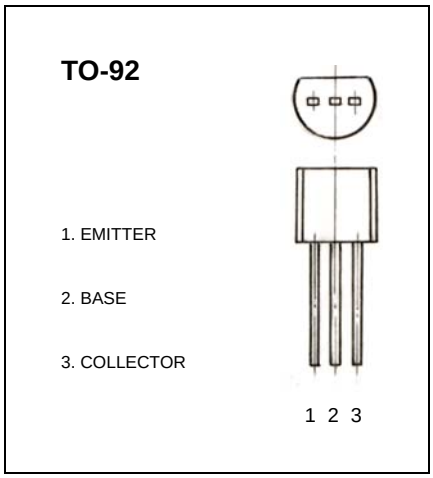
# TO-92 Plastic-Encapsulate Transistors

## KSP44 TRANSISTOR (NPN)




**MARKING: KSP44**

### FEATURES

- **High voltage**

**MAXIMUM RATINGS*** $T_A$=25℃ unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 400 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 400 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current -Continuous | 0.2 | A |
| $P_C$ | Collector Dissipation | 0.625 | W |
| $T_J$, $T_{stg}$ | Junction and Storage Temperature | -55 to +150 | ℃ |

**ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)**

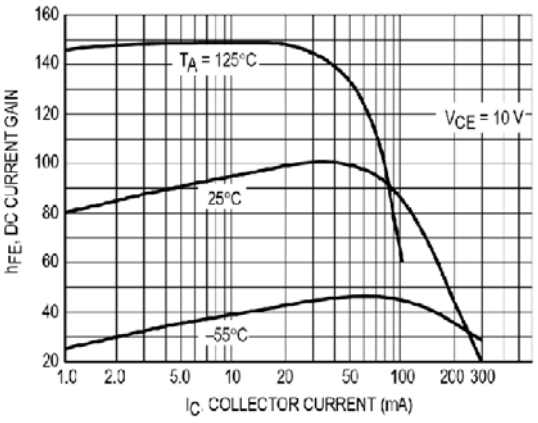
| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V(BR)_{CBO}$ | Ic= 100μA , $I_E$=0 | 400 | | | V |
| **Collector-emitter breakdown voltage** | $V(BR)_{CEO}$ | $I_C$= 1 mA , $I_B$=0 | 400 | | | V |
| **Emitter-base breakdown voltage** | $V(BR)_{EBO}$ | $I_E$=100μA, $I_C$=0 | 5 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$=400 V, $I_E$=0 | | | 0.1 | μA |
| **Collector cut-off current** | $I_{CEO}$ | $V_{CE}$=400 V | | | 5 | μA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$= 4V, $I_C$=0 | | | 0.1 | μA |
| **DC current gain** | $H_{FE\ (1)}$ | $V_{CE}$=10V , $I_C$=10 mA | 80 | | 300 | |
| | $H_{FE(2)}$ | $V_{CE}$=10V, $I_C$=1mA | 70 | | | |
| | $H_{FE(3)}$ | $V_{CE}$=10V, $I_C$=100 mA | 60 | | | |
| | $H_{FE(4)}$ | $V_{CE}$=10V, $I_C$=50 mA | 80 | | | |
| **Collector-emitter saturation voltage** | $V_{CE}$(sat) | $I_C$=10 mA, $I_B$=1mA | | | 0.2 | V |
| | $V_{CE}$(sat) | $I_C$=50 mA, $I_B$=5mA | | | 0.3 | V |
| **Base-emitter sataration voltage** | $V_{BE}$(sat) | $I_C$=10 mA, $I_B$= 1 mA | | | 0.75 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=20V, $I_C$=10mA<br>f =30MHz | 50 | | | MHz |

**CLASSIFICATION OF $hFE_{(1)}$**

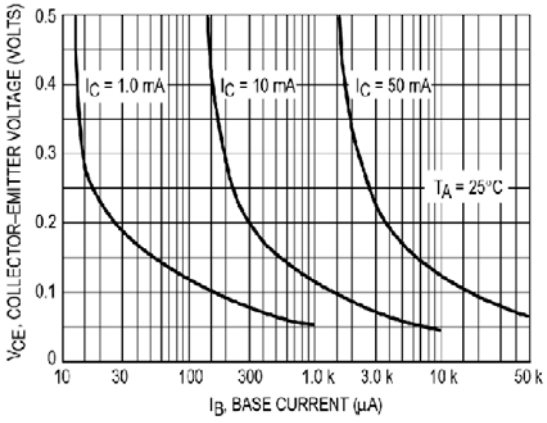
| Rank | A | B1 | B2 | C |
|---|---|---|---|---|
| **Range** | 80-100 | 100-150 | 150-200 | 200-300 |

## Typical Characteristics

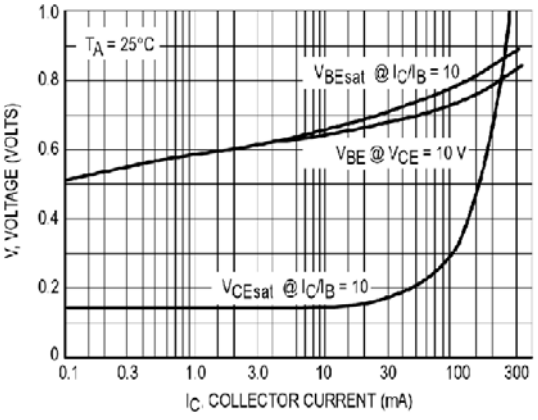




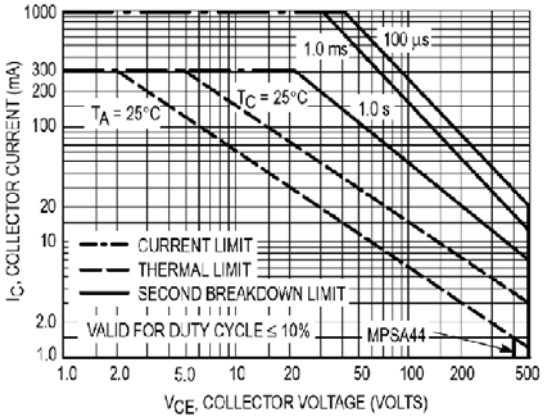

**DC Current Gain**



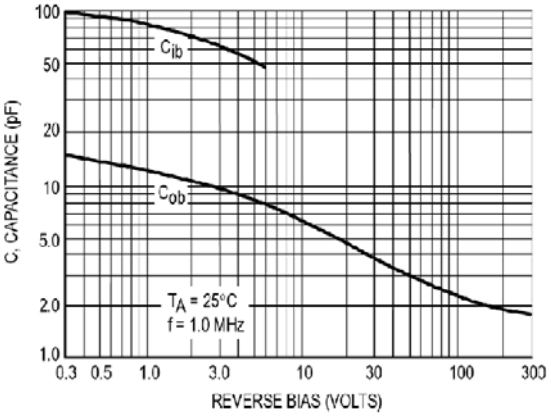

**Collector Saturation Region**



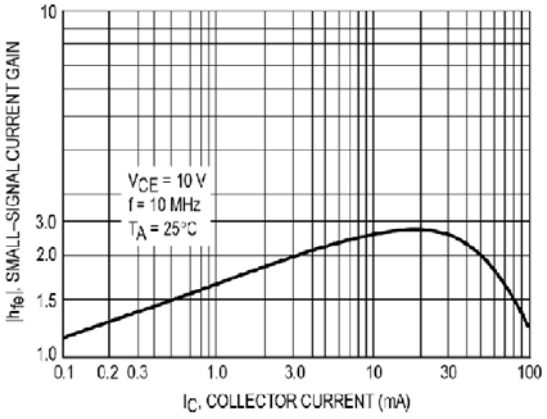

**"On" Voltages**




**Active Region — Safe Operating Area**




**Capacitance**




**High Frequency Current Gain**