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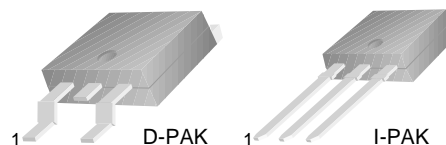
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## KSH29/29C

### General Purpose Amplifier Low Speed Switching Applications

- Lead Formed for Surface Mount Application (No Suffix)
- Straight Lead (I-PAK, "- I" Suffix)
- Electrically Similar to Popular TIP29 and TIP29C



1.Base 2.Collector 3.Emitter

### 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                           |            |                  |
|           | : KSH29  | 40         | V                |
|           | : KSH29C   | 100        | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        |            |                  |
|           | : KSH29  | 40         | V                |
|           | : KSH29C   | 100        | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | 5          | V                |
| $I_C$     | Collector Current (DC)                           | 1          | A                |
| $I_{CP}$  | Collector Current (Pulse)                        | 3          | A                |
| $I_B$     | Base Current                                     | 0.4        | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 15         | W                |
|           | Collector Dissipation ( $T_a=25^\circ\text{C}$ ) | 1.56       | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 65 ~ 150 | $^\circ\text{C}$ |

#### 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 |   |      |      |               |
|                | : KSH29                              | $I_C = 30\text{mA}, I_B = 0$              | 40   |      | V             |
|                | : KSH29C                             |   | 100  |      | V             |
| $I_{CEO}$      | Collector Cut-off Current            |   |      |      |               |
|                | : KSH29                              | $V_{CE} = 40\text{V}, I_B = 0$            |      | 50   | $\mu\text{A}$ |
|                | : KSH29C                             | $V_{CE} = 60\text{V}, I_B = 0$            |      | 50   | $\mu\text{A}$ |
| $I_{CES}$      | Collector Cut-off Current            |   |      |      |               |
|                | : KSH29                              | $V_{CE} = 40\text{V}, V_{BE} = 0$         |      | 20   | $\mu\text{A}$ |
|                | : KSH29C                             | $V_{CE} = 100\text{V}, V_{BE} = 0$        |      | 20   | $\mu\text{A}$ |
| $I_{EBO}$      | Emitter Cut-off Current              | $V_{BE} = 5\text{V}, I_C = 0$             |      | 1    | mA            |
| $h_{FE}$       | DC Current Gain                      | $V_{CE} = 4\text{V}, I_C = 0.2\text{A}$   | 40   |      |               |
|                |                                      | $V_{CE} = 4\text{V}, I_C = 1\text{A}$     | 15   | 75   |               |
| $V_{CE(sat)}$  | Collector-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 125\text{mA}$     |      | 0.7  | V             |
| $V_{BE(on)}$   | Base-Emitter On Voltage              | $V_{CE} = 4\text{A}, I_C = 1\text{A}$     |      | 1.3  | V             |
| $f_T$          | Current Gain Bandwidth Product       | $V_{CE} = 10\text{V}, I_C = 200\text{mA}$ | 3    |      | MHz           |

# Typical Characteristics

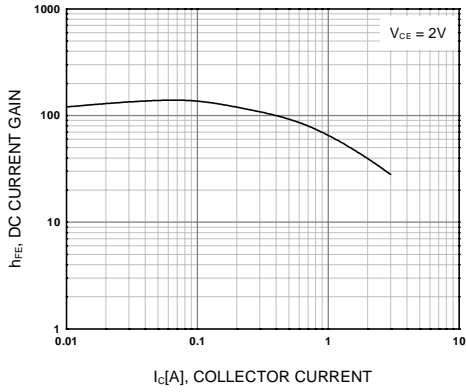


Figure 1. DC current Gain

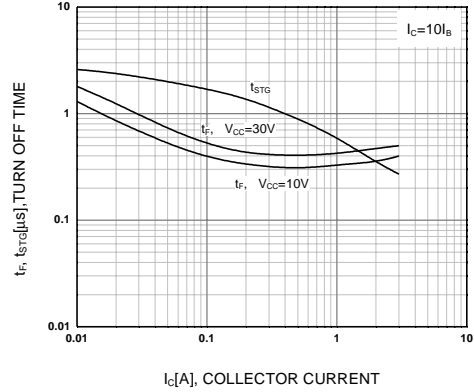


Figure 2. Turn Off Time

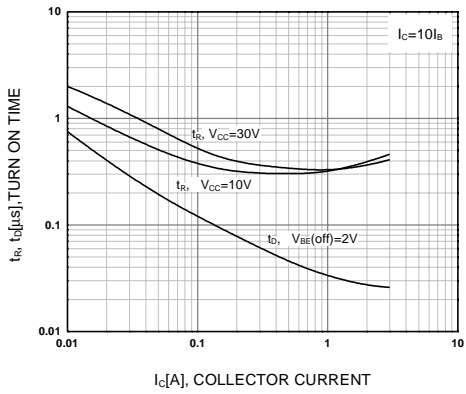


Figure 3. Turn On Time

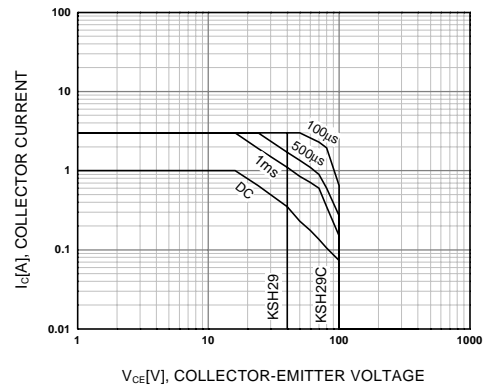


Figure 4. Safe Operating Area

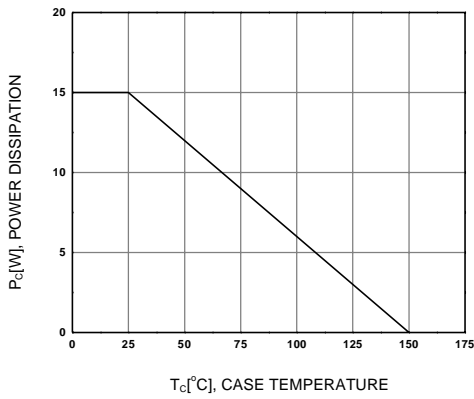
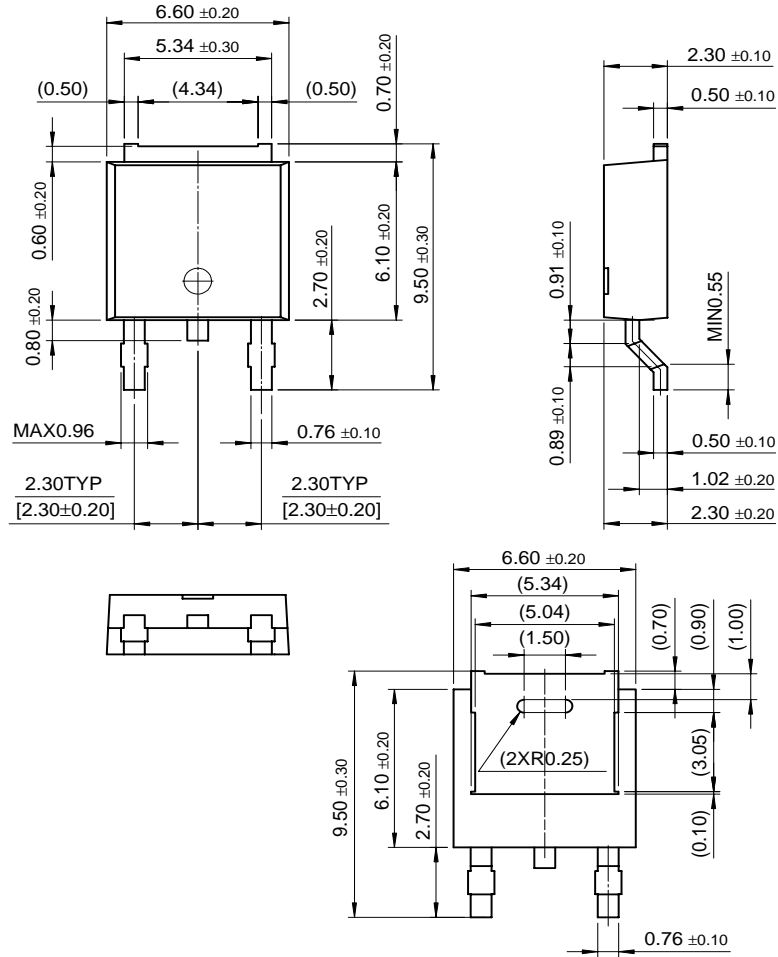


Figure 5. Power Derating

# Package Dimensions

KSH29/29C

## D-PAK

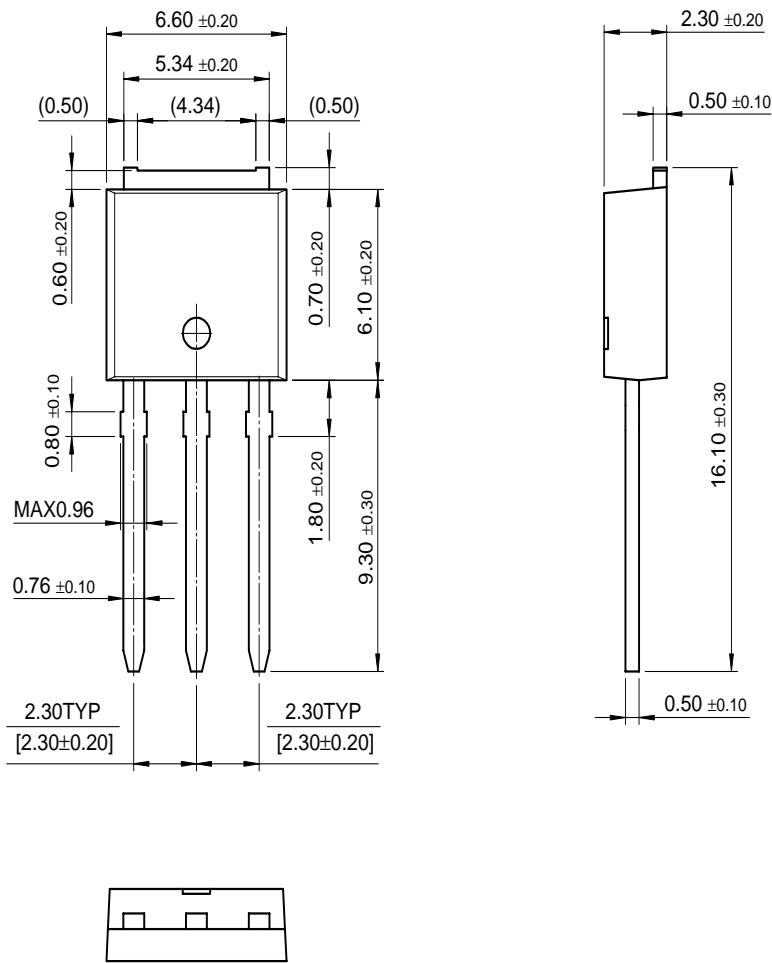


Dimensions in Millimeters

# Package Dimensions (Continued)

KSH29/29C

## I-PAK



Dimensions in Millimeters

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