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April 2015

# KSH45H11 PNP Epitaxial Silicon Transistor

## Features

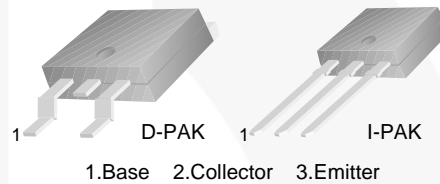
- Lead Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK, “- I” Suffix)
- Electrically Similar to Popular KSE45H
- Fast Switching Speeds
- Low Collector Emitter Saturation Voltage

## Description

General-purpose power and switching such as output or driver stages in applications D-PAK for surface mount applications.

## Applications

- Switching Regulators
- Converters
- Power Amplifiers



## Ordering Information

Part Number	Top Mark	Package	Packing Method
KSH45H11TF	KSH45H11	TO-252 3L (DPAK)	Tape and Reel
KSH45H11TM	KSH45H11	TO-252 3L (DPAK)	Tape and Reel
KSH45H11ITU	KSH45H11-I	TO-251 3L (IPAK)	Rail

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	- 80	V
$V_{EBO}$	Emitter-Base Voltage	- 5	V
$I_C$	Collector Current (DC)	- 8	A
$I_{CP}$	Collector Current (Pulse)	- 16	A
$P_C$	Collector Dissipation ( $T_C = 25^\circ\text{C}$ )	20	W
	Collector Dissipation ( $T_A = 25^\circ\text{C}$ )	1.75	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 to +150	$^\circ\text{C}$

**Electrical Characteristics<sup>(1)</sup>**Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = -30\text{ mA}, I_B = 0$	- 80			V
$I_{CEO}$	Collector Cut-Off Current	$V_{CE} = -80\text{ V}, I_B = 0$			- 10	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = -5\text{ V}, I_C = 0$			- 50	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = -1\text{ V}, I_C = -2\text{ A}$	60			
		$V_{CE} = -1\text{ V}, I_C = -4\text{ A}$	40			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -8\text{ A}, I_B = -0.4\text{ A}$			- 1	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -8\text{ A}, I_B = -0.8\text{ A}$			- 1.5	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}$		40		MHz
$C_{ob}$	Collector Capacitance	$V_{CB} = -10\text{ V}, f = 1\text{ MHz}$		230		pF
$t_{ON}$	Turn-On Time	$I_C = -5\text{ A},$ $I_{B1} = -I_{B2} = -0.5\text{ A}$		135		ns
$t_{STG}$	Storage Time			500		ns
$t_F$	Fall Time			100		ns

**Note:**1. Pulse test: pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .

## Typical Performance Characteristics

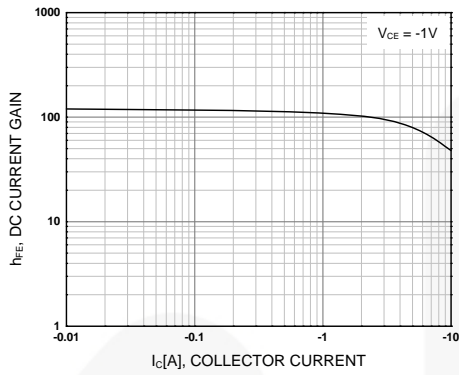


Figure 1. DC Current Gain

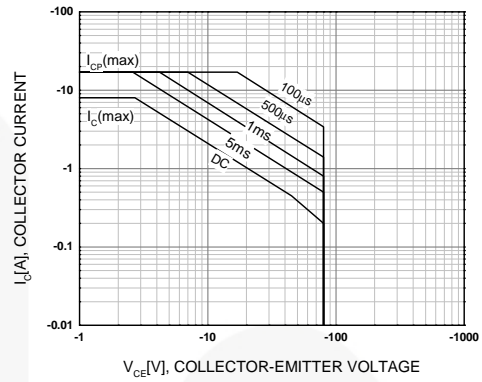


Figure 2. Safe Operating Area

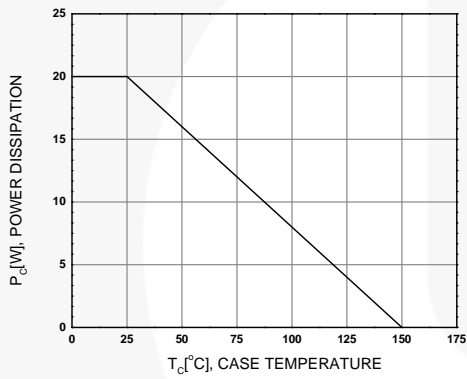
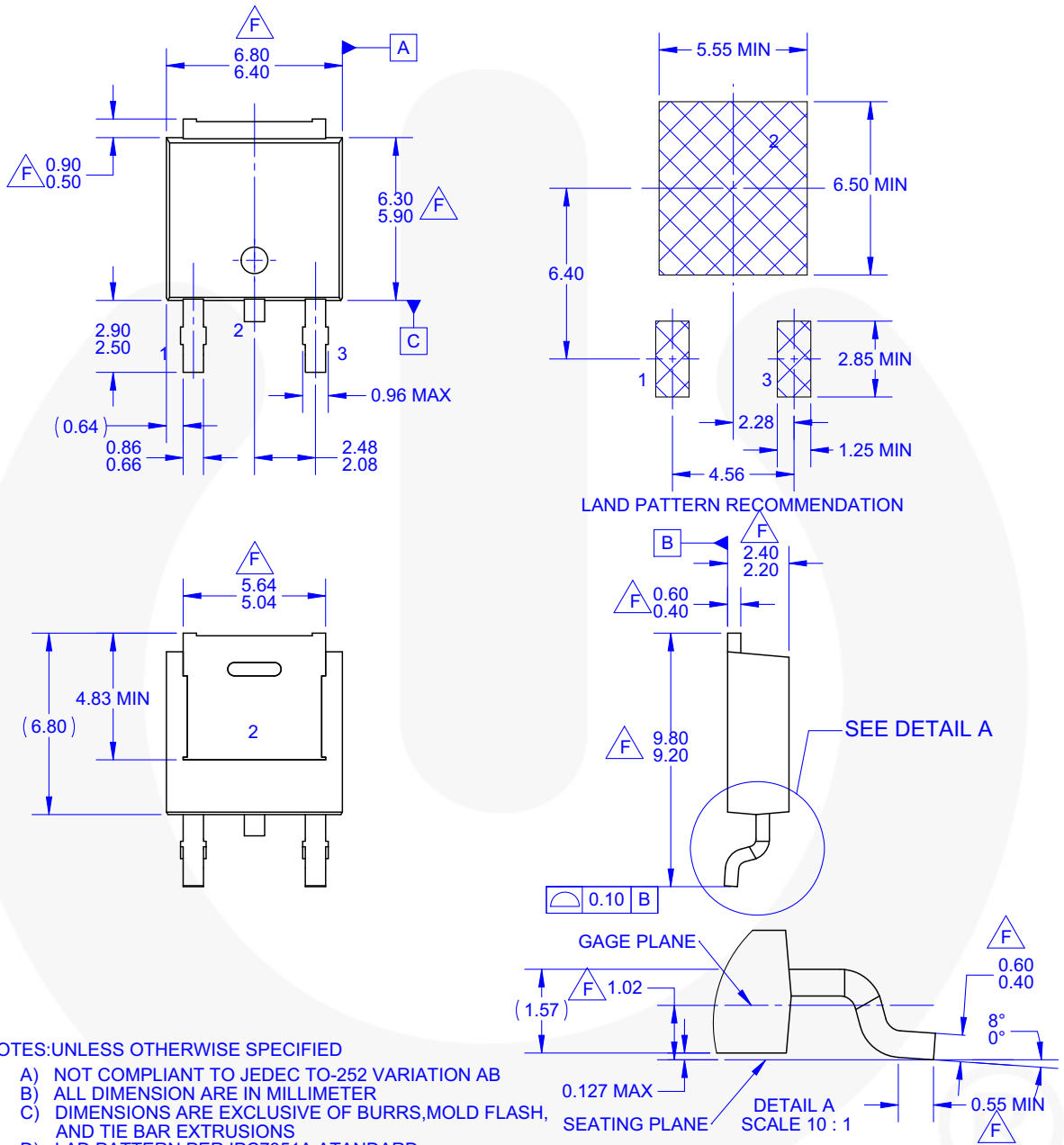


Figure 3. Power Derating



**Physical Dimensions**



- NOTES: UNLESS OTHERWISE SPECIFIED
- A) NOT COMPLIANT TO JEDEC TO-252 VARIATION AB
  - B) ALL DIMENSION ARE IN MILLIMETER
  - C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS
  - D) LAD PATTERN PER IPC7351A ATANDARD TO228P991X239-3N
  - E) DRAWING FILE NAME: MKT-TO252D03REV3.
  - F) DOES NOT COMPLY JEDEC STANDARD VALUE.
  - G) FAIRCHILD SEMICONDUCTOR.

**Figure 4. 3-LEAD, TO-252, NOT COMPLIANT TO JEDEC TO-252 VAR. AB, SURFACE MOUNT (DPAK)**

Physical Dimensions (Continued)

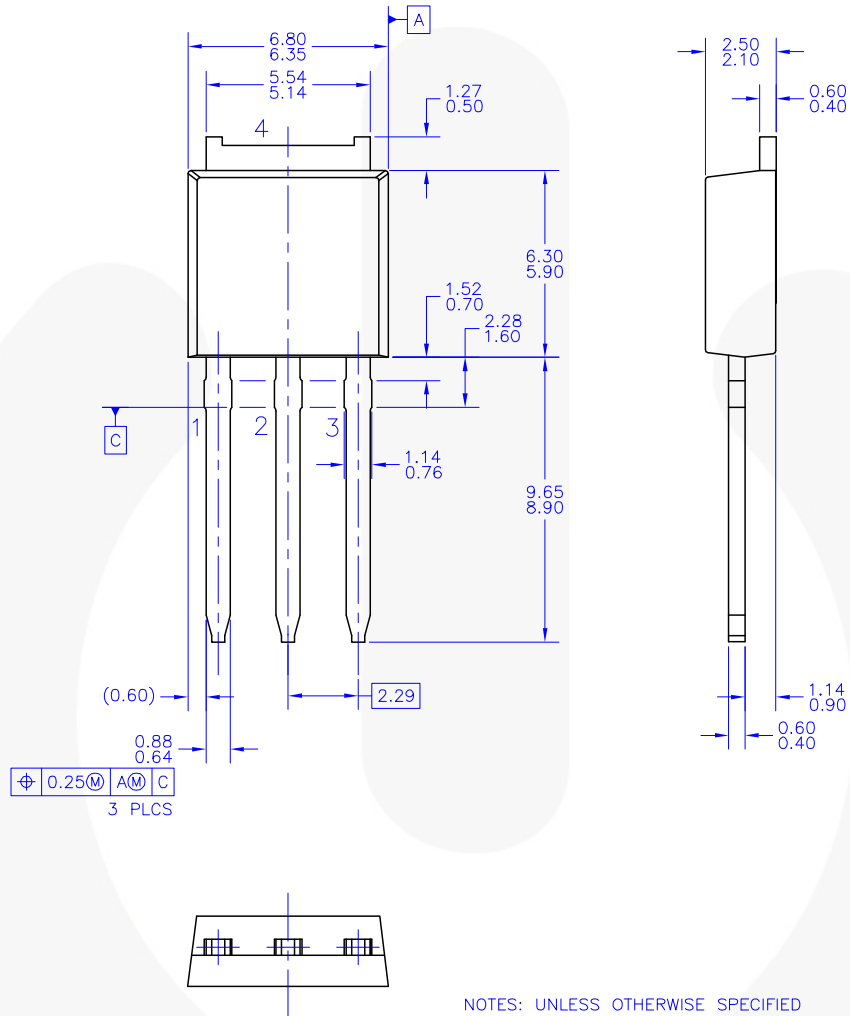







Figure 5. TO-251 (IPAK) MOLDED, 3-LEAD





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