

Feature

- Low Collector-Emitter Saturation Voltage & Large Collector Current
- High Power Dissipation: $P_C = 1.3W$ ($T_a=25^\circ C$)
- Complementary to KSB1151



NPN Epitaxial Silicon Transistor

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

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 60 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current (DC) | 5 | A |
| I_{CP} | *Collector Current (Pulse) | 8 | A |
| I_B | Base Current (DC) | 1 | A |
| P_C | Collector Dissipation ($T_a=25^\circ C$) | 1.3 | W |
| P_C | Collector Dissipation ($T_C=25^\circ C$) | 20 | W |
| T_J | Junction Temperature | 150 | $^\circ C$ |
| T_{STG} | Storage Temperature | - 55 ~ 150 | $^\circ C$ |

* $PW \leq 10ms$, duty Cycle $\leq 50\%$

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|-------------------------------------|---------------------------------------|---|-----------------|------|------|---------|
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 50V, I_E = 0$ | | | 10 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 7V, I_C = 0$ | | | 10 | μA |
| h_{FE1} h_{FE2} h_{FE3} | *DC Current Gain | $V_{CE} = 1V, I_C = 0.1A$ $V_{CE} = 1V, I_C = 2A$ $V_{CE} = 1V, I_C = 5A$ | 60 100 50 | | 400 | |
| $V_{CE(sat)}$ | *Collector-Emitter Saturation Voltage | $I_C = 2A, I_B = 0.2A$ | | 0.1 | 0.3 | V |
| $V_{BE(sat)}$ | *Base-Emitter Saturation Voltage | $I_C = 2A, I_B = 0.2A$ | | 0.9 | 1.2 | V |
| t_{ON} | Turn ON Time | $V_{CC} = 10V, I_C = 2A$ $I_{B1} = - I_{B2} = 0.2A$ $R_L = 5\Omega$ | | 0.2 | 1 | μs |
| t_{STG} | Storage Time | | | 1.1 | 2.5 | μs |
| t_F | Fall Time | | | 0.2 | 1 | μs |

* Pulse test: $PW \leq 50\mu s$, duty Cycle $\leq 2\%$ Pulsed

h_{FE} Classification

| Classification | O | Y | G |
|----------------|-----------|-----------|-----------|
| $h_{FE 2}$ | 100 ~ 200 | 160 ~ 320 | 200 ~ 400 |

Typical Characteristics

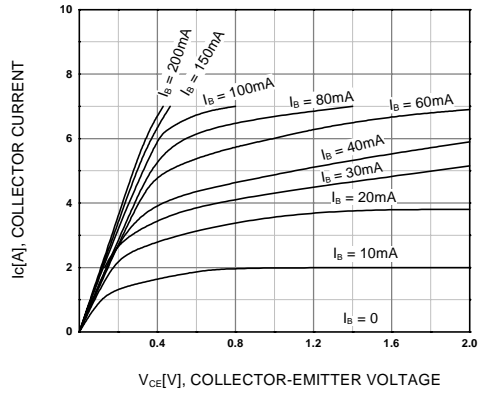


Figure 1. Static Characteristic

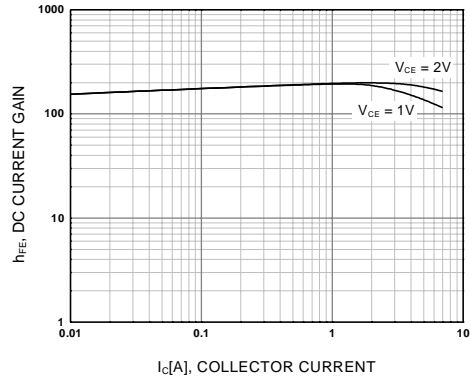


Figure 2. DC current Gain

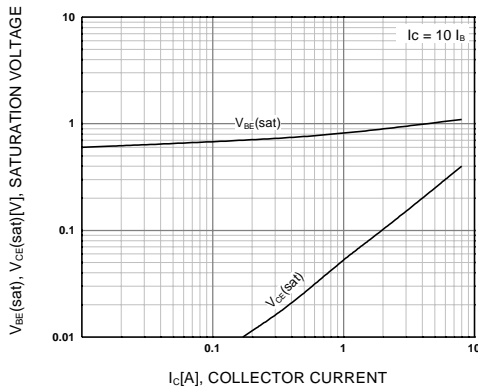


Figure 3. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

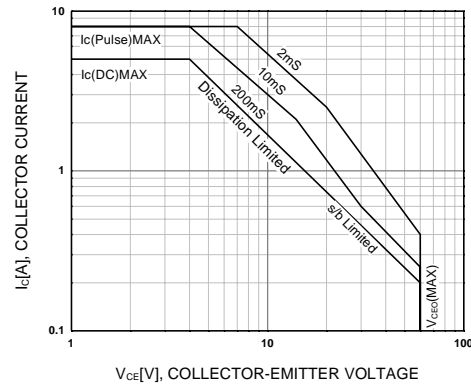


Figure 4. Forward Bias Safe Operating Area

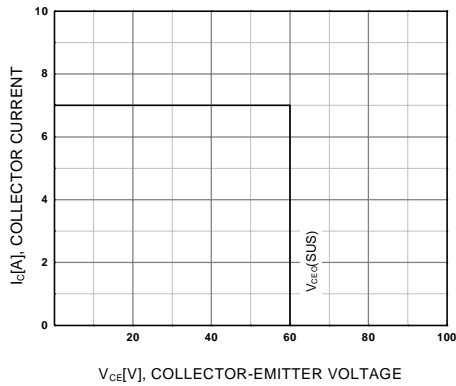


Figure 5. Reverse Bias Safe Operating Area

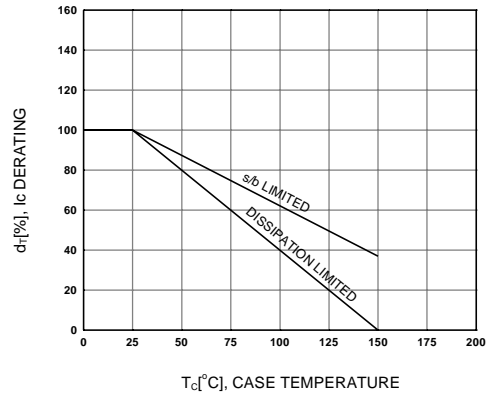


Figure 6. Derating Curve of Safe Operating Areas

Typical Characteristics (Continued)

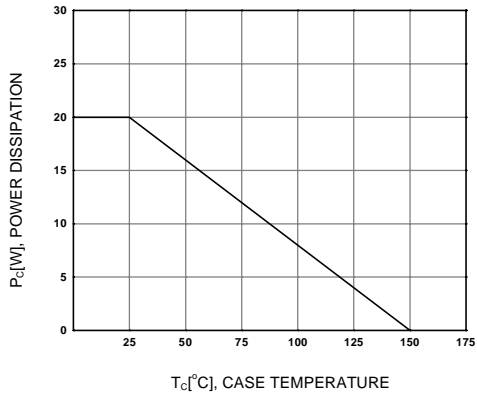


Figure 7. Power Derating

Package Dimensions

KSD1691

TO-126



Dimensions in Millimeters

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| FACT Quiet Series™ | QS™ | |
| FAST® | Quiet Series™ | |
| FASTr™ | SuperSOT™-3 | |
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