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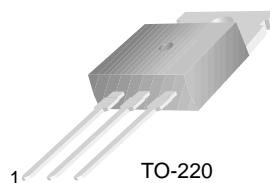
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KSE44H Series

General Purpose Power Switching Applications

- Low Collector-Emitter Saturation Voltage : $V_{CE(sat)} = 1V$ (Max.) @ 8A
- Fast Switching Speeds
- Complement to KSE45H



1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|----------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | : KSE44H 1,2 | 30 |
| | | : KSE44H 4,5 | 45 |
| | | : KSE44H 7,8 | 60 |
| | | : KSE44H 10,11 | 80 |
| V_{EBO} | Emitter- Base Voltage | 5 | V |
| I_C | Collector Current (DC) | 10 | A |
| I_{CP} | *Collector Current (Pulse) | 20 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 50 | W |
| P_C | Collector Dissipation ($T_a=25^\circ\text{C}$) | 1.67 | 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. | Typ. | Max. | Units |
|---------------|---------------------------------------|--|-------------------|------|------|---------------|
| I_{CES} | Collector Cut-off Current | $V_{CE} = \text{Rated } V_{CEO}, V_{EB} = 0$ | | | 10 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5V, I_C = 0$ | | | 100 | μA |
| h_{FE} | *DC Current Gain | $V_{CE} = 1V, I_C = 2A$ | | | | |
| | | | : KSE44H 1,4,7,10 | 35 | | |
| | : KSE44H 2,5,8,11 | 60 | | | | |
| $V_{CE(sat)}$ | *Collector-Emitter Saturation Voltage | $I_C = 8A, I_B = 0.8A$ $I_C = 8A, I_B = 0.4A$ | | | 1 | V |
| | | | | | 1 | V |
| | | | | | 1.5 | V |
| $V_{BE(sat)}$ | *Base-Emitter Saturation Voltage | $I_C = 8A, I_B = 0.8A$ | | | 1.5 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10V, I_C = 0.5A$ | | 50 | | MHz |
| C_{ob} | Output Capacitance | $V_{CB} = 10V, f = 1\text{MHz}$ | | 130 | | pF |
| t_{ON} | Turn ON Time | $V_{CC} = 20V, I_C = 5A$ $I_{B1} = - I_{B2} = 0.5A$ | | 300 | | ns |
| t_{STG} | Storage Time | | | 500 | | ns |
| t_F | Fall Time | | | 140 | | ns |

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

Typical Characteristics

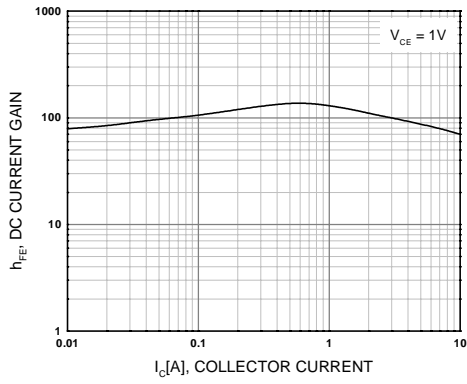


Figure 1. DC current Gain

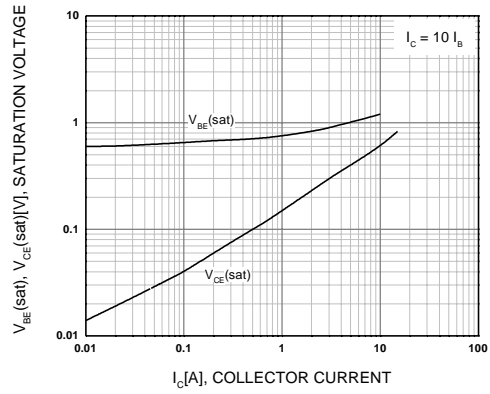


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

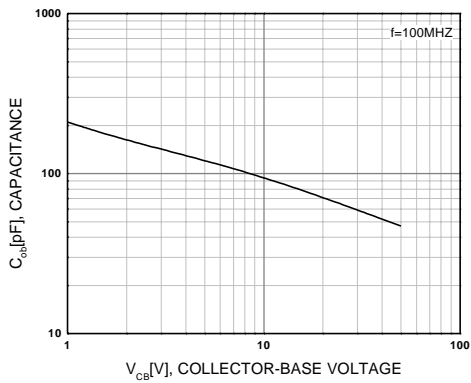


Figure 3. Collector Output Capacitance

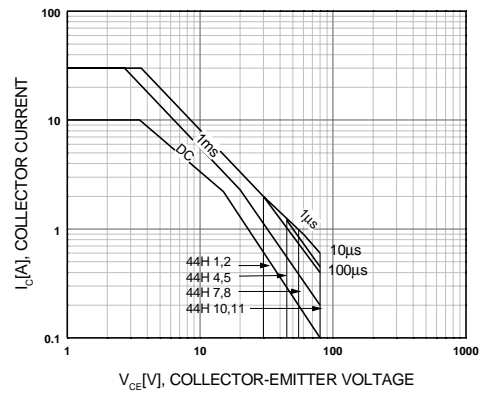


Figure 4. Safe Operating Area

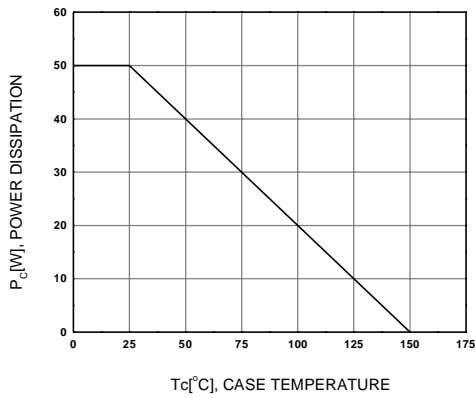


Figure 5. Power Derating

Package Dimensions

TO-220

KSE44H Series



Dimensions in Millimeters

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