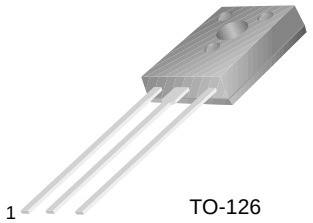
FAIRCHILD
SEMICONDUCTOR®

# KSE200

## Feature

- Low Collector-Emitter Saturation Voltage
- High Current Gain Bandwidth Product : $f_T$=65MHz @ $I_C$=100mA (Min.)
- Complement to KSE210




TO-126

1. Emitter 2.Collector 3.Base

## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C$=25°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 |
| $I_C$ | Collector Current | 5 | A |
| $P_C$ | Collector Dissipation ($T_C$=25°C) | 15 | W |
| $T_J$ | Junction Temperature | 150 | °C |
| $T_{STG}$ | Storage Temperature | - 65 ~ 150 | °C |

### Electrical Characteristics $T_C$=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|---|---|---|---|---|---|
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$=10mA, $I_B$=0 | 25 | | V |
| $I_{CBO}$ | Collector Cut-off Current | $V_{CB}$=40V, $I_E$=0<br>$V_{CB}$=40V, $I_E$=0 @ $T_J$=125°C | | 100<br>100 | nA<br>µA |
| $I_{EBO}$ | Emitter Cut-off Current | $V_{BE}$=8V, $I_C$=0 | | 100 | nA |
| $h_{FE}$ | DC Current Gain | $V_{CE}$=1V, $I_C$=500mA<br>$V_{CE}$=1V, $I_C$=2A<br>$V_{CE}$=2V, $I_C$=5A | 70<br>45<br>10 | <br>180<br> | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage | $I_C$=500mA, $I_B$=50mA<br>$I_C$=2A, $I_C$=200mA<br>$I_C$=5A, $I_B$=1A | | 0.3<br>0.75<br>1.8 | V<br>V<br>V |
| $V_{BE}$(sat) | Base- Emitter Saturation Voltage | $I_C$=5A, $I_B$=1A | | 2.5 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage | $V_{CE}$=1V, $I_C$=2A | | 1.6 | V |
| $f_T$ | Current Gain Bandwidth Product | $V_{CE}$=10V, $I_C$=100mA | 65 | | MHz |
| $C_{ob}$ | Output Capacitance | $V_{CB}$=10V, $I_E$=0, f=0.1MHz | | 80 | pF |

# Typical Characteristics

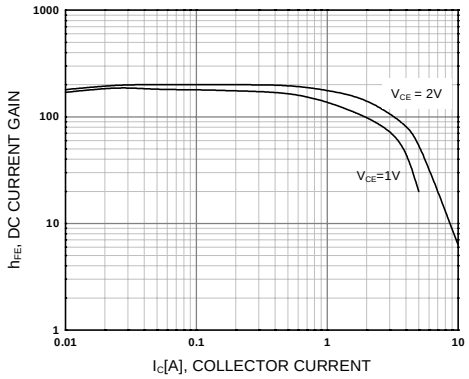



**Figure 1. DC current Gain**

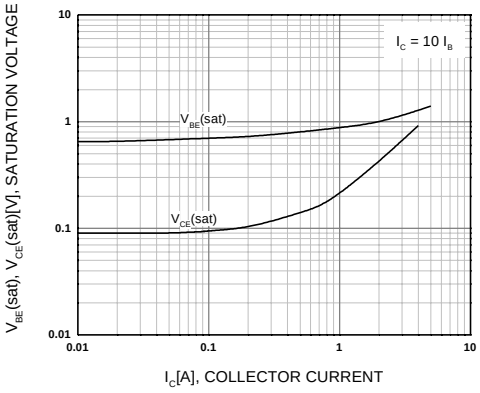



**Figure 2. Collector-Emitter Saturation Voltage**
**Base-Emitter Saturation Voltage**

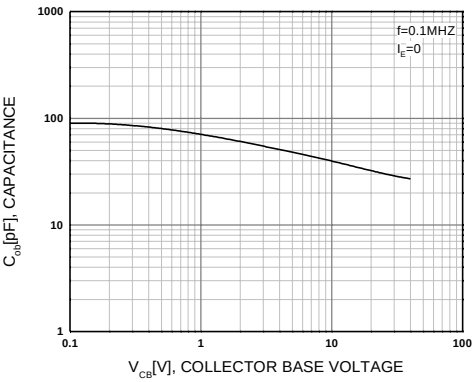



**Figure 3. Collector Output Capacitance**

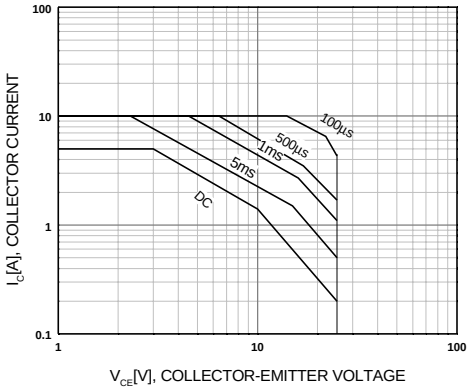



**Figure 4. Forward Bias Safe Operating Area**

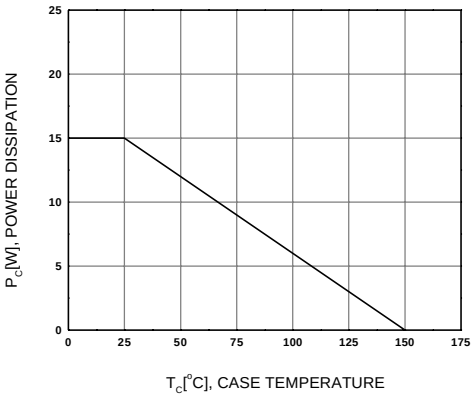
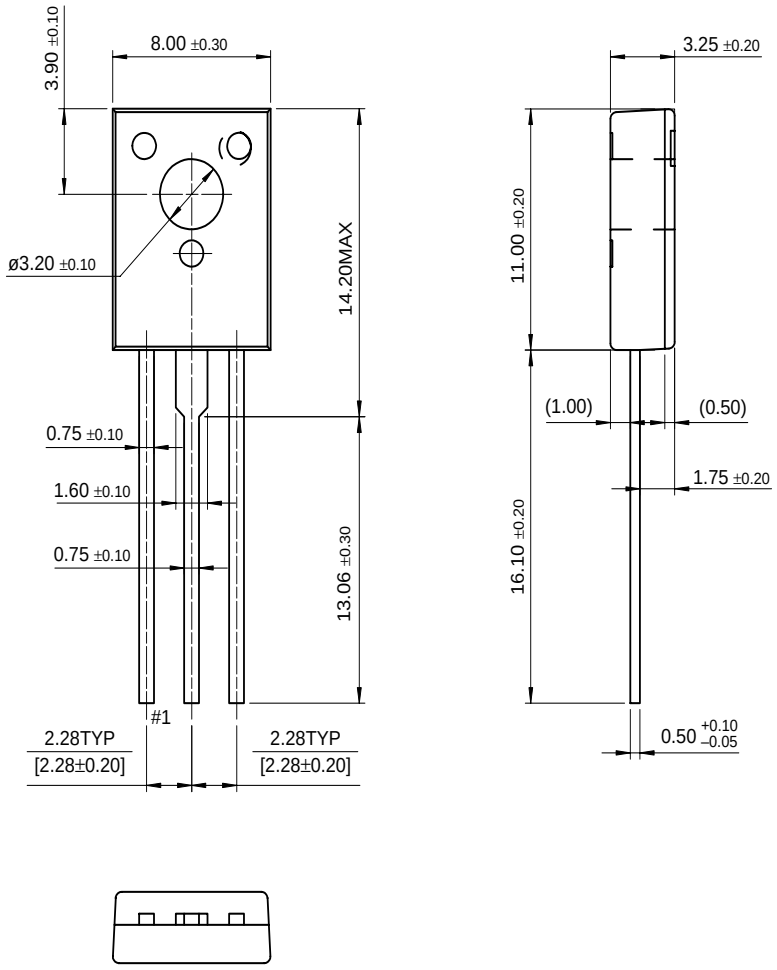



**Figure 5. Power Derating**

## Package Demensions

TO-126




Dimensions in Millimeters

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