

MJD117

D-PAK for Surface Mount Applications

- High DC Current Gain
- Built-in a Damper Diode at E-C
- Lead Formed for Surface Mount Applications (No Suffix)
- Straight Lead (I-PAK, “ - I ” Suffix)
- Electrically Similar to Popular TIP117

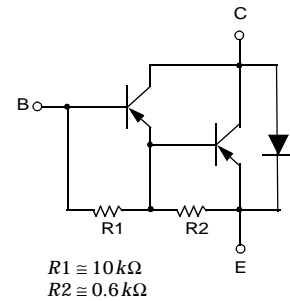


PNP Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	- 100	V
V_{CEO}	Collector-Emitter Voltage	- 100	V
V_{EBO}	Emitter-Base Voltage	- 5	V
I_C	Collector Current (DC)	- 2	A
I_{CP}	Collector Current (Pulse)	- 4	A
I_B	Base Current	- 50	mA
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	20	W
	Collector Dissipation ($T_a=25^\circ\text{C}$)	1.75	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

Equivalent Circuit



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	$I_C = - 30\text{mA}, I_B = 0$	- 100		V
I_{CEO}	Collector Cut-off Current	$V_{CE} = - 50\text{V}, I_B = 0$		- 20	μA
I_{CBO}	Collector Cut-off Current	$V_{CB} = - 100\text{V}, I_E = 0$		- 20	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = - 5\text{V}, I_C = 0$		- 2	mA
h_{FE}	*DC Current Gain	$V_{CE} = - 3\text{V}, V_{EB} = - 0.5\text{A}$ $V_{CE} = - 3\text{V}, V_{EB} = - 2\text{A}$ $V_{CE} = - 3\text{V}, I_C = - 4\text{A}$	500 1000 200	12K	
$V_{CE}(\text{sat})$	*Collector-Emitter Saturation Voltage	$I_C = - 2\text{A}, I_B = - 8\text{mA}$		- 2	V
		$I_C = - 4\text{A}, I_B = - 40\text{mA}$		- 3	V
$V_{BE}(\text{sat})$	*Base-Emitter Saturation Voltage	$I_C = - 4\text{A}, I_B = - 40\text{mA}$		- 4	V
$V_{BE}(\text{on})$	*Base-Emitter ON Voltage	$V_{CE} = - 3\text{A}, I_C = - 2\text{A}$		- 2.8	V
f_T	Current Gain Bandwidth Product	$V_{CE} = - 10\text{V}, I_C = - 0.75\text{A}$	25		MHz
C_{ob}	Output Capacitance	$V_{CB} = - 10\text{V}, I_E = 0$ $f = 0.1\text{MHz}$		200	pF

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

Typical Characteristics

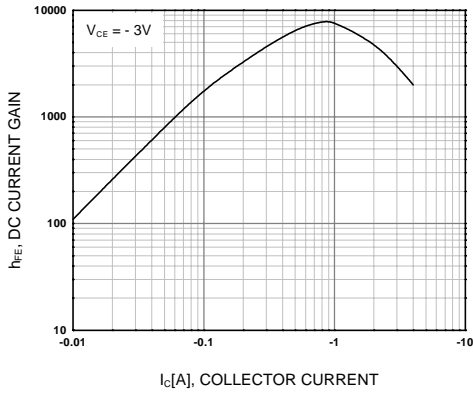


Figure 1. DC current Gain

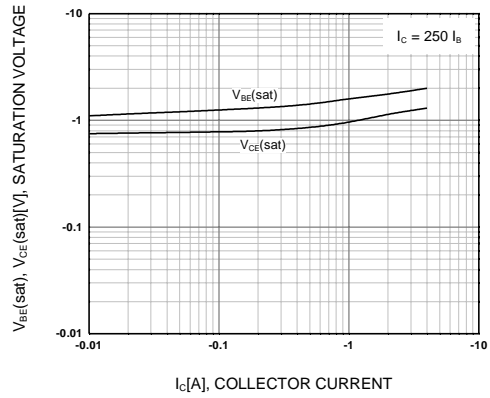


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

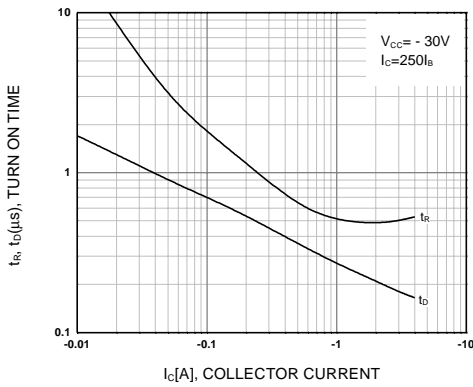


Figure 3. Collector Output Capacitance

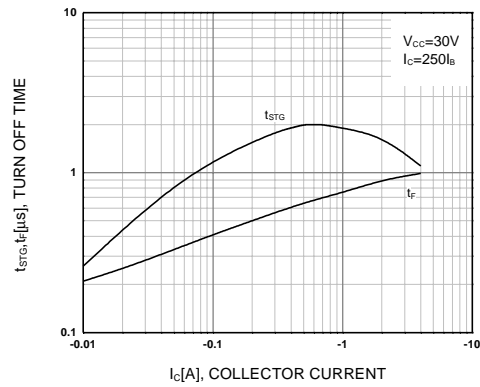


Figure 4. Turn On Time

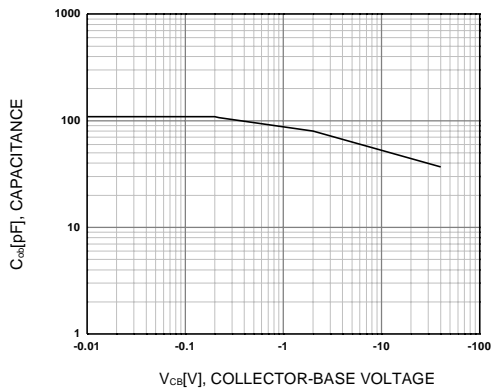


Figure 5. Turn Off Time

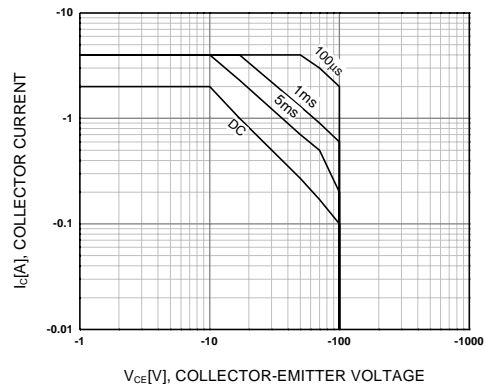


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

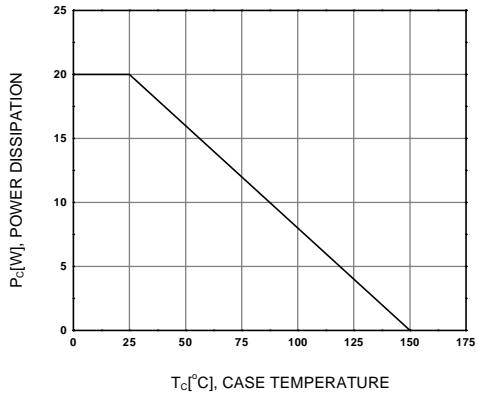
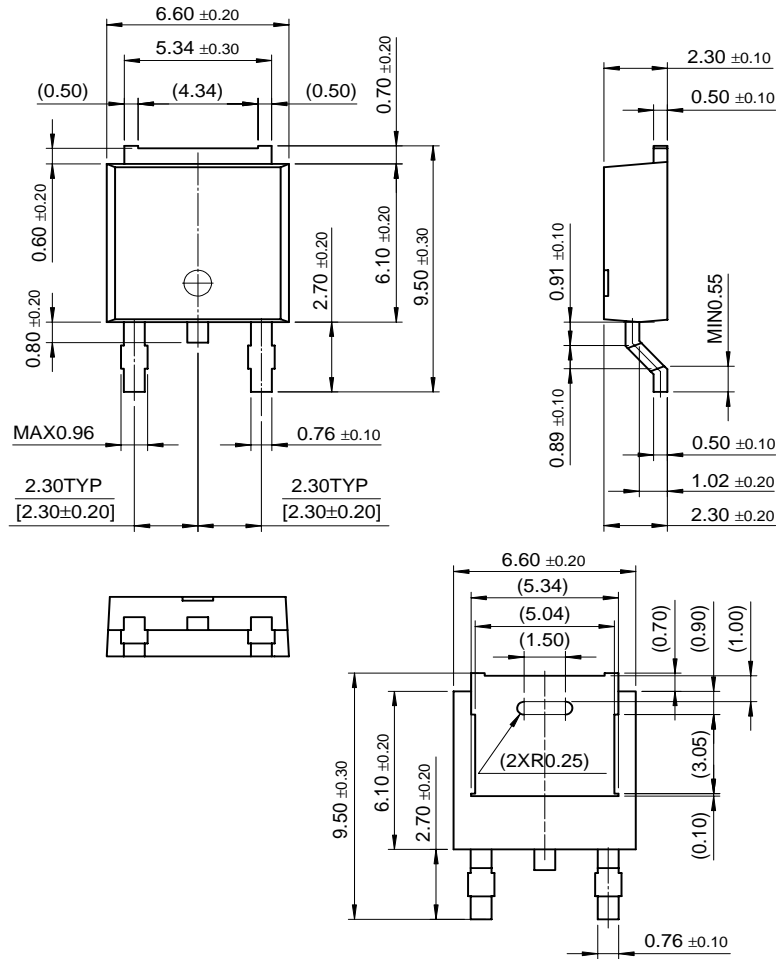


Figure 7. Power Derating

Package Dimensions

D-PAK



Dimensions in Millimeters

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[applications](#)

[New products](#)

[Product selection and](#)

[parametric search](#)

[Cross-reference](#)

[search](#)

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[Contents](#)

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

Features

D-PAK for Surface Mount Applications

- High DC Current Gain
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[Product status/pricing/packaging](#)

Product	Product status	Pricing*	Package type	Leads	Packing method
MJD117TF	Full Production	\$0.349	TO-252(DPAK)	2	TAPE REEL

* 1,000 piece Budgetary Pricing

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