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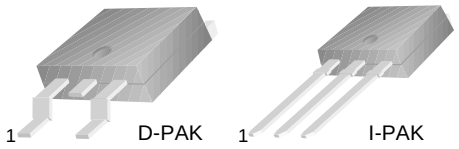
Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FAIRCHILD
SEMICONDUCTOR®

KSH112

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 TIP112



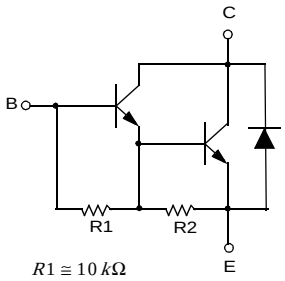
1.Base 2.Collector 3.Emitter

NPN Silicon Darlington Transistor

Absolute Maximum Ratings T_C=25°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°C)	20	W
	Collector Dissipation (T_a=25°C)	1.75	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Equivalent Circuit



$R1 \cong 10\,k\Omega$
$R2 \cong 0.6\,k\Omega$

Electrical Characteristics T_C=25°C unless otherwise noted

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

* Pulse Test: PW≤300μs, Duty Cycle≤2%

Typical Characteristics

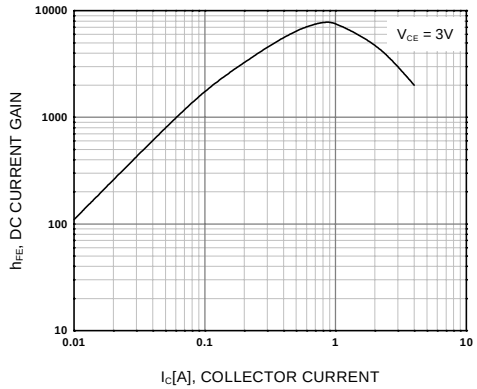


Figure 1. DC current Gain

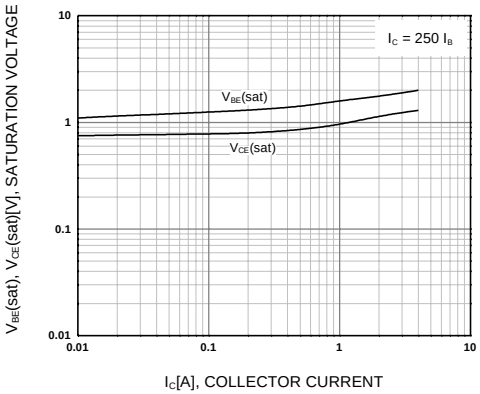


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

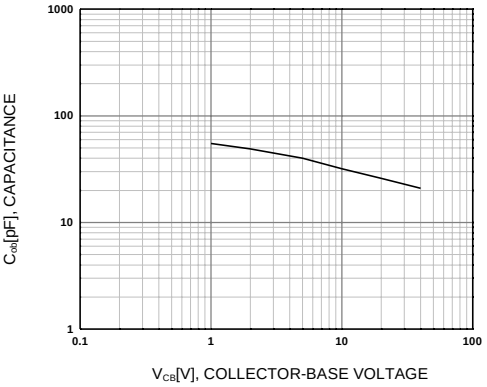


Figure 3. Collector Output Capacitance

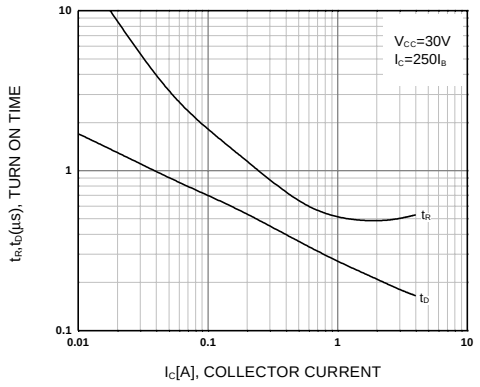


Figure 4. Turn On Time

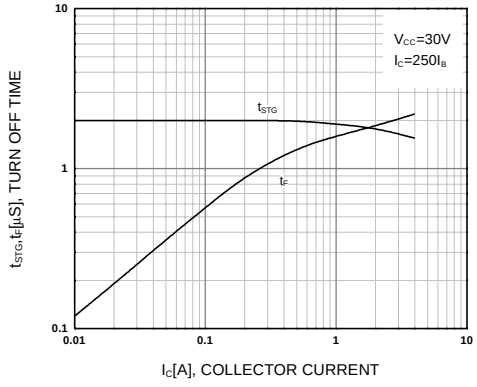


Figure 5. Turn Off Time

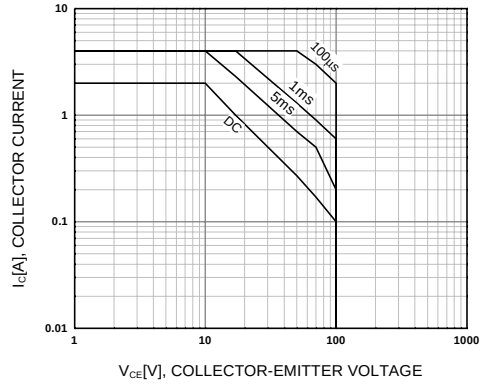


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

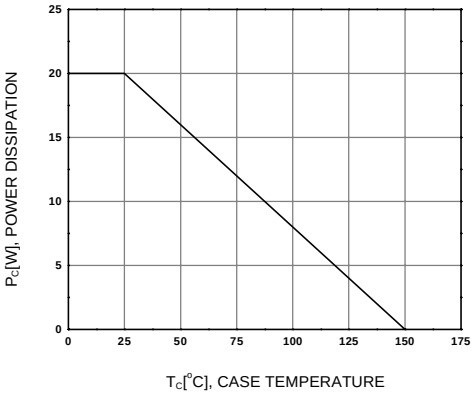
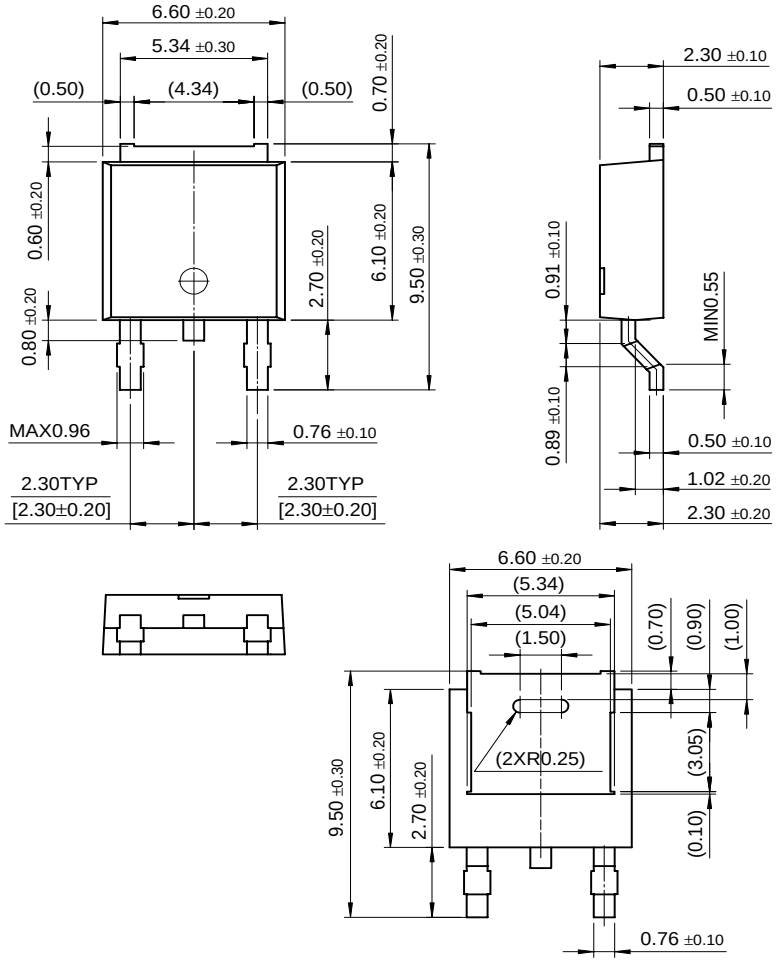


Figure 7. Power Derating

Package Dimensions

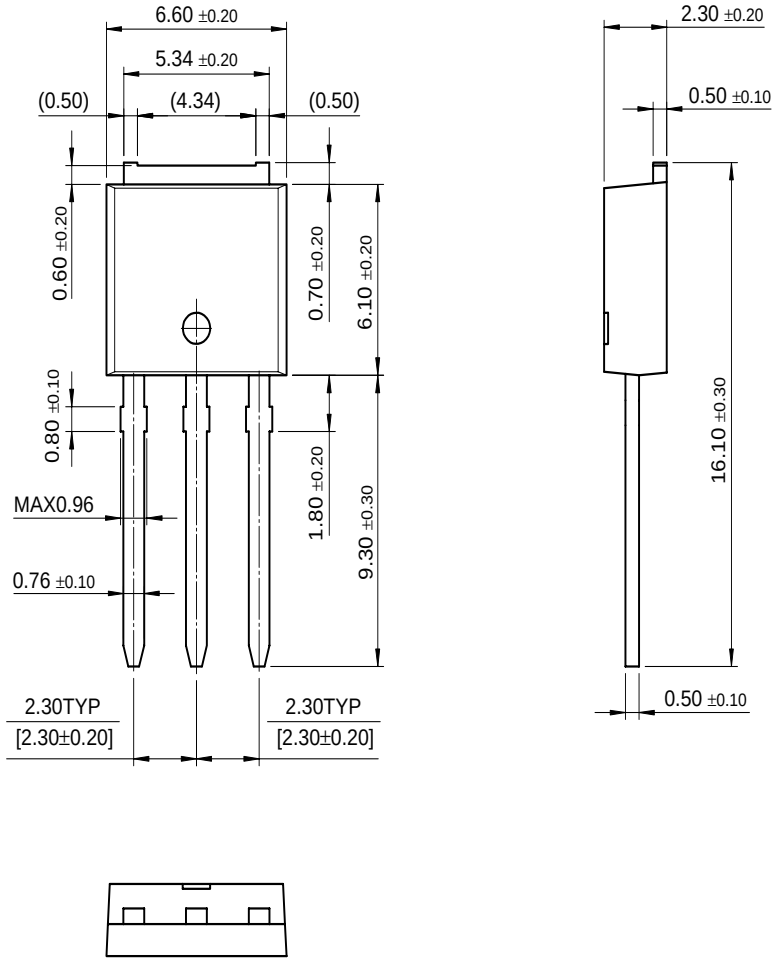
D-PAK



Dimensions in Millimeters

Package Dimensions (Continued)

I-PAK



Dimensions in Millimeters

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EnSigna™	I^2C™	OCX™	RapidConfigure™	UHC™
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The Power Franchise™		OPTOLOGIC®	SILENT SWITCHER®	VCX™
Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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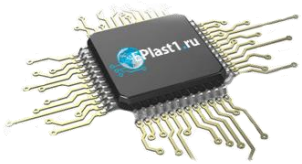

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