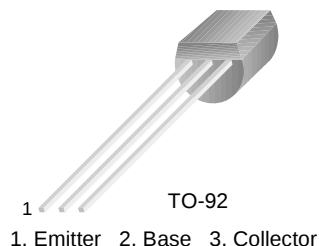


# KSP42/43

KSP42/43

## High Voltage Transistor

- Collector-Emitter Voltage:  $V_{CEO}$ =KSP42: 300V  
KSP43: 200V
- Collector Power Dissipation:  $P_C(\max)$ =625mW



## NPN Epitaxial Silicon Transistor

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

| Symbol    | Parameter                   | Value     | Units            |
|-----------|-----------------------------|-----------|------------------|
| $V_{CBO}$ | Collector Base Voltage      |           |                  |
|           | : KSP42                     | 300       | V                |
|           | : KSP43                     | 200       | V                |
| $V_{CEO}$ | Collector-Emitter Voltage   |           |                  |
|           | : KSP42                     | 300       | V                |
|           | : KSP43                     | 200       | V                |
| $V_{EBO}$ | Emitter-Base Voltage        | 6         | V                |
| $I_C$     | Collector Current           | 500       | mA               |
| $P_C$     | Collector Power Dissipation | 625       | mW               |
| $T_J$     | Junction Temperature        | 150       | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature         | -55 ~ 150 | $^\circ\text{C}$ |

### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol               | Parameter                              | Test Condition                                            | Min. | Max. | Units |
|----------------------|----------------------------------------|-----------------------------------------------------------|------|------|-------|
| $BV_{CBO}$           | Collector-Base Breakdown Voltage       | $I_C=100\mu\text{A}, I_E=0$                               |      |      |       |
|                      | : KSP42                                |                                                           | 300  |      | V     |
|                      | : KSP43                                |                                                           | 200  |      | V     |
| $BV_{CEO}$           | * Collector -Emitter Breakdown Voltage | $I_C=1\text{mA}, I_B=0$                                   |      |      |       |
|                      | : KSP42                                |                                                           | 300  |      | V     |
|                      | : KSP43                                |                                                           | 200  |      | V     |
| $BV_{EBO}$           | Emitter-Base Breakdown Voltage         | $I_E=100\mu\text{A}, I_C=0$                               | 6    |      | V     |
| $I_{CBO}$            | Collector Cut-off Current              |                                                           |      |      |       |
|                      | : KSP42                                | $V_{CB}=200\text{V}, I_E=0$                               |      | 100  | nA    |
|                      | : KSP43                                | $V_{CB}=160\text{V}, I_E=0$                               |      | 100  | nA    |
| $I_{EBO}$            | Emitter Cut-off Current                |                                                           |      |      |       |
|                      | : KSP42                                | $V_{BE}=6\text{V}, I_C=0$                                 |      | 100  | nA    |
|                      | : KSP43                                | $V_{BE}=4\text{V}, I_C=0$                                 |      | 100  | nA    |
| $h_{FE}$             | * DC Current Gain                      | $V_{CE}=10\text{V}, I_C=1\text{mA}$                       | 25   |      |       |
|                      |                                        | $V_{CE}=10\text{V}, I_C=10\text{mA}$                      | 40   |      |       |
|                      |                                        | $V_{CE}=10\text{V}, I_C=30\text{mA}$                      | 40   |      |       |
| $V_{CE}(\text{sat})$ | * Collector-Emitter Saturation Voltage | $I_C=20\text{mA}, I_B=2\text{mA}$                         |      | 0.5  | V     |
| $V_{BE}(\text{sat})$ | * Base-Emitter Saturation Voltage      | $I_C=20\text{mA}, I_B=2\text{mA}$                         |      | 0.9  | V     |
| $C_{ob}$             | Output Capacitance                     | $V_{CB}=20\text{V}, I_E=0$                                |      |      |       |
|                      | : KSP42                                | $f=1\text{MHz}$                                           |      | 3    | pF    |
|                      | : KSP43                                |                                                           |      | 4    | pF    |
| $f_T$                | Current Gain Bandwidth Product         | $V_{CE}=20\text{V}, I_C=10\text{mA}$<br>$f=100\text{MHz}$ | 50   |      | MHz   |

\* Pulse Test:  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

## Typical Characteristics

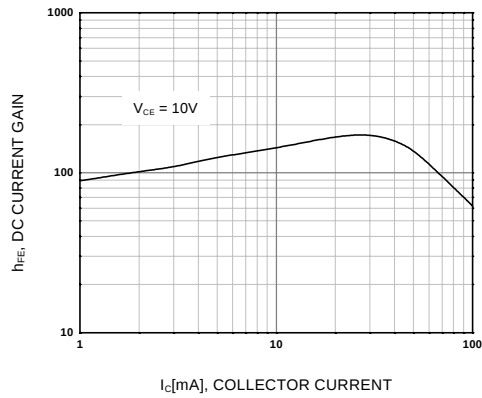


Figure 1. DC current Gain

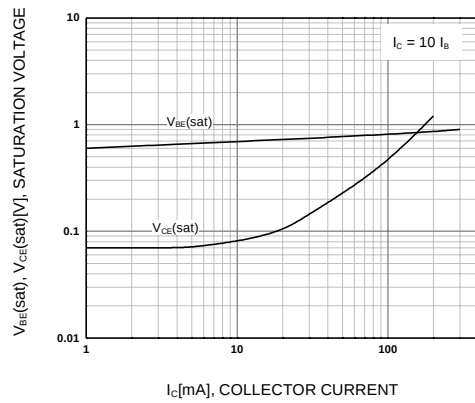


Figure 2. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

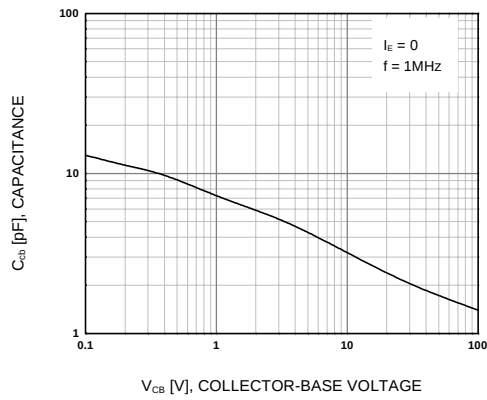


Figure 3. Collector-Base Capacitance

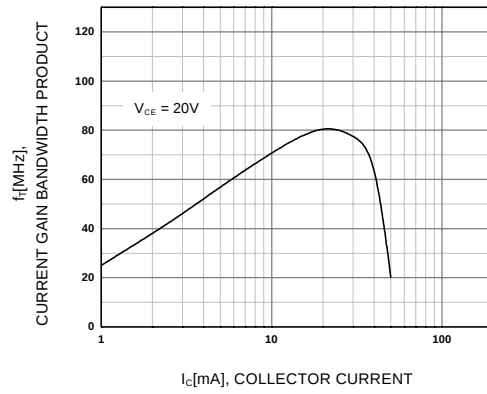


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## TO-92



Dimensions in Millimeters

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