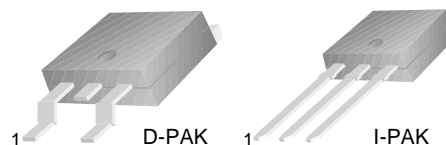


MJD47/50

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

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ 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 ~ 150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	* Collector-Emitter Sustaining Voltage				
	: MJD47	$I_C = 30\text{mA}, I_B = 0$	250		V
	: MJD50		400		V
I_{CEO}	Collector Cut-off Current				
	: MJD47	$V_{CE} = 150\text{V}, I_B = 0$		0.2	mA
	: MJD50	$V_{CE} = 300\text{V}, I_B = 0$		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	$V_{BE} = 5\text{V}, I_C = 0$		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 Cycles $\leq 2\%$

Typical Characteristics

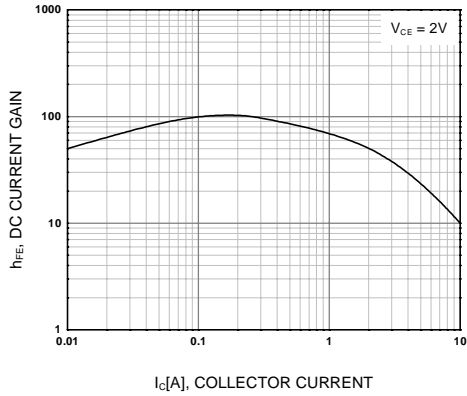


Figure 1. DC current Gain

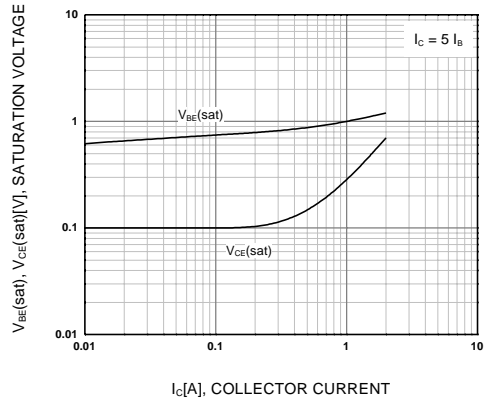


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

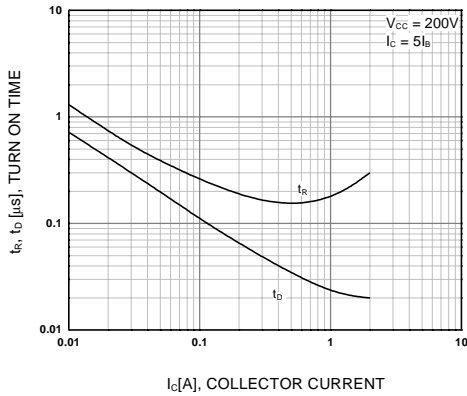


Figure 3. Turn On Time

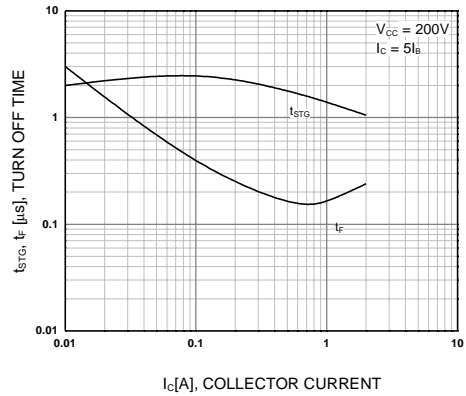


Figure 4. Turn Off Time

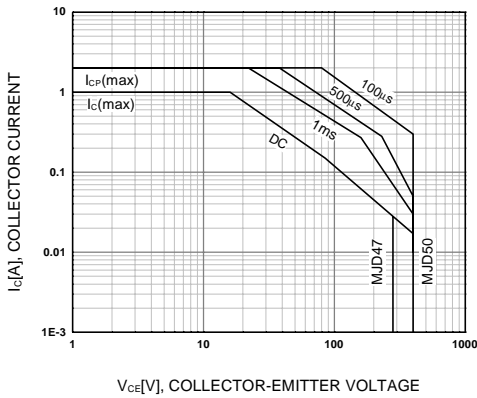


Figure 5. Safe Operating Area

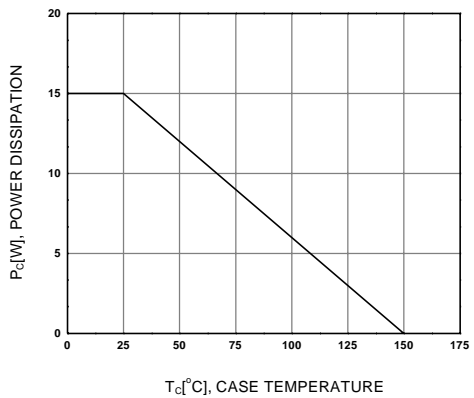
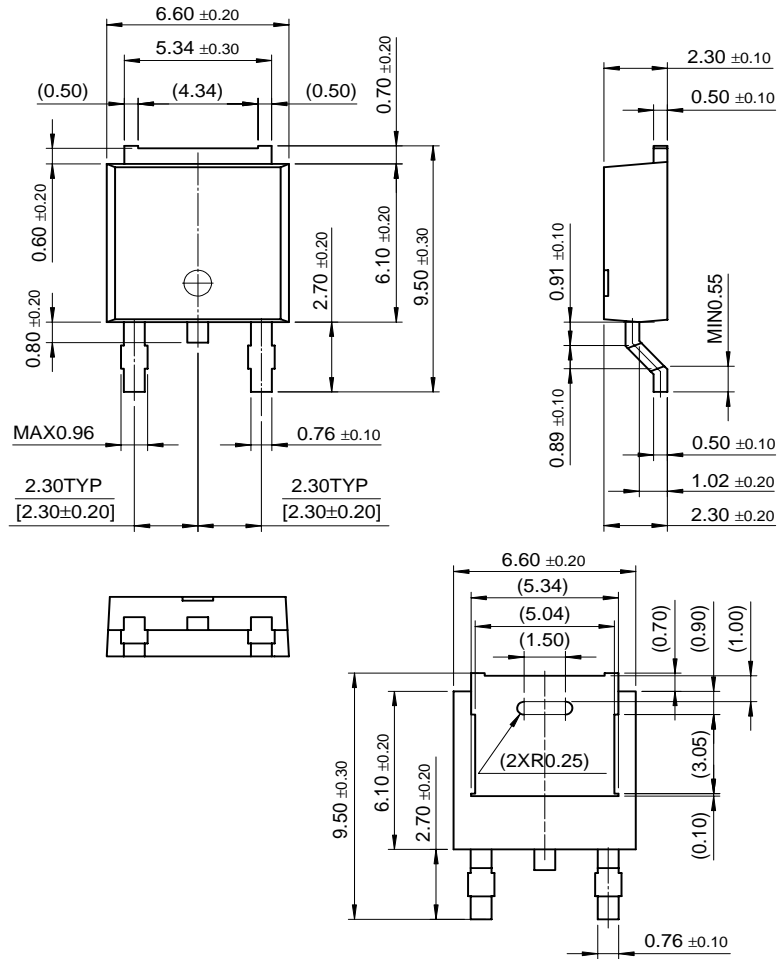


Figure 6. Power Derating

Package Dimensions

D-PAK



Dimensions in Millimeters

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[Product selection and parametric search](#)

[Cross-reference search](#)

MJD50
NPN Epitaxial Silicon Transistor

Contents

[Features](#) | [Product status/pricing/packaging](#)

Features

**High Voltage and High Reliability
D-PAK for Surface Mount Applications**

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Product	Product status	Pricing*	Package type	Leads	Packing method
MJD50TF	Full Production	\$0.334	TO-252(DPAK)	2	TAPE REEL

* 1,000 piece Budgetary Pricing

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[Memory](#)

[Optoelectronics](#)

[Markets and applications](#)

[New products](#)

[Product selection and parametric search](#)

[Cross-reference search](#)

MJD47
NPN Epitaxial Silicon Transistor

Contents

[Features](#) | [Product status/pricing/packaging](#)

Features

**High Voltage and High Reliability
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- Lead Formed for Surface Mount Applications (No Suffix)
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