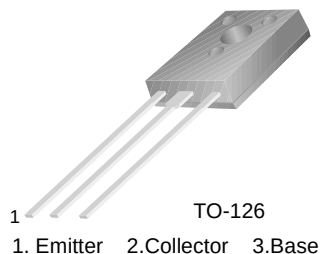


# KSE210

KSE210

## Feature

- Low Collector-Emitter Saturation Voltage
- High Current Gain Bandwidth Product :  $f_T=65\text{MHz}@I_C=-100\text{mA}$  (Min.)
- Complement to KSE200



## PNP 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                |
| $I_C$     | Collector Current                                | - 5        | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 15         | 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               |
|-------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|---------------------|
| $BV_{CEO}$                          | Collector-Emitter Breakdown Voltage  | $I_C = -10\text{mA}, I_B = 0$                                                                                                    | -25            |                       | V                   |
| $I_{CBO}$                           | Collector Cut-off Current            | $V_{CB} = -40\text{V}, I_E = 0$<br>$V_{CB} = -40\text{V}, I_E = 0 @ T_J = 125^\circ\text{C}$                                     |                | -100<br>-100          | nA<br>$\mu\text{A}$ |
| $I_{EBO}$                           | Emitter Cut-off Current              | $V_{BE} = -8\text{V}, I_C = 0$                                                                                                   |                | -100                  | nA                  |
| $h_{FE1}$<br>$h_{FE2}$<br>$h_{FE3}$ | DC Current Gain                      | $V_{CE} = -1\text{V}, I_C = -500\text{mA}$<br>$V_{CE} = -1\text{V}, I_C = -2\text{A}$<br>$V_{CE} = -2\text{V}, I_C = -5\text{A}$ | 70<br>45<br>10 | 180                   |                     |
| $V_{CE(sat)}$                       | Collector-Emitter Saturation Voltage | $I_C = -500\text{mA}, I_B = -50\text{mA}$<br>$I_C = -2\text{A}, I_B = -200\text{mA}$<br>$I_C = -5\text{A}, I_B = -1\text{A}$     |                | -0.3<br>-0.75<br>-1.8 | V<br>V<br>V         |
| $V_{BE(sat)}$                       | Base-Emitter Saturation Voltage      | $I_C = -5\text{A}, I_B = -1\text{A}$                                                                                             |                | -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                   | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$                                                                                 |                | 120                   | pF                  |

## Typical Characteristics

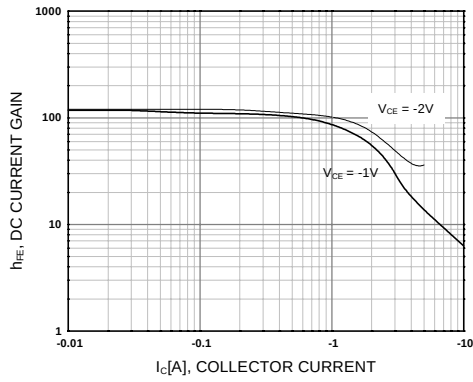


Figure 1. DC current Gain

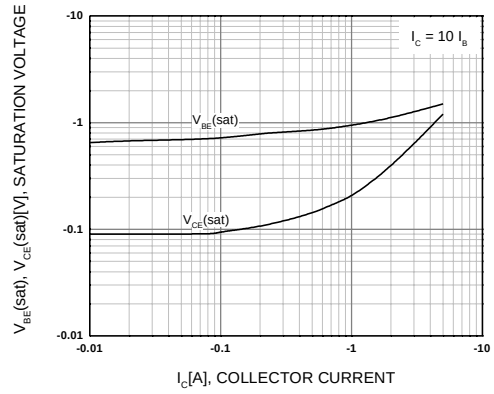


Figure 2. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

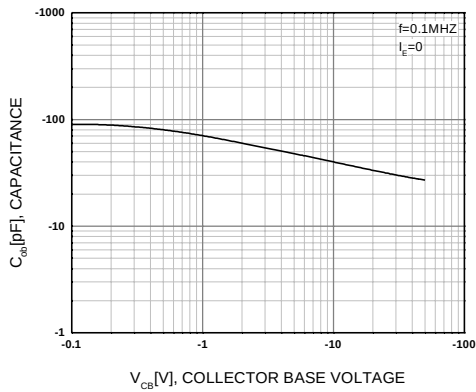


Figure 3. Collector Output Capacitance

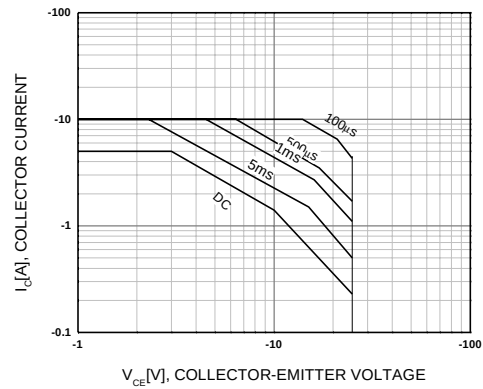


Figure 4. Safe Operating Area

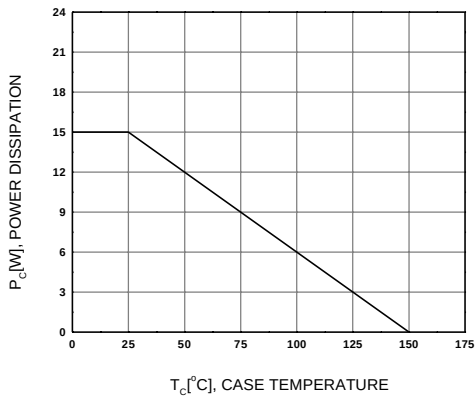
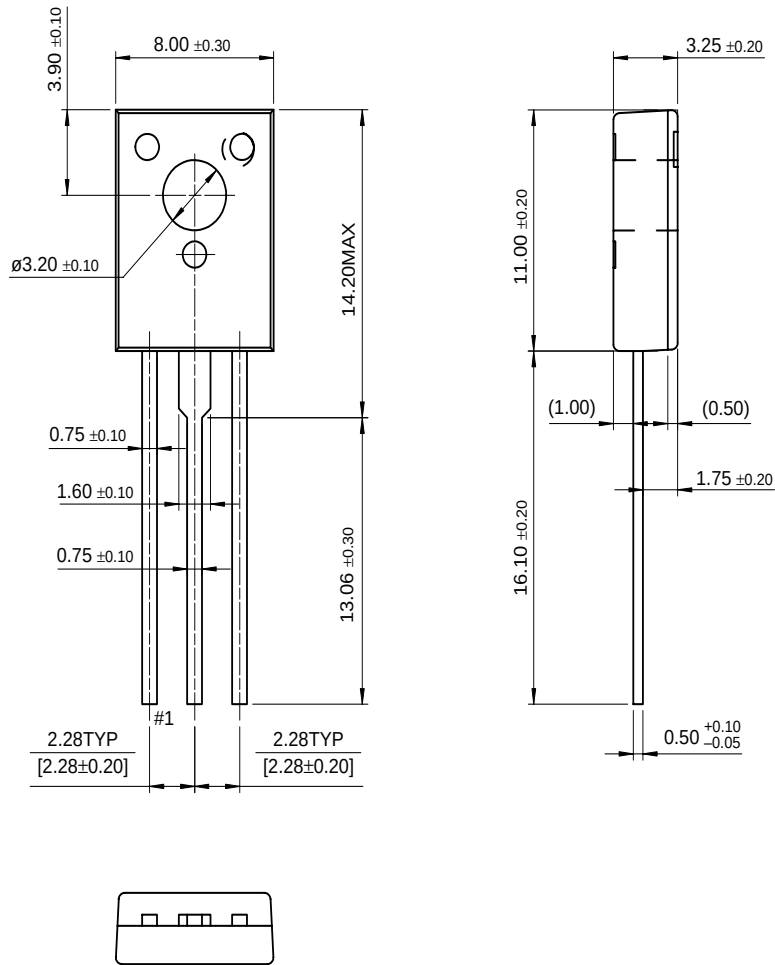


Figure 5. Power Derating

# Package Dimensions

## TO-126



Dimensions in Millimeters

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