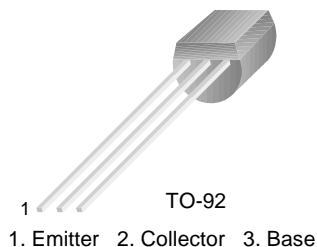


# KSD5041

KSD5041

## AF Output Amplifier for Electronic Flash Unit

- Low Collector-Emitter Saturation Voltage
- High Performance at Low Supply Voltage



## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                   | Ratings   | Units            |
|-----------|-----------------------------|-----------|------------------|
| $V_{CBO}$ | Collector-Base Voltage      | 40        | V                |
| $V_{CEO}$ | Collector-Emitter Voltage   | 20        | V                |
| $V_{EBO}$ | Emitter-Base Voltage        | 7         | V                |
| $I_C$     | Collector Current           | 5         | A                |
| $P_C$     | Collector Power Dissipation | 0.75      | W                |
| $T_J$     | Junction Temperature        | 150       | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature         | -55 ~ 150 | $^\circ\text{C}$ |

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

| Symbol                 | Parameter                            | Test Condition   | Min.       | Typ. | Max. | Units         |
|------------------------|--------------------------------------|--|------------|------|------|---------------|
| $BV_{CEO}$             | Collector-Emitter Breakdown Voltage  | $I_C=1\text{mA}, I_B=0$  | 20         |      |      | V             |
| $BV_{EBO}$             | Emitter-Base Breakdown Voltage       | $I_C=10\mu\text{A}, I_C=0$   | 7          |      |      | V             |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB}=10\text{V}, I_E=0$   |            |      | 0.1  | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB}=7\text{V}, I_C=0$  |            |      | 0.1  | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE}=2\text{V}, I_C=0.5\text{A}$<br>$V_{CE}=2\text{V}, I_C=2\text{A}$ | 180<br>150 |      | 600  |               |
| $V_{CE(sat)}$          | Collector-Emitter Saturation Voltage | $I_C=3\text{A}, I_B=0.1\text{A}$   |            |      | 1    | V             |
| $f_T$                  | Current Gain Bandwidth Product       | $V_{CE}=6\text{V}, I_C=50\text{mA}$                                      |            | 150  |      | MHz           |
| $C_{ob}$               | Output Capacitance                   | $V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$                                |            |      | 50   | pF            |

### $h_{FE}$ Classification

| Classification | P         | Q         | R         |
|----------------|-----------|-----------|-----------|
| $h_{FE}$       | 180 ~ 270 | 230 ~ 380 | 340 ~ 600 |

# Typical Characteristics

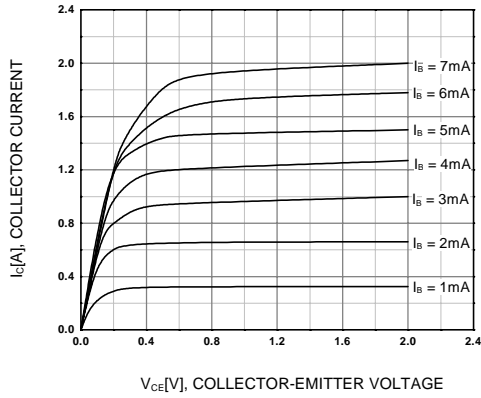


Figure 1. Static Characteristic

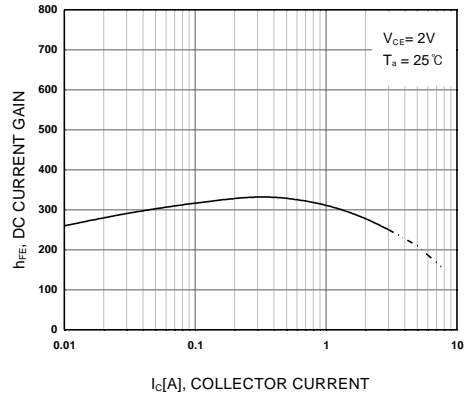


Figure 2. DC current Gain

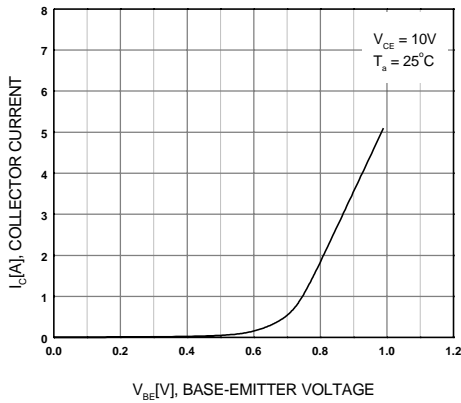


Figure 3. Base-Emitter Saturation Voltage

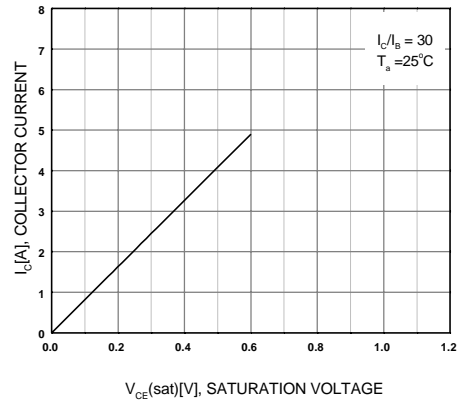


Figure 4. Collector-Emitter Saturation Voltage

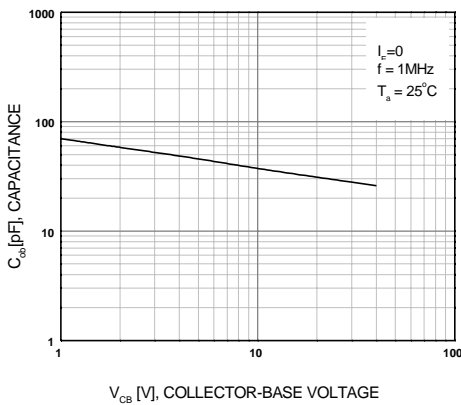


Figure 5. Collector Output Capacitance

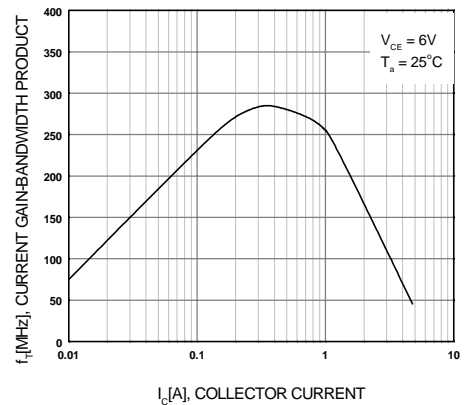


Figure 6. Current Gain Bandwidth Product

Typical Characteristics (Continued)

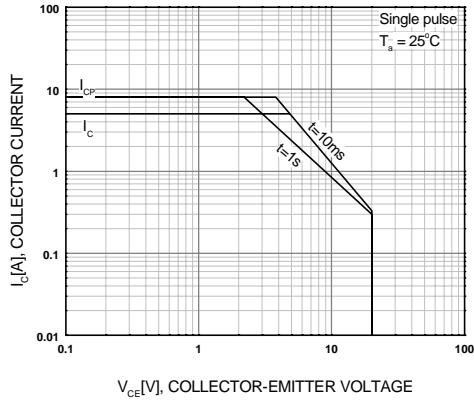


Figure 7. Safe Operating Area

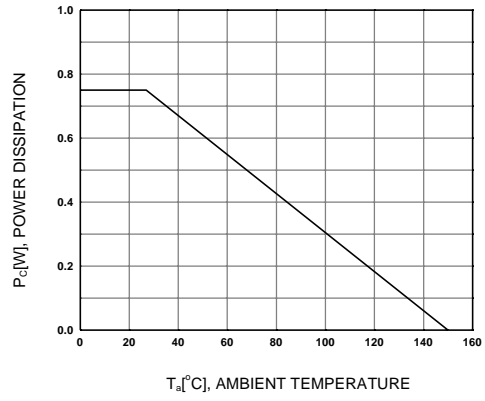
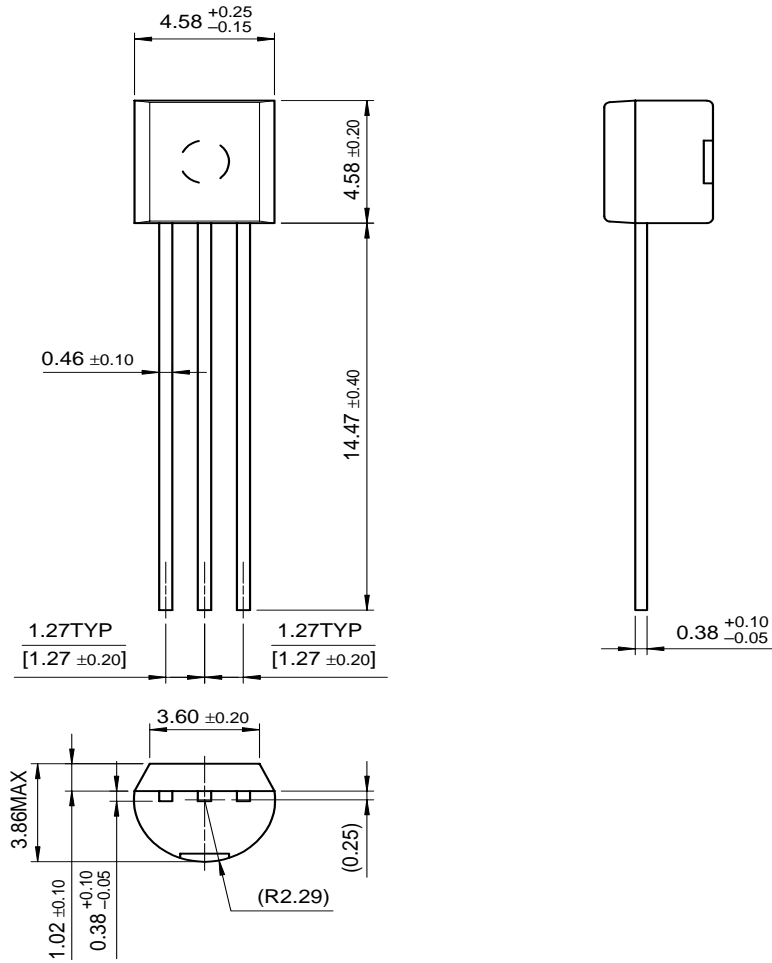


Figure 8. Power Derating

# Package Dimensions

## TO-92



Dimensions in Millimeters

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