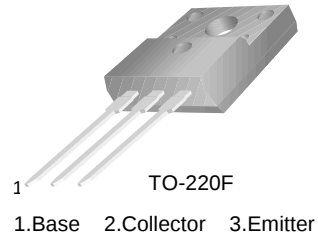


# KSD2058

KSD2058

## Low Frequency Power Amplifier



## 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                           | 60         | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        | 60         | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | 7          | V                |
| $I_C$     | Collector Current                                | 3          | A                |
| $I_B$     | Base Current                                     | 0.5        | A                |
| $P_C$     | Collector Dissipation ( $T_a=25^\circ\text{C}$ ) | 1.5        | W                |
| $P_C$     | 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         |
|----------------------|--------------------------------------|-----------------------------------------|------|------|------|---------------|
| $I_{CBO}$            | Collector Cut-off Current            | $V_{CB} = 60\text{V}, I_E = 0$          |      |      | 10   | $\mu\text{A}$ |
| $I_{EBO}$            | Emitter Cut-off Current              | $V_{EB} = 7\text{V}, I_C = 0$           |      |      | 1    | mA            |
| $V_{CEO}$            | Collector-Emitter Breakdown Voltage  | $I_C = 50\text{mA}, I_B = 0$            | 60   |      |      | V             |
| $h_{FE}$             | DC Current Gain                      | $V_{CE} = 5\text{V}, I_C = 0.5\text{A}$ | 8    |      |      |               |
| $V_{CE(\text{Sat})}$ | Collector-Emitter Saturation Voltage | $I_C = 2\text{A}, I_B = 0.2\text{A}$    |      |      | 1.5  | V             |
| $V_{BE(\text{on})}$  | Base-Emitter ON Voltage              | $V_{CE} = 5\text{V}, I_C = 0.5\text{A}$ |      | 3    |      | V             |
| $f_T$                | Current Gain Bandwidth Product       | $V_{CE} = 5\text{V}, I_C = 0.5\text{A}$ |      |      | 0.4  | MHz           |
| $C_{ob}$             | Output Capacitance                   | $V_{CB} = 10\text{V}, f = 1\text{MHz}$  |      | 35   |      | pF            |
| $t_{ON}$             | Turn ON Time                         | $V_{CC} = 30\text{V}, I_C = 2\text{A}$  |      | 0.65 |      | $\mu\text{s}$ |
| $t_{STG}$            | Storage Time                         | $I_{B1} = - I_{B2} = 0.2\text{A}$       |      | 1.3  |      | $\mu\text{s}$ |
| $t_F$                | Fall Time                            | $R_L = 15\Omega$                        |      | 0.65 |      | $\mu\text{s}$ |

### $h_{FE}$ Classification

| Classification | O        | Y         | G         |
|----------------|----------|-----------|-----------|
| $h_{FE}$       | 60 ~ 120 | 100 ~ 200 | 150 ~ 300 |

## Typical Characteristics

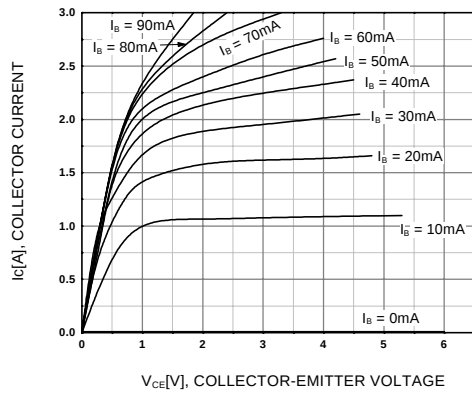


Figure 1. Static Characteristic

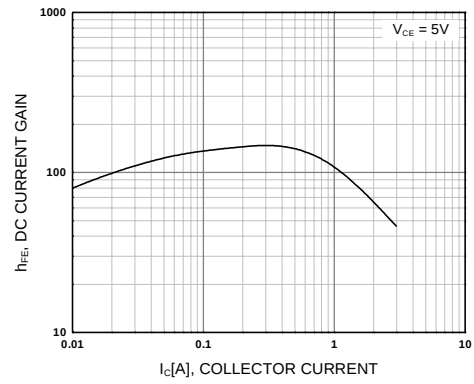


Figure 2. DC current Gain

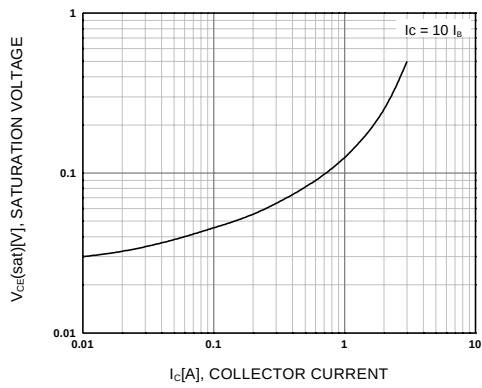


Figure 3. Collector Output Capacitance

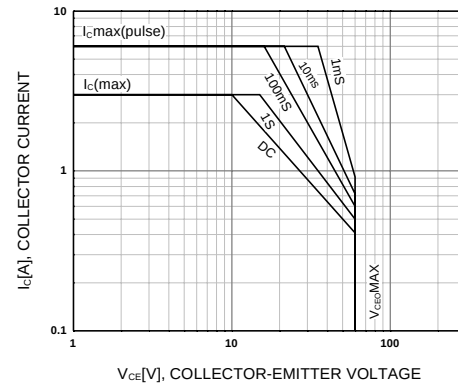


Figure 4. Safe Operating Area

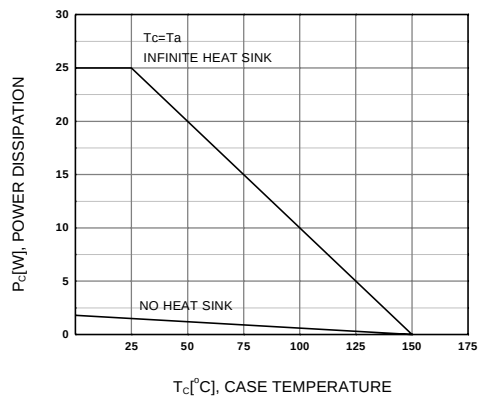
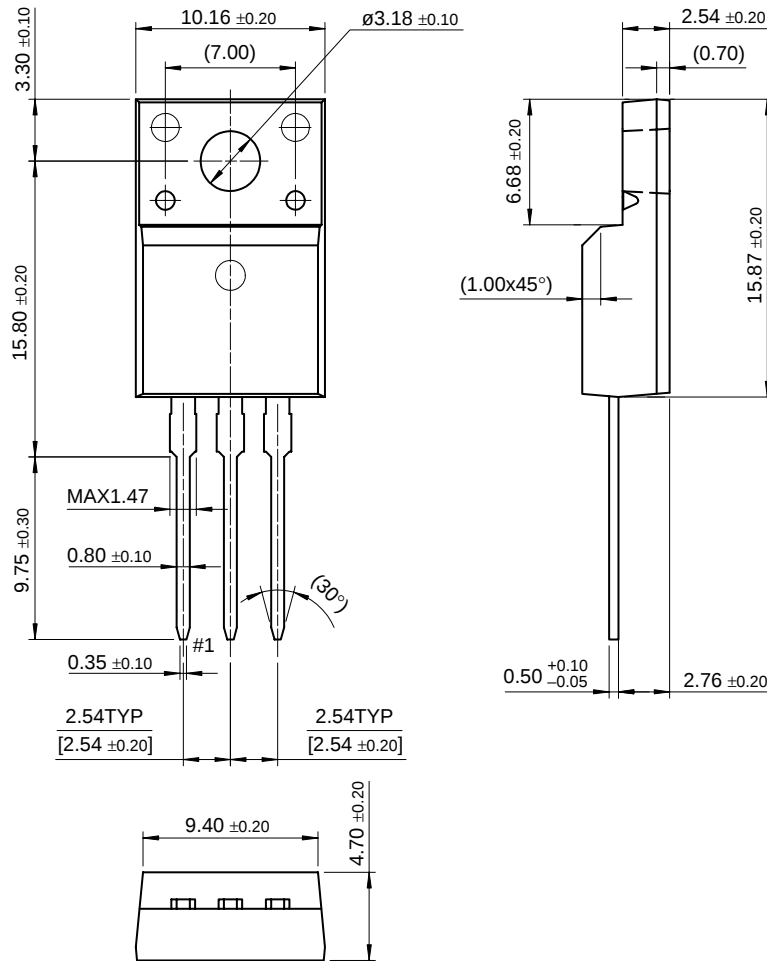


Figure 5. Power Derating

# Package Dimensions

## TO-220F



Dimensions in Millimeters

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