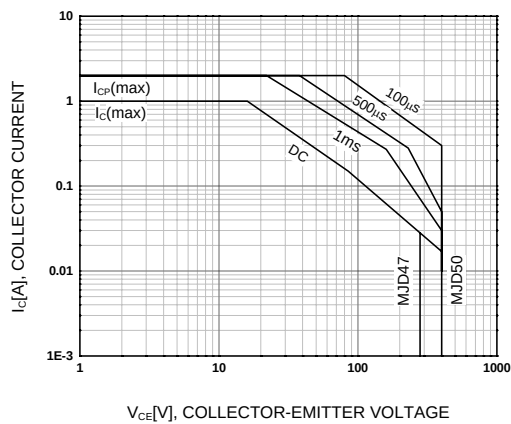


Figure 5. Safe Operating Area

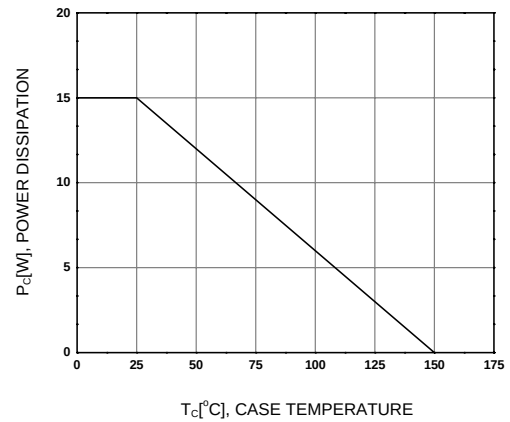


Figure 6. Power Derating



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Rev. I61