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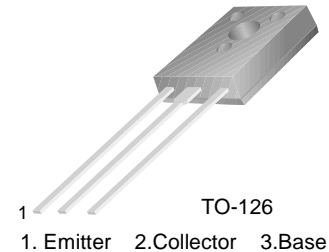
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## KSE800/801/802/803

### Monolithic Construction With Built-in Base-Emitter Resistors

- High DC Current Gain :  $h_{FE} = 750$  (Min.) @  $I_C = 1.5$  and  $2.0A$  DC
- Complement to KSE700/701/702/703

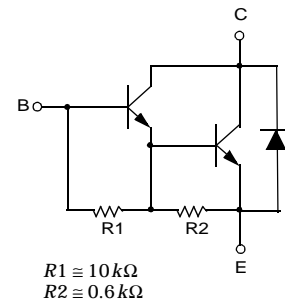


### NPN Epitaxial Silicon Darlington Transistor

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

| Symbol    | Parameter                                    | Value        | Units      |
|-----------|--|--------------|------------|
| $V_{CBO}$ | Collector- Base Voltage                      | : KSE800/801 | 60 V       |
|           |  | : KSE802/803 | 80 V       |
| $V_{CEO}$ | Collector-Emitter Voltage                    | : KSE800/801 | 60 V       |
|           |  | : KSE802/803 | 80 V       |
| $V_{EBO}$ | Emitter-Base Voltage                         | 5            | V          |
| $I_C$     | Collector Current                            | 4            | A          |
| $I_B$     | Base Current                                 | 0.1          | A          |
| $P_C$     | Collector Dissipation ( $T_C = 25^\circ C$ ) | 40           | W          |
| $T_J$     | Junction Temperature                         | 150          | $^\circ C$ |
| $T_{STG}$ | Storage Temperature                          | - 55 ~ 150   | $^\circ C$ |

Equivalent Circuit



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

| Symbol        | Parameter                            | Test Condition  | Min.  | Max. | Units   |
|---------------|--------------------------------------|---|---|------|---------|
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | : KSE800/801  | $I_C = 50mA, I_B = 0$   | 60   | V       |
|               |                                      | : KSE802/803  |   | 80   |         |
|               |                                      |   |   |      |         |
| $I_{CEO}$     | Collector Cut-off Current            | : KSE800/801  | $V_{CE} = 60V, I_B = 0$<br>$V_{CE} = 80V, I_B = 0$                              | 100  | $\mu A$ |
|               |                                      | : KSE802/803  |   | 100  | $\mu A$ |
|               |                                      |   |   |      |         |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB} = \text{Rated } BV_{CEO}, I_E = 0$<br>$V_{CB} = \text{Rated } BV_{CEO}, I_E = 0$<br>$T_C = 100^\circ C$ |   | 100  | $\mu A$ |
|               |                                      |   |   | 500  | $\mu A$ |
|               |                                      |   |   |      |         |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{BE} = 5V, I_C = 0$  |   | 2    | mA      |
| $h_{FE}$      | DC Current Gain                      | : KSE800/802  | $V_{CE} = 3V, I_C = 1.5A$<br>$V_{CE} = 3V, I_C = 2A$<br>$V_{CE} = 3V, I_C = 4A$ | 750  |         |
|               |                                      | : KSE801/803  |   | 750  |         |
|               |                                      | : ALL DEVICES   |   | 100  |         |
|               |                                      |   |   |      |         |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | : KSE800/802  | $I_C = 1.5A, I_B = 30mA$<br>$I_C = 2A, I_B = 40mA$<br>$I_C = 4A, I_B = 40mA$    | 2.5  | V       |
|               |                                      | : KSE801/803  |   | 2.8  | V       |
|               |                                      | : ALL DEVICES   |   | 3    | V       |
|               |                                      |   |   |      |         |
| $V_{BE(on)}$  | Base-Emitter ON Voltage              | : KSE800/802  | $V_{CE} = 3V, I_C = 1.5A$<br>$V_{CE} = 3V, I_C = 2A$<br>$V_{CE} = 3V, I_C = 4A$ | 2.5  | V       |
|               |                                      | : KSE801/803  |   | 2.5  | V       |
|               |                                      | : ALL DEVICES   |   | 3    | V       |
|               |                                      |   |   |      |         |

# Typical Characteristics

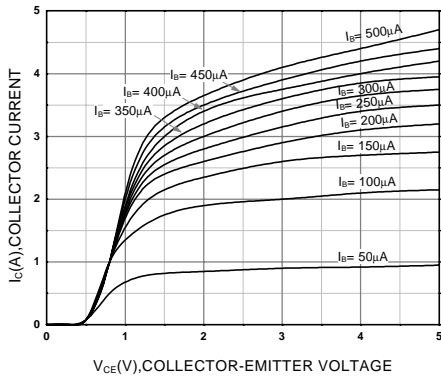


Figure 1. Static Characteristic

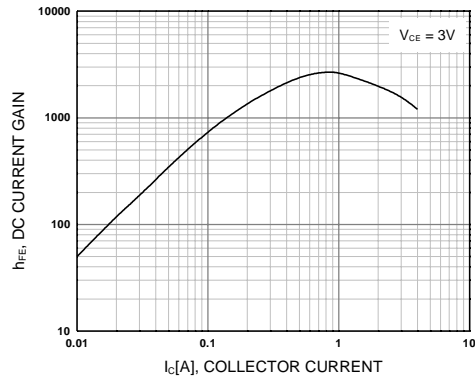


Figure 2. DC current Gain

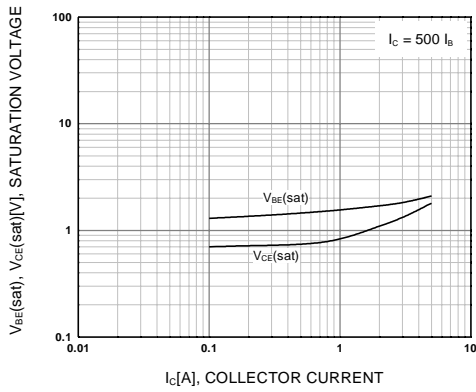


Figure 3. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

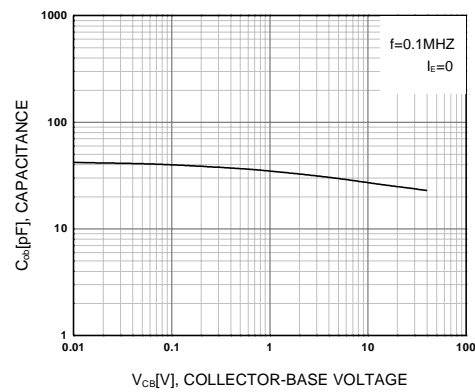


Figure 4. Collector Output Capacitance

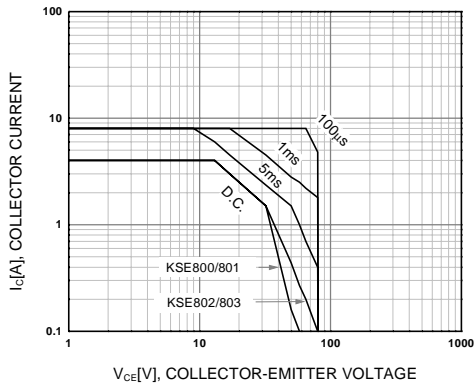


Figure 5. Safe Operating Area

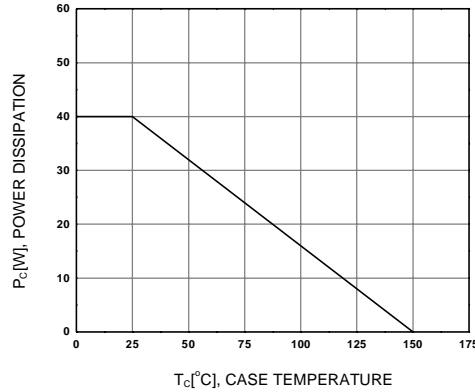
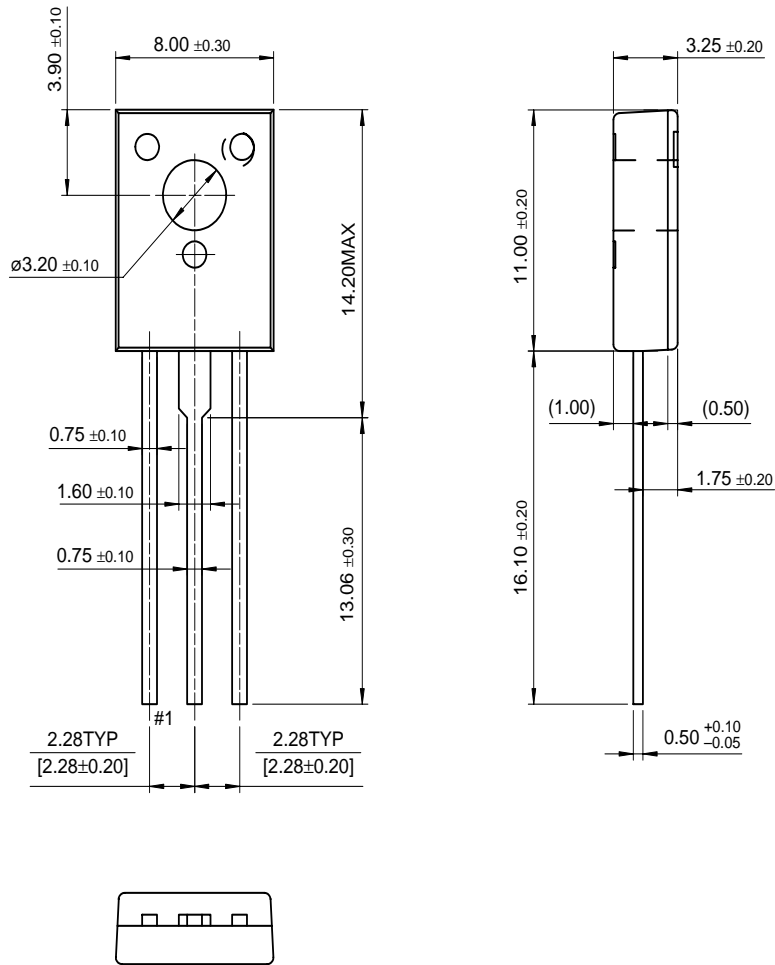


Figure 6. Power Derating

# Package Dimensions

## TO-126



KSE800/801/802/803

Dimensions in Millimeters

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