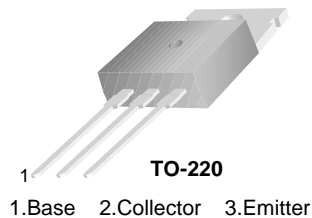


# KSC1173

## NPN Epitaxial Silicon Transistor

### Features

- Low Frequency Power Amplifier, Power Regulator
- Collector Current :  $I_C=3A$
- Collector Dissipation :  $P_C=10W$  ( $T_C=25^\circ C$ )
- Complement to KSA473



### Absolute Maximum Ratings \* $T_A = 25^\circ C$ unless otherwise noted

| Symbol     | Parameter                                  | Value       | Units      |
|------------|--|-------------|------------|
| $BV_{CBO}$ | Collector-Base Voltage                     | 30          | V          |
| $BV_{CEO}$ | Collector-Emitter Voltage                  | 30          | V          |
| $BV_{EBO}$ | Emitter-Base Voltage                       | 5           | V          |
| $I_C$      | Collector Current                          | 3           | A          |
| $P_C$      | Collector Dissipation ( $T_C=25^\circ C$ ) | 10          | W          |
| $T_J$      | Junction Temperature                       | 150         | $^\circ C$ |
| $T_{STG}$  | Storage Temperature                        | -55 to +150 | $^\circ C$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

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

| Symbol                 | Parameter                            | Test Condition   | Min.     | Typ. | Max. | Units         |
|------------------------|--------------------------------------|--|----------|------|------|---------------|
| $BV_{CBO}$             | Collector-Base Breakdown Voltage     | $I_C = 500\mu\text{A}, I_E = 0$  | 30       |      |      | V             |
| $BV_{CEO}$             | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}, I_B = 0$   | 30       |      |      | V             |
| $BV_{EBO}$             | Emitter-Base Breakdown Voltage       | $I_E = -1\text{mA}, I_C = 0$   | 5        |      |      |               |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB} = 20\text{V}, I_E = 0$   |          |      | 1.0  | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB} = 5\text{V}, I_C = 0$  |          |      | 1.0  | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE} = 2\text{V}, I_C = 0.5\text{A}$<br>$V_{CE} = 2\text{V}, I_C = 2.5\text{A}$ | 70<br>25 |      | 240  |               |
| $V_{CE(sat)}$          | Collector-Emitter Saturation Voltage | $I_C = 2\text{A}, I_B = 0.2\text{A}$   |          | 0.3  | 0.8  | V             |
| $V_{BE(on)}$           | Base-Emitter On Voltage              | $V_{CE} = 2\text{V}, I_C = 0.5\text{A}$  |          | 0.75 | 1.0  | V             |
| $f_T$                  | Current Gain Base Width Product      | $V_{CE} = 2\text{V}, I_C = 0.5\text{A}$  |          | 100  |      | MHz           |
| $C_{ob}$               | Output Capacitance                   | $V_{CB} = 10\text{V}, I_E = 0,$<br>$f = 1\text{MHz}$                               |          | 35   |      | pF            |

 **$h_{FE}$  Classification**

| Classification | O        | Y         |
|----------------|----------|-----------|
| $h_{FE1}$      | 70 ~ 140 | 120 ~ 240 |

Typical Performance Characteristics

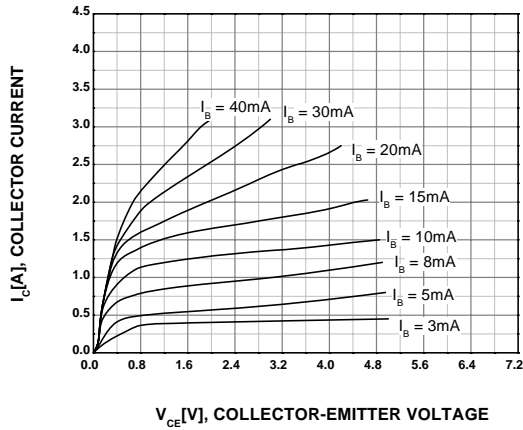


Figure 1. Static Characteristic

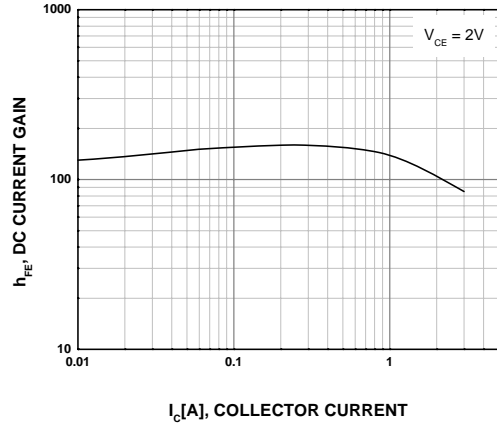


Figure 2. DC current Gain

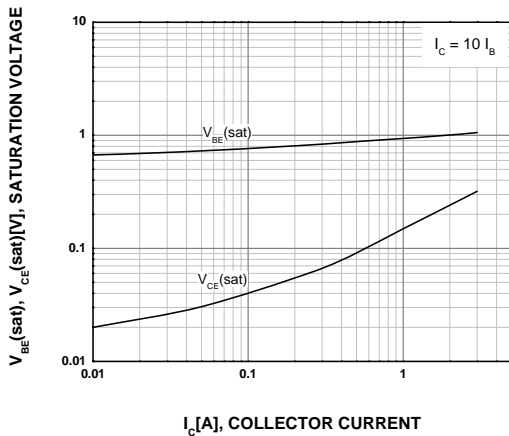


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

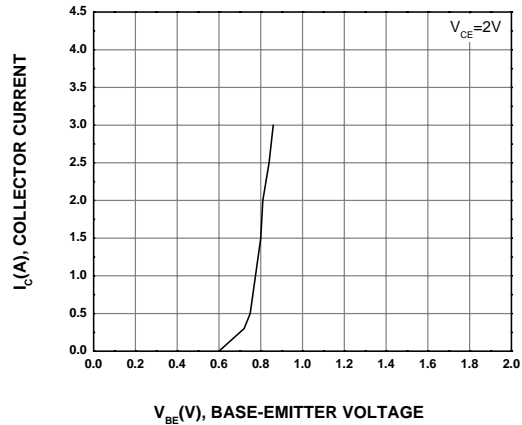


Figure 4. Base-Emitter On Voltage

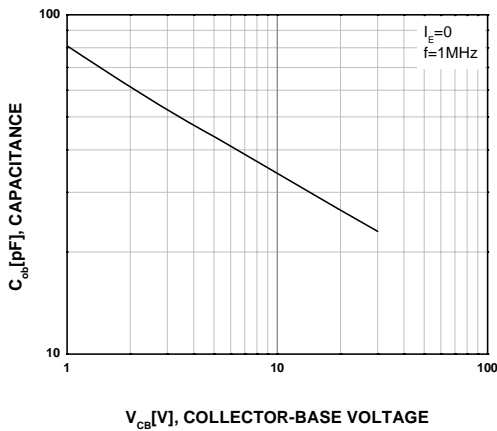


Figure 5. Collector Output Capacitance

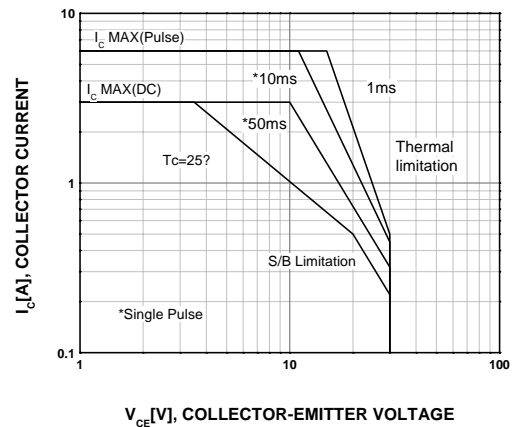


Figure 6. Safe Operating Area

### Typical Performance Characteristics

(Continued)

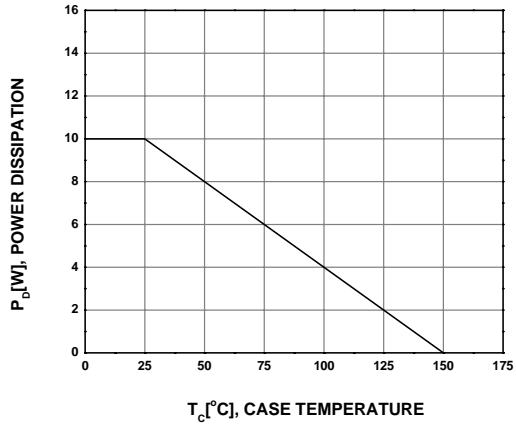
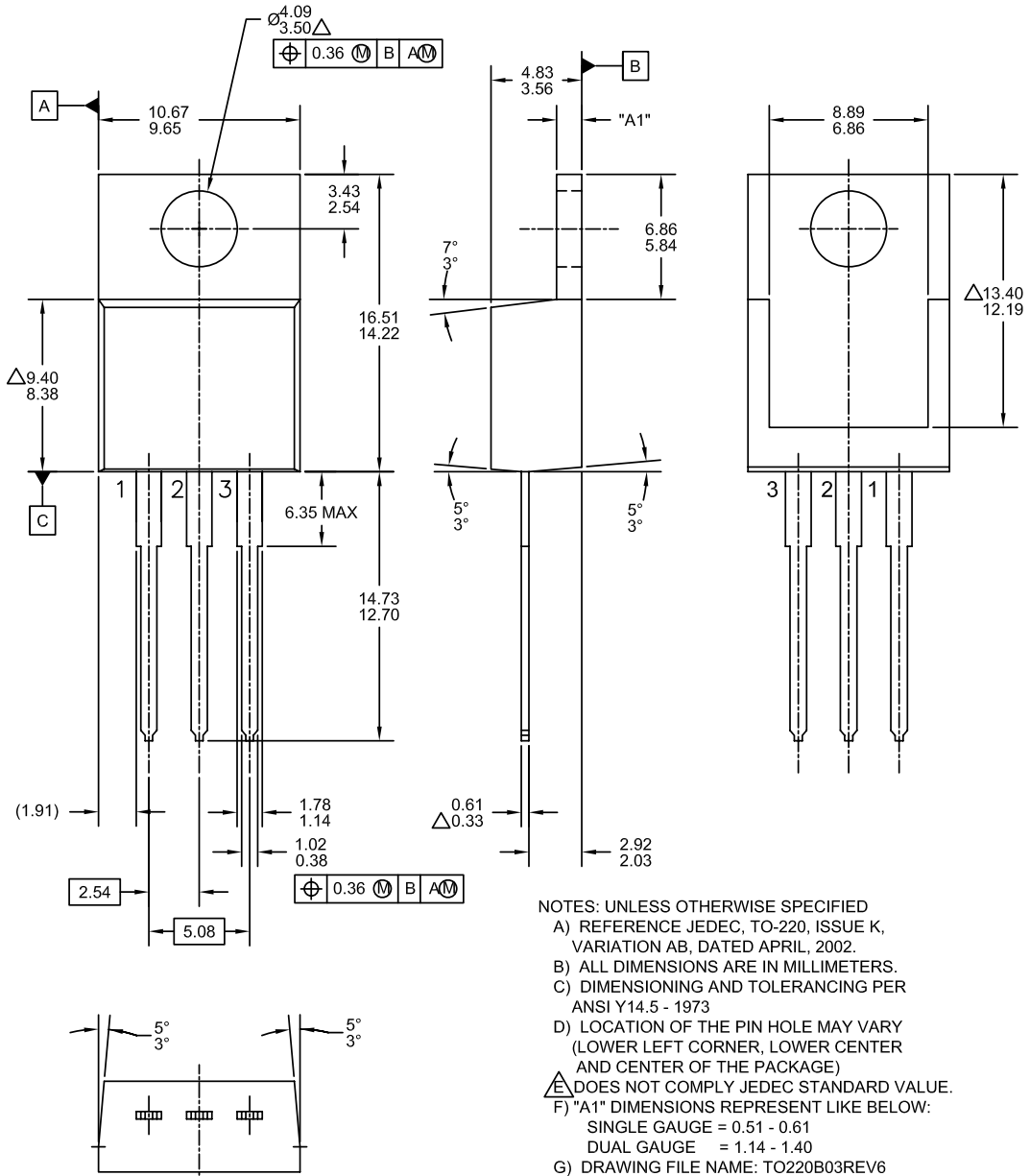


Figure 7. Power Derating

Physical Dimensions

TO-220









- NOTES: UNLESS OTHERWISE SPECIFIED  
 A) REFERENCE JEDEC, TO-220, ISSUE K, VARIATION AB, DATED APRIL, 2002.  
 B) ALL DIMENSIONS ARE IN MILLIMETERS.  
 C) DIMENSIONING AND TOLERANCING PER ANSI Y14.5 - 1973  
 D) LOCATION OF THE PIN HOLE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)  
 E) DOES NOT COMPLY JEDEC STANDARD VALUE.  
 F) "A1" DIMENSIONS REPRESENT LIKE BELOW:  
 SINGLE GAUGE = 0.51 - 0.61  
 DUAL GAUGE = 1.14 - 1.40  
 G) DRAWING FILE NAME: TO220B03REV6



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| FETBench™   |  | Sync-Lock™  |   |
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|   | Power-SPM™  |   |   |

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