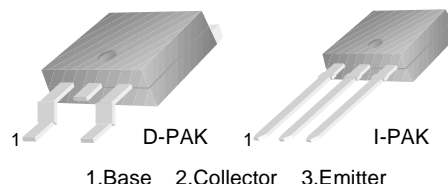


## KSH200

### 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)



### NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	25	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_B$	Base Current	1	A
$I_C$	Collector Current (DC)	5	A
$I_{CP}$	Collector Current (Pulse)	10	A
$P_C$	Collector Dissipation ( $T_C = 25^\circ\text{C}$ )	12.5	W
	Collector Dissipation ( $T_a = 25^\circ\text{C}$ )	1.4	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

#### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CBO(sus)}$	* Collector Emitter Sustaining Voltage	$I_C=100\text{mA}, I_B=0$	25		V
$I_{CEO}$	Collector Cut-off Current	$V_{CB}=40\text{V}, I_E=0$		100	nA
$I_{CBO}$	Collector Cut-off Current	$V_{EBO}=8\text{V}, I_C=0$		100	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{CE}=1\text{V}, I_C=500\text{mA}$	70		
$h_{FE}$	* DC Current Gain	$V_{CE}=1\text{V}, I_C=2\text{A}$ $V_{CE}=2\text{V}, I_C=5\text{A}$	45 10	180	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C=500\text{mA}, I_B=50\text{mA}$		0.3	V
		$I_C=2\text{A}, I_B=200\text{mA}$		0.75	V
		$I_C=5\text{A}, I_B=1\text{A}$		1.8	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C=5\text{A}, I_B=2\text{A}$		2.5	V
$V_{BE(on)}$	* Base-Emitter ON Voltage	$V_{CE}=1\text{V}, I_C=2\text{A}$		1.6	V
$f_T$	Current Gain Bandwidth Product	$V_{CE}=10\text{V}, I_C=100\text{mA}$	65		MHz
$C_{ob}$	Output Capacitance	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$		80	pF

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

# Typical Characteristics

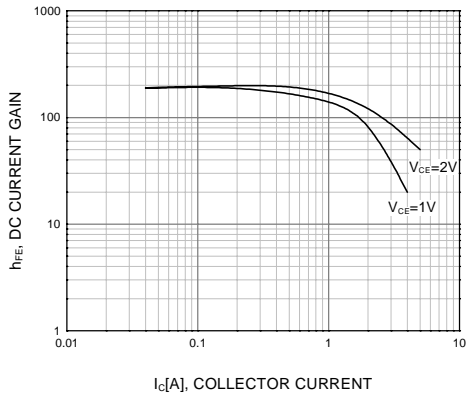


Figure 1. DC current Gain

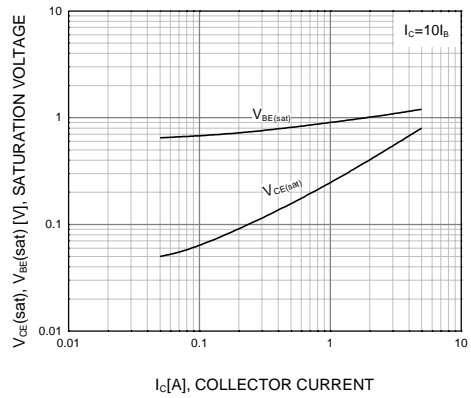


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

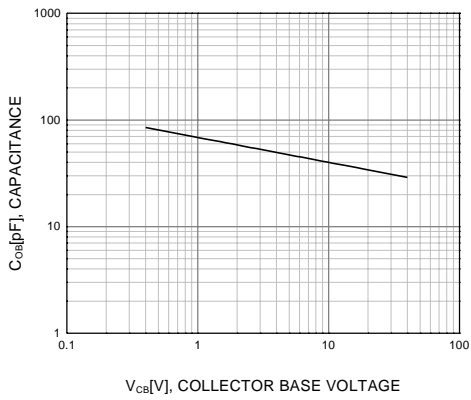


Figure 3. Collector Output Capacitance

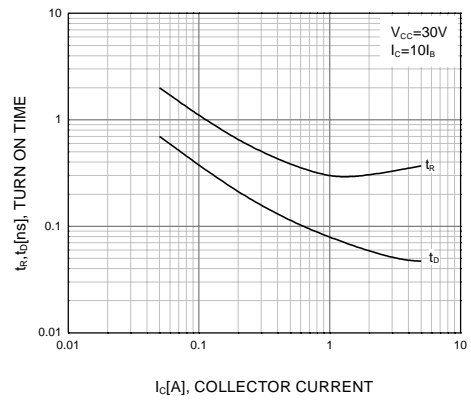


Figure 4. Turn On Time

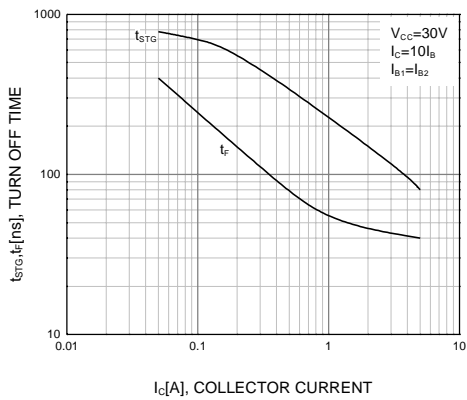


Figure 5. Turn Off Time

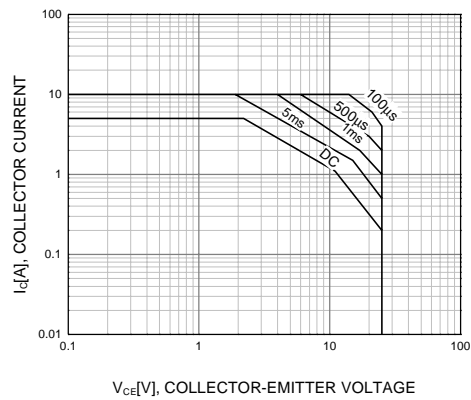


Figure 6. Safe Operating Area

### Typical Characteristics (Continued)

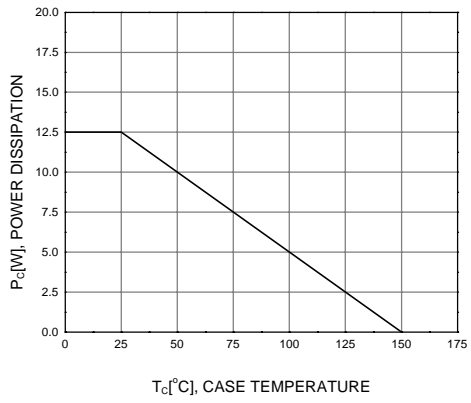


Figure 7. Power Derating



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