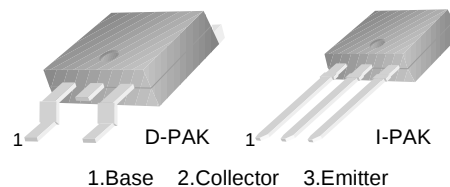


MJD47/50

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



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

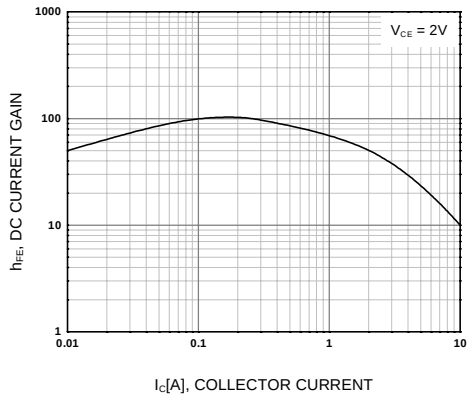


Figure 1. DC current Gain

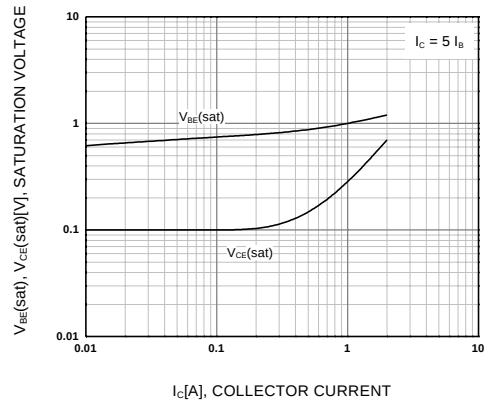


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

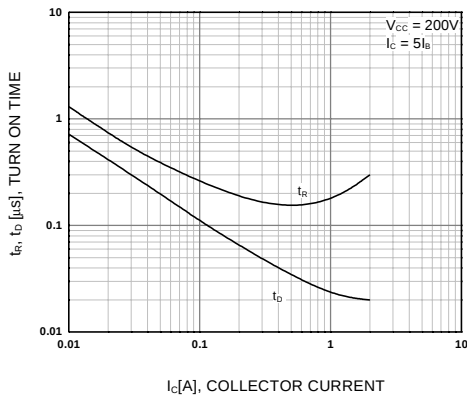


Figure 3. Turn On Time

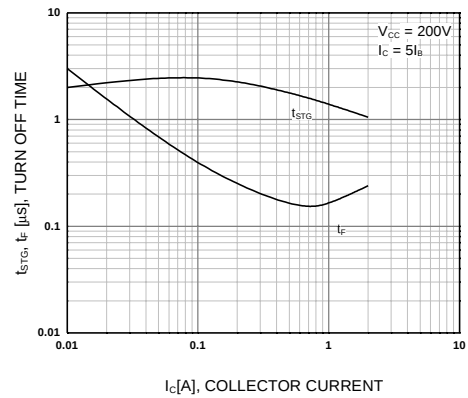


Figure 4. Turn Off Time

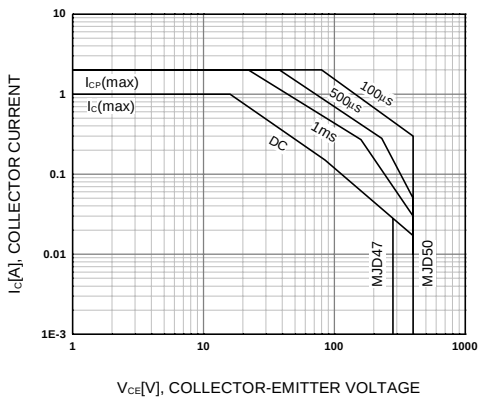


Figure 5. Safe Operating Area

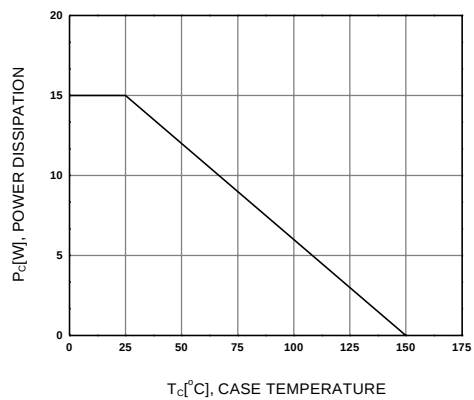


Figure 6. Power Derating

Technical drawing of the 230TYP component, showing three views: front, side, and top. Dimensions are in millimeters.

Front View:

- Overall width: 6.60 ± 0.20
- Mounting tab width: 2.30 ± 0.20 (TYP)
- Central feature width: 5.34 ± 0.30
- Mounting tab spacing: 0.50
- Central feature spacing: 4.34
- Mounting tab height: 0.60 ± 0.20
- Central feature height: 2.70 ± 0.20
- Overall height: 9.50 ± 0.30
- Mounting tab thickness: 0.80 ± 0.20
- Mounting tab width (MAX): 0.96
- Mounting tab thickness (TYP): 0.76 ± 0.10

Side View:

- Overall width: 2.30 ± 0.10
- Mounting tab width: 0.50 ± 0.10
- Mounting tab height: 0.91 ± 0.10
- Mounting tab thickness: 0.89 ± 0.10
- Mounting tab width (TYP): 0.50 ± 0.10
- Mounting tab thickness (TYP): 1.02 ± 0.20
- Mounting tab width (TYP): 2.30 ± 0.20
- Mounting tab thickness (TYP): 0.55

Top View:

- Overall width: 6.60 ± 0.20
- Mounting tab width: 2.30 ± 0.20
- Central feature width: 5.34
- Mounting tab spacing: 0.50
- Central feature spacing: 4.34
- Mounting tab height: 0.60 ± 0.20
- Central feature height: 2.70 ± 0.20
- Overall height: 9.50 ± 0.30
- Mounting tab thickness: 0.80 ± 0.20
- Mounting tab width (MAX): 0.96
- Mounting tab thickness (TYP): 0.76 ± 0.10

Detail View:

- Overall width: 6.60 ± 0.20
- Mounting tab width: 2.30 ± 0.20
- Central feature width: 5.34
- Mounting tab spacing: 0.50
- Central feature spacing: 4.34
- Mounting tab height: 0.60 ± 0.20
- Central feature height: 2.70 ± 0.20
- Overall height: 9.50 ± 0.30
- Mounting tab thickness: 0.80 ± 0.20
- Mounting tab width (MAX): 0.96
- Mounting tab thickness (TYP): 0.76 ± 0.10

Rev. A2, June 2001

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