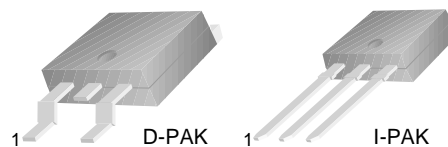


## KSH112

### 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



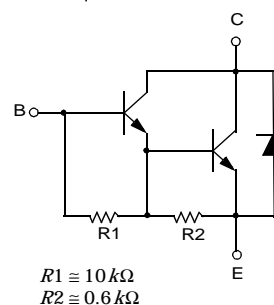
1.Base 2.Collector 3.Emitter

### NPN Silicon Darlington Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ 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	$\mu\text{A}$
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 100\text{V}, I_B = 0$		20	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$		2	mA
$h_{FE}$	* DC Current Gain	$V_{CE} = 3\text{V}, I_C = 0.5\text{A}$	500		
		$V_{CE} = 3\text{V}, I_C = 2\text{A}$	1000	12K	
		$V_{CE} = 3\text{V}, I_C = 4\text{A}$	200		
$V_{CE(sat)}$	* 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
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 4\text{A}, I_B = 40\text{mA}$		4	V
$V_{BE(on)}$	* 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	$V_{CB} = 10\text{V}, I_E = 0$ $f = 0.1\text{MHz}$		100	pF

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

# Typical Characteristics

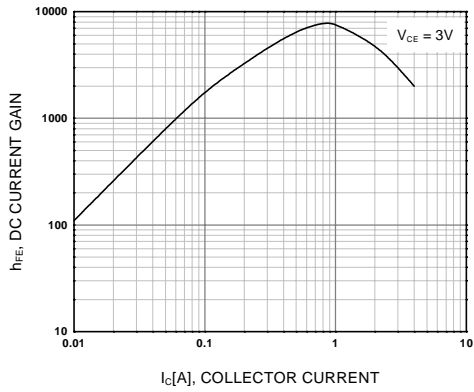


Figure 1. DC current Gain

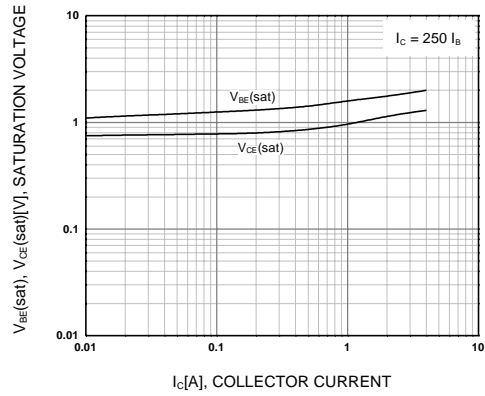


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

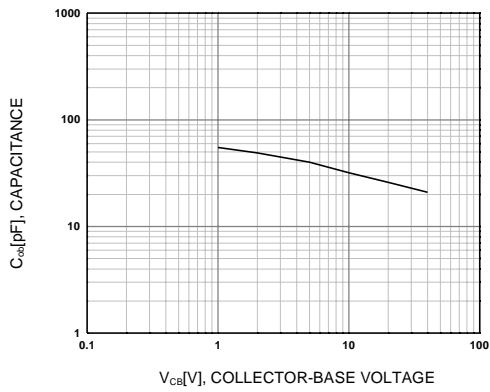


Figure 3. Collector Output Capacitance

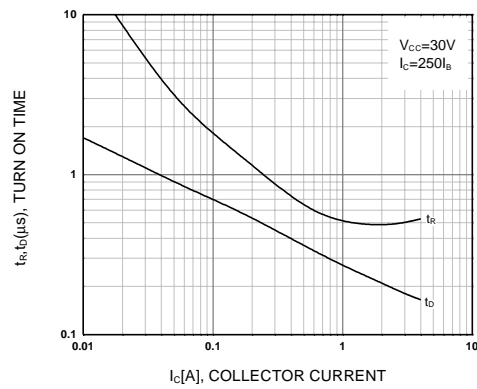


Figure 4. Turn On Time

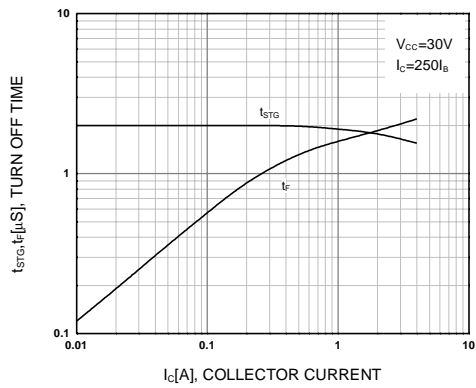


Figure 5. Turn Off Time

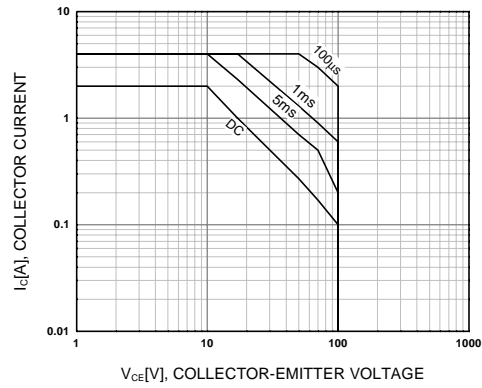


Figure 6. Safe Operating Area

# Typical Characteristics (Continued)

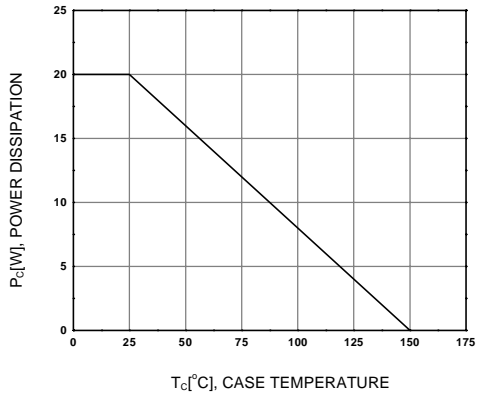
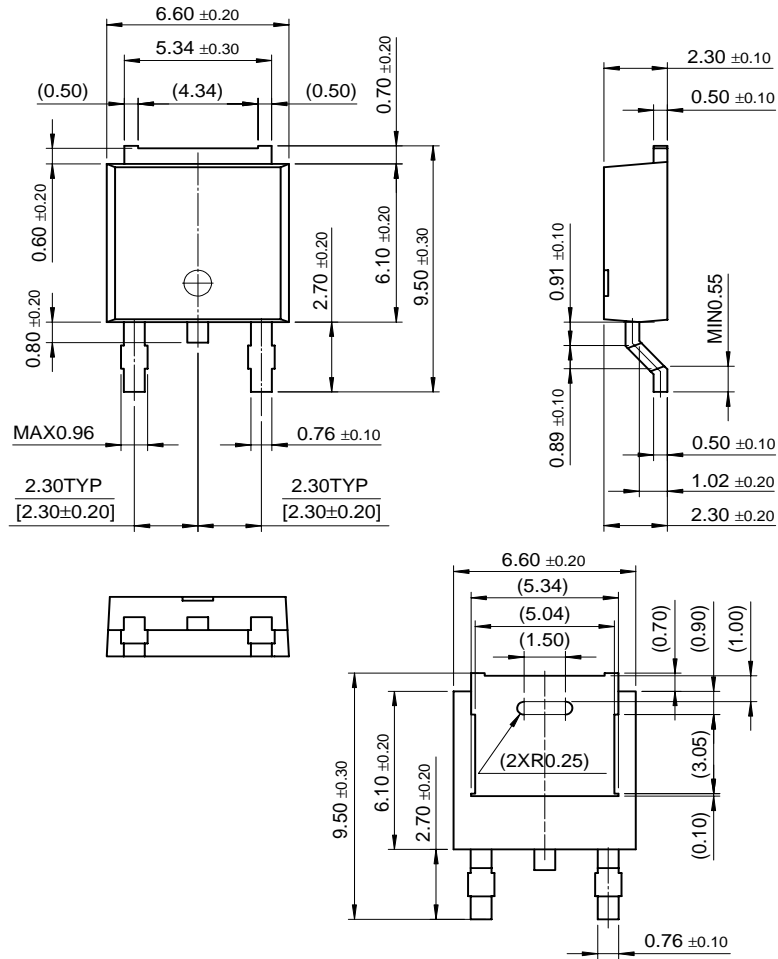


Figure 7. Power Derating

# Package Dimensions

KSH112

## D-PAK



Dimensions in Millimeters

# Package Dimensions (Continued)

## I-PAK



Dimensions in Millimeters

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Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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# KSH112

NPN Silicon Darlington Transistor

## Contents

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

- 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)
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## Applications

### D-PAK for Surface Mount

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Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
KSH112GTM_SB82051	Full Production	Full Production	N/A	<a href="#">TO-252(DPAK)</a>	2	TAPE REEL	Line 1: KSH Line 2: 112 Line 3: &3
KSH112TF	Full Production	Full Production	\$0.432	<a href="#">TO-252(DPAK)</a>	2	TAPE REEL	Line 1: KSH Line 2: 112 Line 3: &3

KSH112TM	Full Production		\$0.432	<a href="#">TO-252(DPAK)</a>	2	TAPE REEL	Line 1: KSH Line 2: 112 Line 3: &3
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\* Fairchild 1,000 piece Budgetary Pricing

\*\* A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product KSH112 is available. [Click here for more information](#).

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### Qualification Support

Click on a product for detailed qualification data

Product
<a href="#">KSH112GTM_SB82051</a>
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<a href="#">KSH112TM</a>

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