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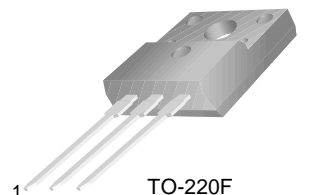
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# KSD1408

## Power Amplifier Applications

- Complement to KSB1017



TO-220F  
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                           | 80         | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        | 80         | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | 5          | V                |
| $I_C$     | Collector Current                                | 4          | A                |
| $I_B$     | Base Current                                     | 0.4        | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 25         | 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         |
|------------------------|--------------------------------------|--|----------|------|------|---------------|
| $BV_{CEO}$             | Collector-Emitter Breakdown Voltage  | $I_C = 50\text{mA}, I_B = 0$   | 80       |      |      | V             |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB} = 80\text{V}, I_E = 0$   |          |      | 30   | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB} = 5\text{V}, I_C = 0$  |          |      | 100  | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE} = 5\text{V}, I_C = 0.5\text{A}$<br>$V_{CE} = 5\text{V}, I_C = 3\text{A}$ | 40<br>15 | 50   | 240  |               |
| $V_{CE(sat)}$          | Collector-Emitter Saturation Voltage | $I_C = 3\text{A}, I_B = 0.3\text{A}$   |          | 0.45 | 1.5  | V             |
| $V_{BE(on)}$           | Base-Emitter On Voltage              | $V_{CE} = 5\text{V}, I_C = 3\text{A}$  |          | 1    | 1.5  | V             |
| $f_T$                  | Current Gain Bandwidth Product       | $V_{CE} = 5\text{V}, I_C = 0.5\text{A}$  |          | 8    |      | MHz           |
| $C_{ob}$               | Output Capacitance                   | $V_{CB} = 10\text{V}, f = 1\text{MHz}$   |          | 90   |      | pF            |

### $h_{FE1}$ Classification

| Classification | R       | O        | Y         |
|----------------|---------|----------|-----------|
| $h_{FE1}$      | 40 ~ 80 | 70 ~ 140 | 120 ~ 240 |

# Typical Characteristics

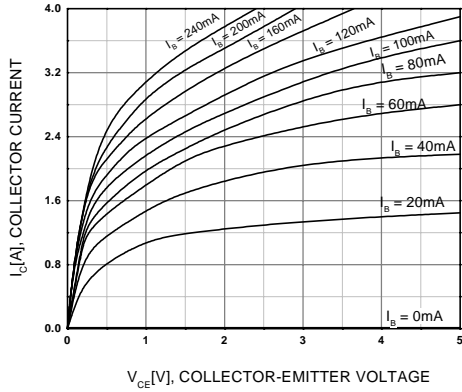


Figure 1. Static Characteristic

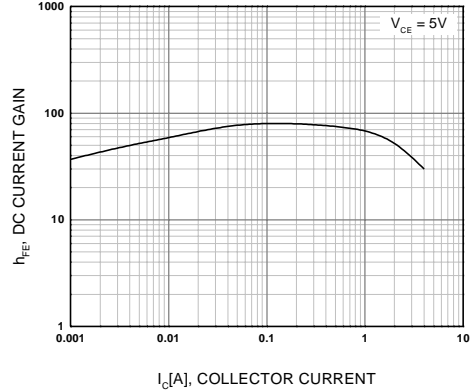


Figure 2. DC current Gain

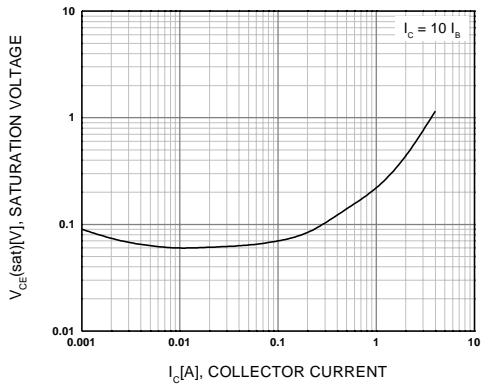


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

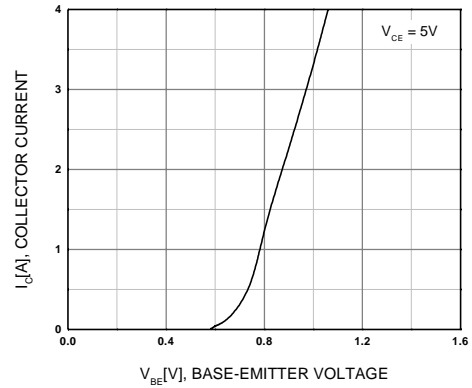


Figure 4. Collector Output Capacitance

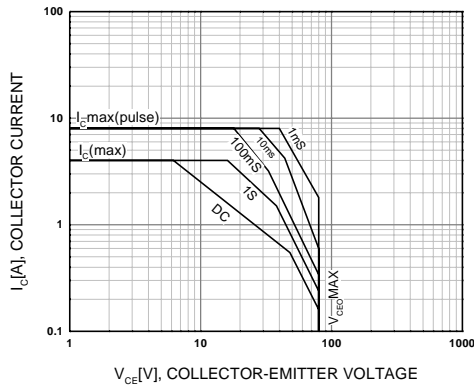


Figure 5. Safe Operating Area

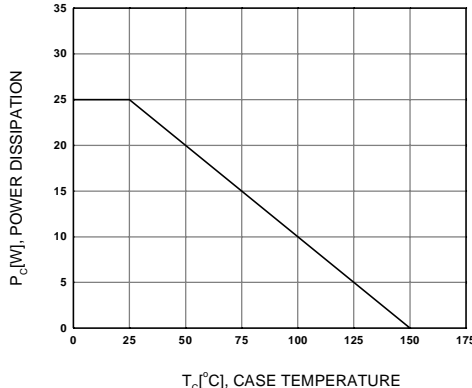
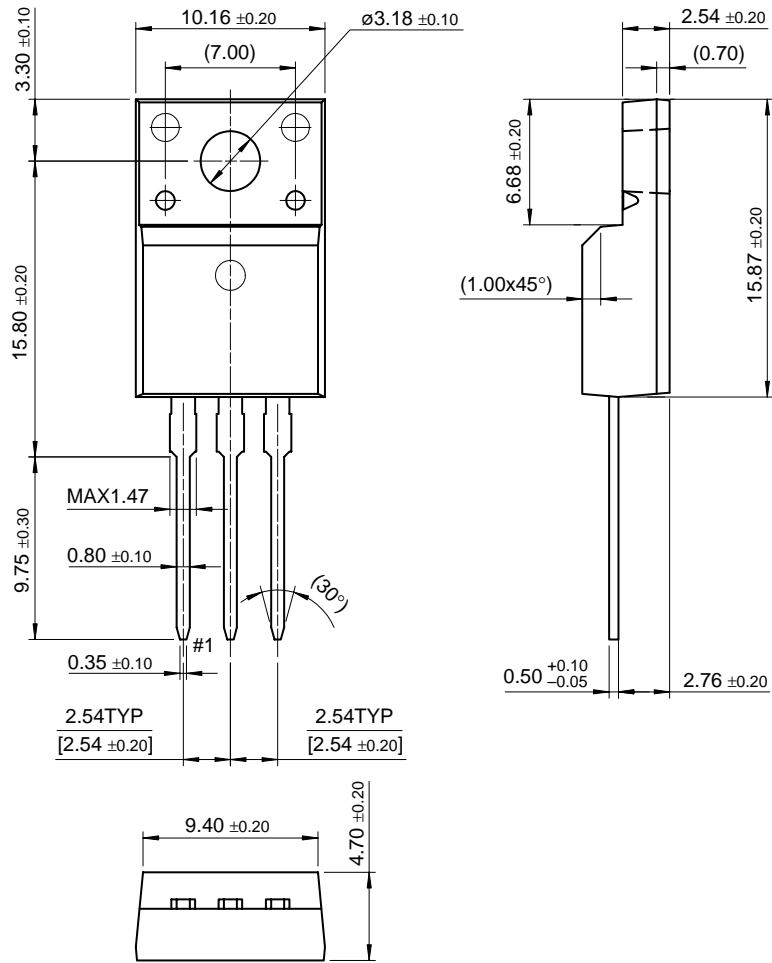


Figure 6. Power Derating

# Package Dimensions

KSD1408

## TO-220F



Dimensions in Millimeters

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