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April 2015

KSH44H11 / KSH44H11I — NPN Epitaxial Silicon Transistor

# KSH44H11 / KSH44H11I NPN Epitaxial Silicon Transistor

## Features

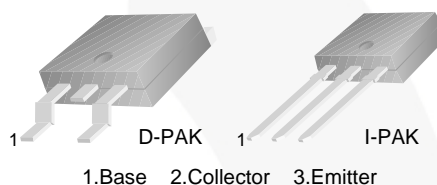
- Lead Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK, "-I" Suffix)
- Electrically Similar to Popular KSE44H
- Fast Switching Speeds
- Low Collector-Emitter Saturation Voltage

## Description

Designed for general-purpose power and switching, such as output or driver stages in applications.

## Applications

- Switching Regulators
- Converters
- Power Amplifiers



## Ordering Information

Part Number	Top Mark	Package	Packing Method
KSH44H11TF	KSH44H11	TO-252 3L (DPAK)	Tape and Reel
KSH44H11TM	KSH44H11	TO-252 3L (DPAK)	Tape and Reel
KSH44H11ITU	KSH44H11-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 ( $T_C = 25^\circ\text{C}$ )	20.00	W
	Collector Dissipation ( $T_A = 25^\circ\text{C}$ )	1.75	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +150	$^\circ\text{C}$

## Electrical Characteristics

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 <sup>(1)</sup>	$I_C = 30\text{ mA}, I_B = 0$	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	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}$		50		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$		130		pF
$t_{ON}$	Turn-On Time	$I_C = 5\text{ A},$ $I_{B1} = - I_{B2} = 0.5\text{ A}$		300		ns
$t_{STG}$	Storage Time			500		ns
$t_F$	Fall Time			140		ns

### Note:

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

## Typical Performance Characteristics

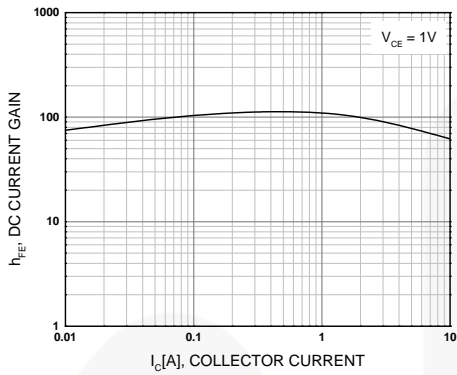


Figure 1. DC Current Gain

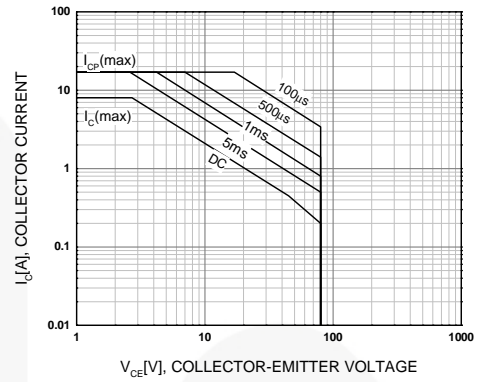


Figure 2. Safe Operating Area

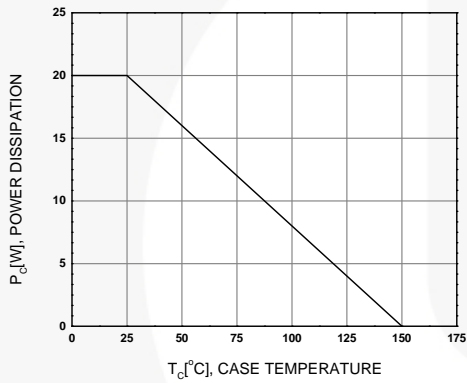
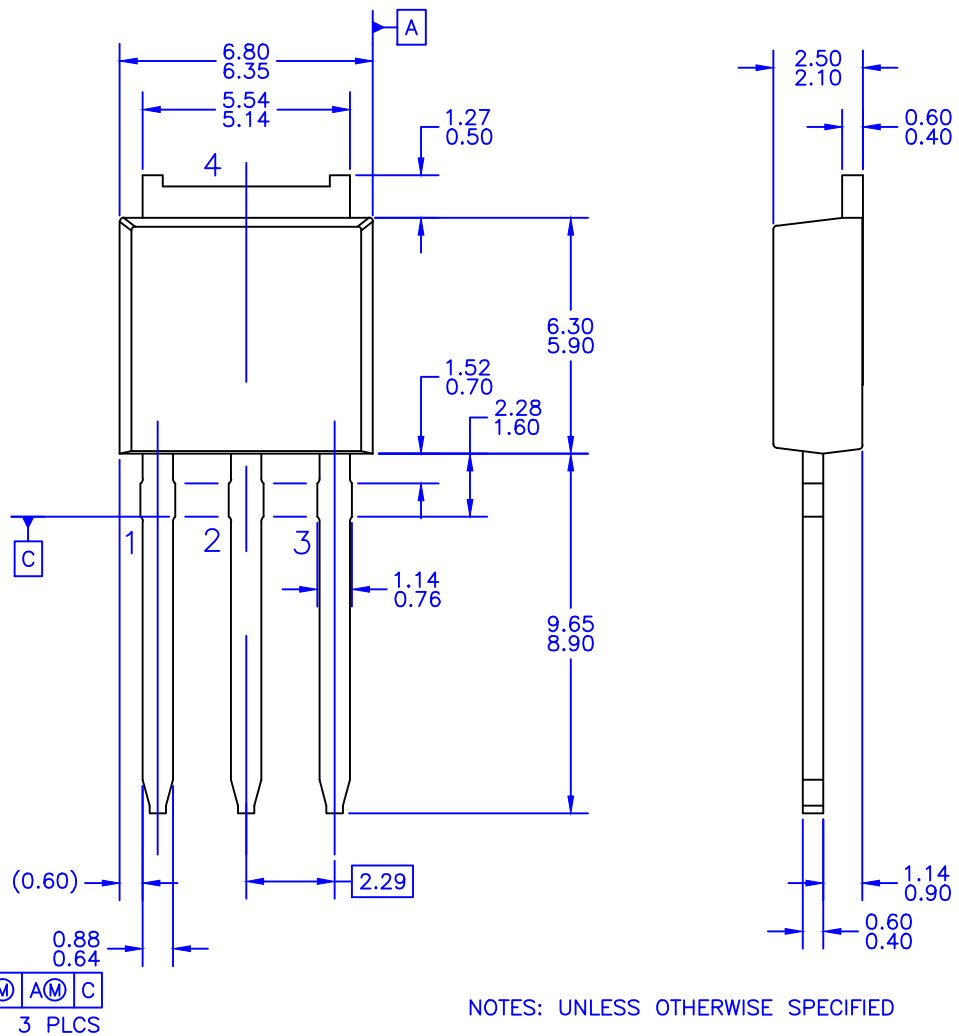


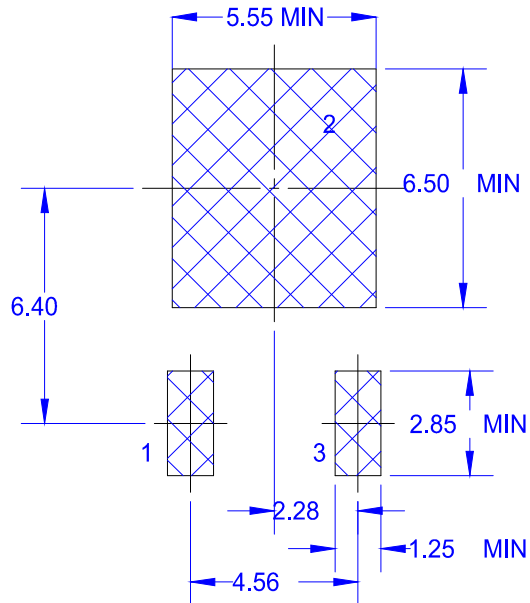
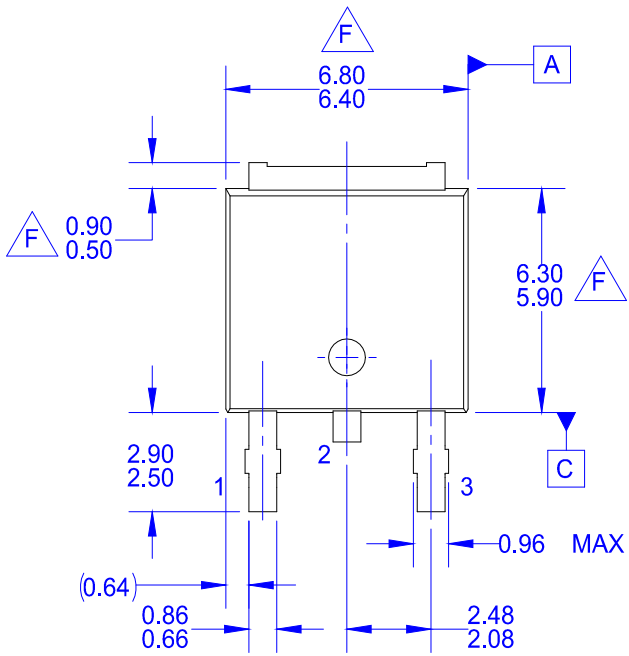
Figure 3. Power Derating



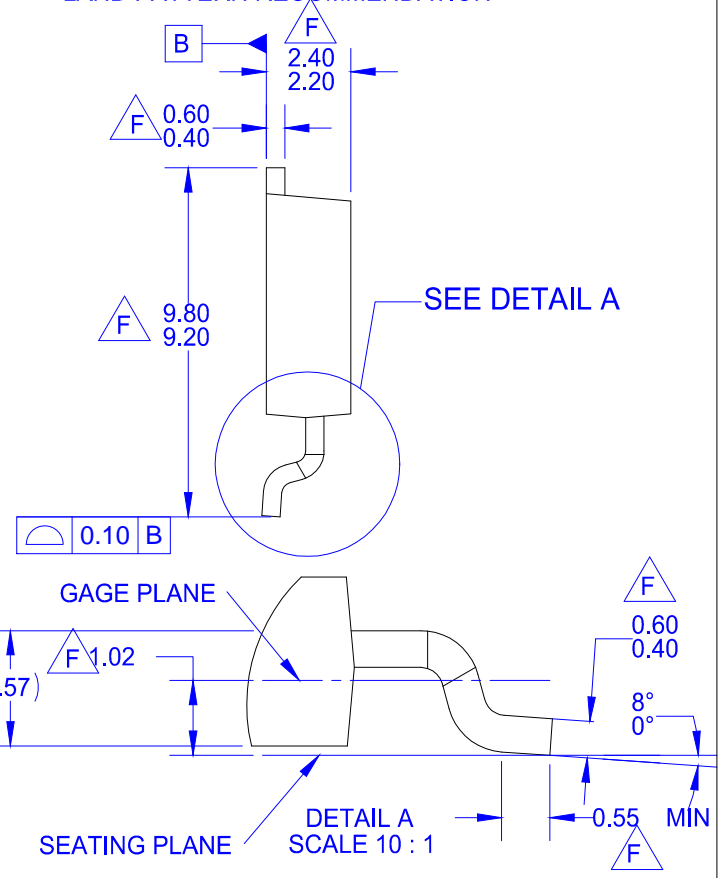
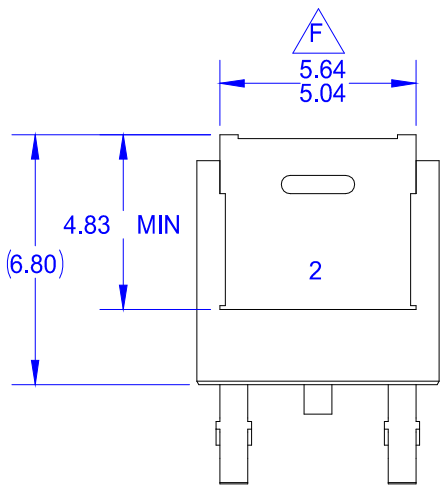
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