



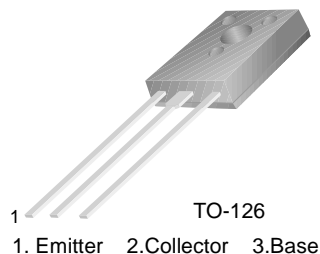
# THE DATASHEET OF KSE702S



## KSE700/701/702/703

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

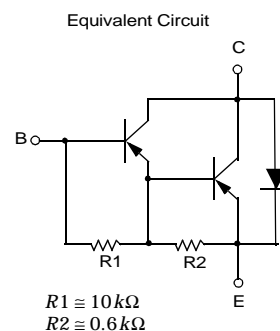
- High DC Current Gain :  $h_{FE} = 750$  (Min.) @  $I_C = -1.5$  and  $-2.0$ A DC
- Complement to KSE800/801/802/803



### PNP Epitaxial Silicon Darlington Transistor

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

| Symbol    | Parameter  | Value      | Units            |
|-----------|--|------------|------------------|
| $V_{CBO}$ | Collector- Base Voltage : KSE700/701<br>: KSE702/703   | - 60       | V                |
|           |  | - 80       | V                |
| $V_{CEO}$ | Collector-Emitter Voltage : KSE700/701<br>: KSE702/703 | - 60       | V                |
|           |  | - 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 ( $T_C = 25^\circ\text{C}$ )     | 40         | 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         |
|----------------------|--|--|------|------|---------------|
| $BV_{CEO}$           | Collector-Emitter Breakdown Voltage : KSE700/701<br>: KSE702/703                   | $I_C = -10\text{ mA}$ , $I_B = 0$  | -60  |      | V             |
|                      |  |  | -80  |      | V             |
| $I_{CEO}$            | Collector Cut-off Current : KSE700/701<br>: KSE702/703                             | $V_{CE} = -60\text{ V}$ , $I_B = 0$<br>$V_{CE} = -80\text{ V}$ , $I_B = 0$   |      | -100 | $\mu\text{A}$ |
|                      |  |  |      | -100 | $\mu\text{A}$ |
| $I_{CBO}$            | Collector Cut-off Current  | $V_{CB} = \text{Rated } BV_{CEO}$ , $I_E = 0$<br>$V_{CB} = \text{Rated } BV_{CEO}$ , $I_E = 0$<br>@ $T_C = 100^\circ\text{C}$                  |      | -100 | $\mu\text{A}$ |
|                      |  |  |      | -500 | $\mu\text{A}$ |
| $I_{EBO}$            | Emitter Cut-off Current  | $V_{BE} = -5\text{ V}$ , $I_C = 0$   |      | -2   | mA            |
| $h_{FE}$             | DC Current Gain : KSE700/702<br>: KSE701/703<br>: ALL DEVICES                      | $V_{CE} = -3\text{ V}$ , $I_C = -1.5\text{ A}$<br>$V_{CE} = -3\text{ V}$ , $I_C = -2\text{ A}$<br>$V_{CE} = -3\text{ V}$ , $I_C = -4\text{ A}$ | 750  |      |               |
|                      |  |  | 750  |      |               |
|                      |  |  | 100  |      |               |
|                      |  |  |      |      |               |
| $V_{CE(\text{sat})}$ | Collector-Emitter Saturation Voltage : KSE700/702<br>: KSE701/703<br>: ALL DEVICES | $I_C = -1.5\text{ A}$ , $I_B = -30\text{ mA}$<br>$I_C = -2\text{ A}$ , $I_B = -40\text{ mA}$<br>$I_C = -4\text{ A}$ , $I_B = -40\text{ mA}$    |      | -2.5 | V             |
|                      |  |  |      | -2.8 | V             |
|                      |  |  |      | -3   | V             |
| $V_{BE(\text{on})}$  | Base-Emitter On Voltage : KSE700/702<br>: KSE701/703<br>: ALL DEVICES              | $V_{CE} = -3\text{ V}$ , $I_C = -1.5\text{ A}$<br>$V_{CE} = -3\text{ V}$ , $I_C = -2\text{ A}$<br>$V_{CE} = -3\text{ V}$ , $I_C = -4\text{ A}$ |      | -1.2 | V             |
|                      |  |  |      | -2.5 | V             |
|                      |  |  |      | -3   | V             |
|                      |  |  |      |      |               |

# Typical Characteristics

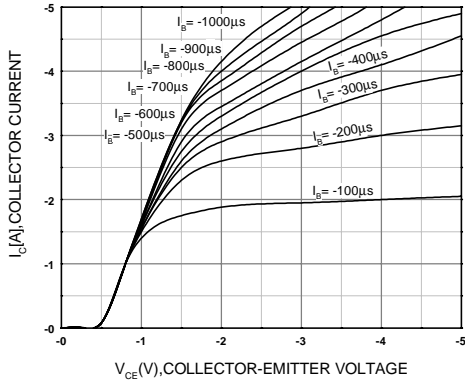


Figure 1. Static Characteristic

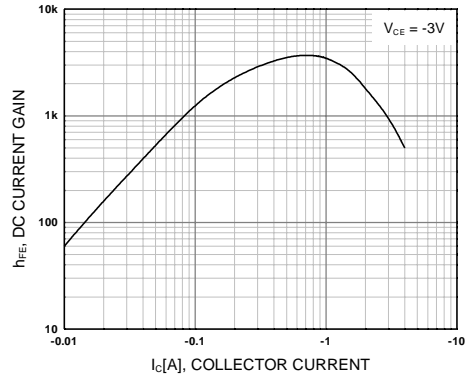


Figure 2. DC current Gain

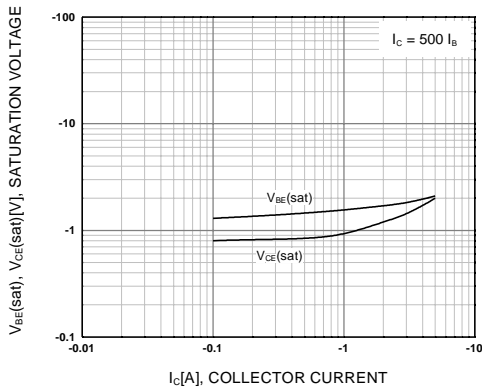


Figure 3. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

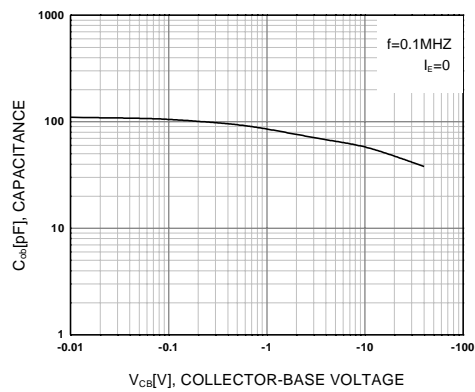


Figure 4. Collector Output Capacitance

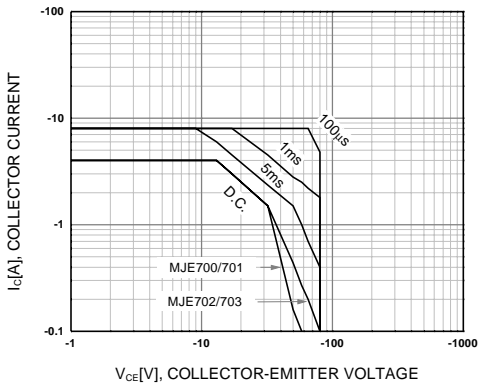


Figure 5. Safe Operating Area

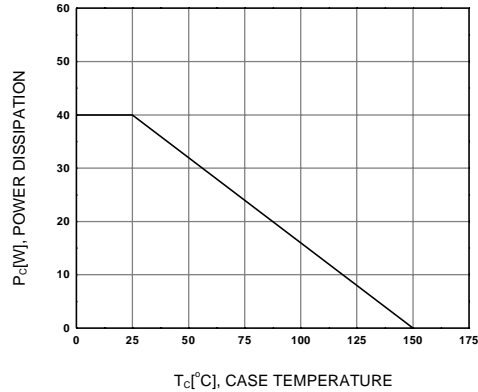
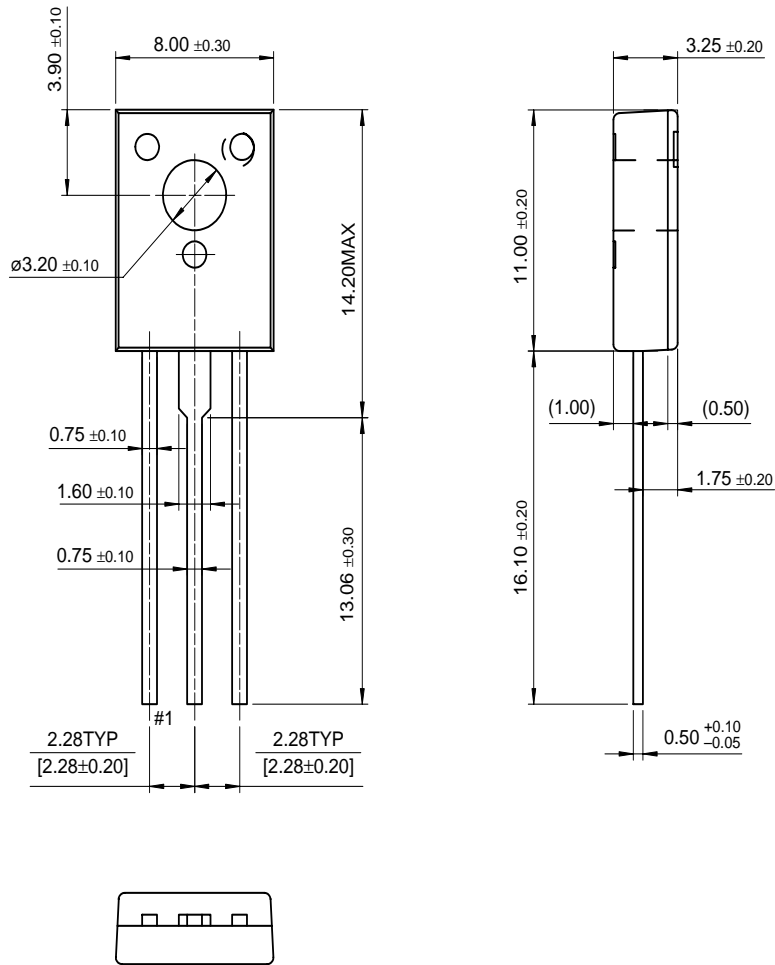


Figure 6. Power Derating

# Package Dimensions

## TO-126



Dimensions in Millimeters

KSE700/701/702/703

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