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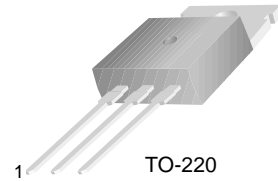


KSC2334

KSC2334

High Speed Switching Industrial Use

- Complement to KSA1010



TO-220
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_{CBO} | Collector-Base Voltage | 150 | V |
| V_{CEO} | Collector-Emitter Voltage | 100 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current (DC) | 7 | A |
| I_{CP} | *Collector Current (Pulse) | 15 | A |
| I_B | Base Current (DC) | 3.5 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 40 | W |
| | Collector Dissipation ($T_A=25^\circ\text{C}$) | 1.5 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 55 ~ 150 | $^\circ\text{C}$ |

* $PW \leq 300\mu\text{s}$, Duty Cycles $\leq 10\%$

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

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|--------------------------|--|---|------|------|---------------|
| $V_{CEO(sus)}$ | Collector-Emitter Sustaining Voltage | $I_C = 5A, I_{B1} = 0.5A, L = 1\text{mH}$ | 100 | | V |
| $V_{CEX(sus)1}$ | Collector-Emitter Sustaining Voltage | $I_C = 5A, I_{B1} = -I_{B2} = 0.5A$ $V_{BE(off)} = -5V, L = 180\mu\text{H}, \text{Clamped}$ | 100 | | V |
| $V_{CEX(sus)2}$ | Collector-Emitter Sustaining Voltage | $I_C = 10A, I_{B1} = 1A, I_{B2} = -0.5A,$ $V_{BE(off)} = -5V, L = 180\mu\text{H}, \text{Clamped}$ | 100 | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 100, I_E = 0$ | | 10 | μA |
| I_{CER} | Collector Cut-off Current | $V_{CE} = 100V, R_{BE} = 51\Omega @ T_C = 125^\circ\text{C}$ | | 1 | mA |
| I_{CEX1} I_{CEX2} | Collector Cut-off Current | $V_{CE} = 100V, V_{BE(off)} = -1.5V$ $V_{CE} = 100V, V_{BE(off)} = -1.5V$ @ $T_C = 125^\circ\text{C}$ | | 10 | μA |
| | | | | 1 | mA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5V, I_C = 0$ | | 10 | μA |
| h_{FE1} | * DC Current Gain | $V_{CE} = 5V, I_C = 0.5A$ | 40 | | |
| h_{FE2} | | $V_{CE} = 5V, I_C = 3A$ | 40 | 240 | |
| h_{FE3} | | $V_{CE} = 5V, I_C = 5A$ | 20 | | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = 5A, I_B = 0.5A$ | | 0.6 | V |
| $V_{BE(sat)}$ | * Base-Emitter Saturation Voltage | $I_C = 5A, I_B = 0.5A$ | | 1.5 | V |
| t_{ON} | Turn On Time | $V_{CC} = 50V, I_C = 5A$ $I_{B1} = -I_{B2} = 0.5A$ $R_L = 10\Omega$ | | 0.5 | μs |
| t_{STG} | Storage Time | | | 0.5 | μs |
| t_F | Fall Time | | | 1.5 | μs |

* Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycles $\leq 2\%$ Pulsed

h_{FE} Classification

| Classification | R | O | Y |
|----------------|---------|----------|-----------|
| h_{FE2} | 40 ~ 80 | 70 ~ 140 | 120 ~ 240 |

Typical Characteristics

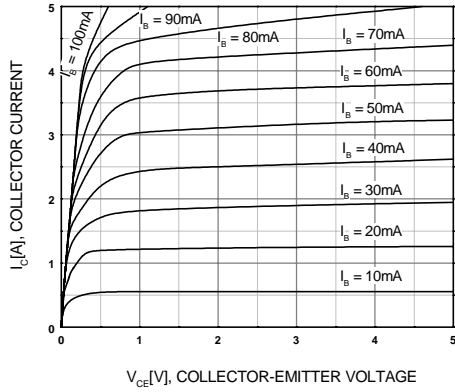


Figure 1. Static Characteristic

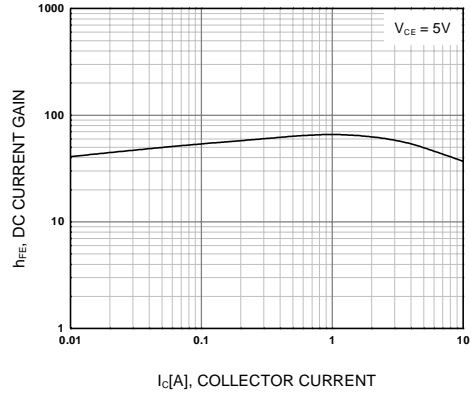


Figure 2. DC current Gain

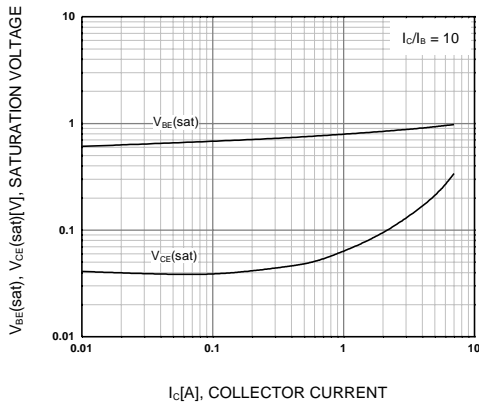


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

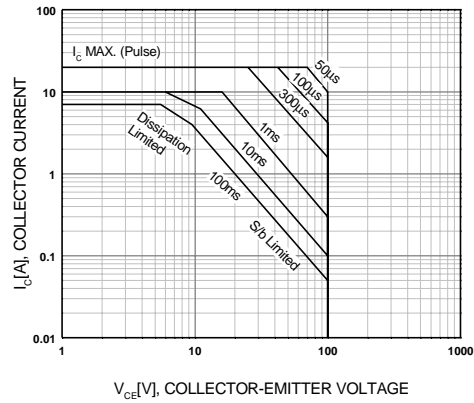


Figure 4. Safe Operating Area

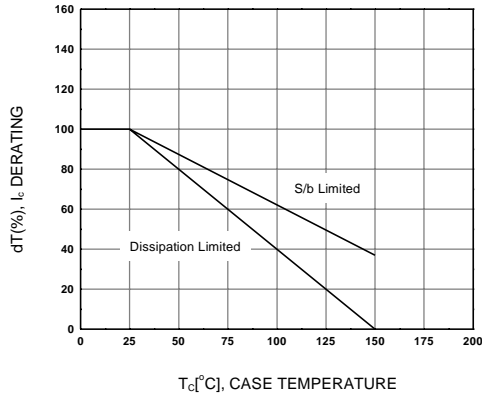


Figure 5. Derating Curve of Safe Operating Areas

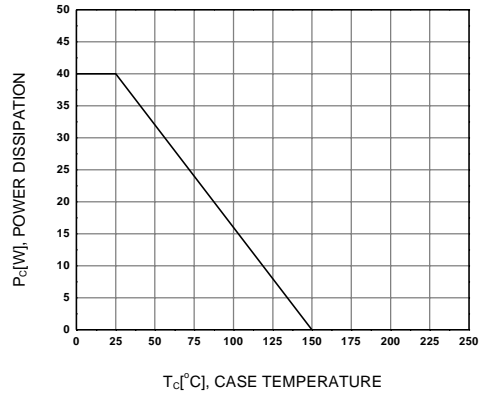
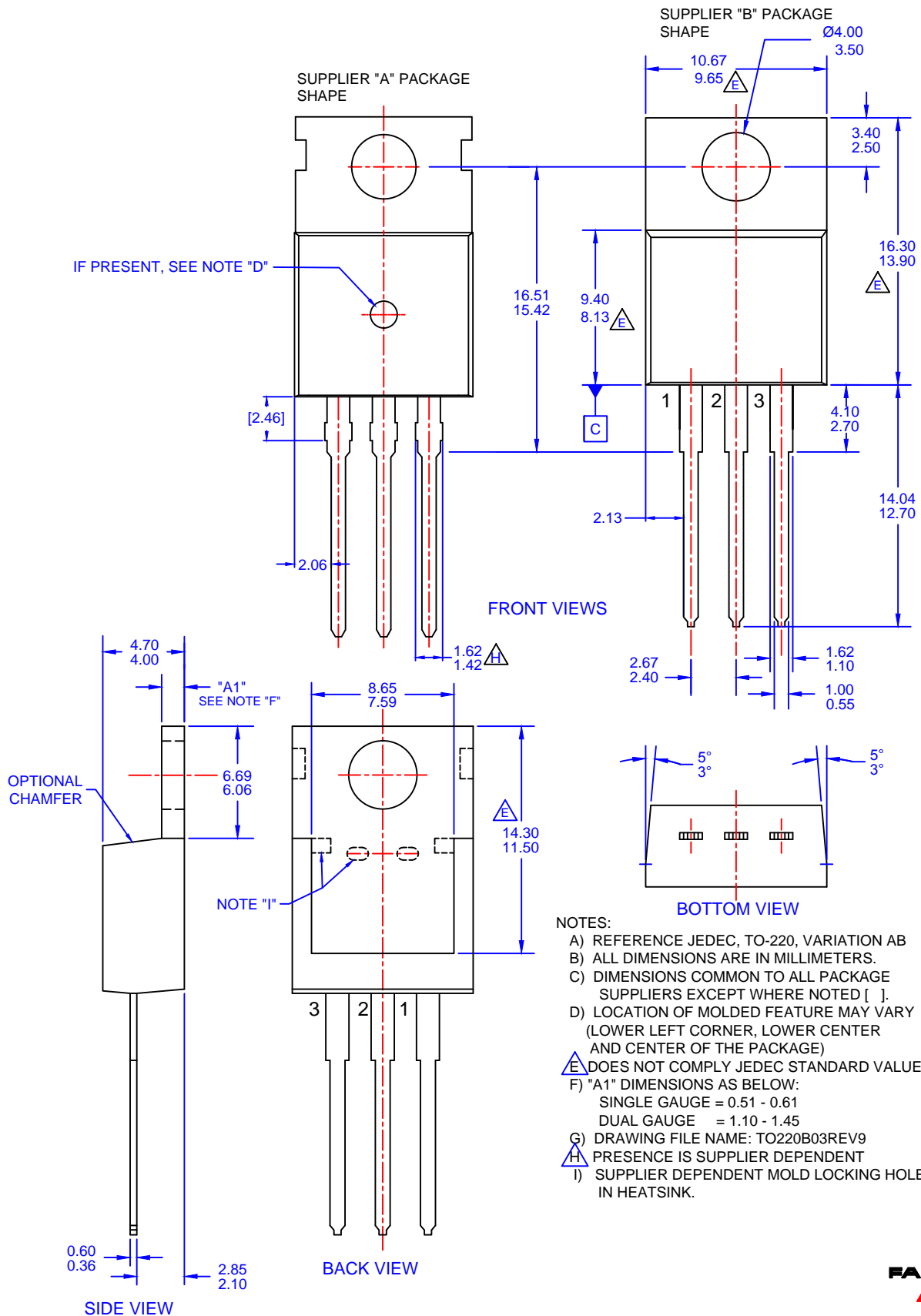


Figure 6. Power Derating



- NOTES:**
- A) REFERENCE JEDEC, TO-220, VARIATION AB
 - B) ALL DIMENSIONS ARE IN MILLIMETERS.
 - C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [].
 - D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
 - E) DOES NOT COMPLY JEDEC STANDARD VALUE.
 - F) "A1" DIMENSIONS AS BELOW:
 SINGLE GAUGE = 0.51 - 0.61
 DUAL GAUGE = 1.10 - 1.45
 - G) DRAWING FILE NAME: TO220B03REV9
 - H) PRESENCE IS SUPPLIER DEPENDENT
 - I) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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