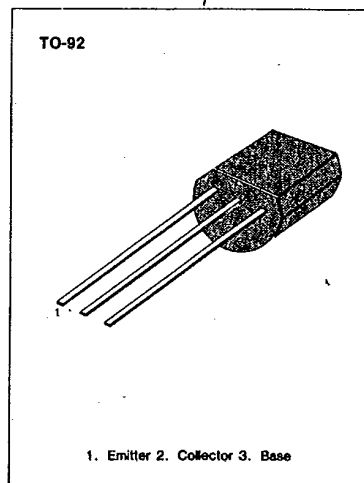


KSD1616/1616A NPN EPITAXIAL SILICON TRANSISTOR**AUDIO FREQUENCY POWER AMPLIFIER
MEDIUM SPEED SWITCHING**

• Complement to KSB1116/1116A

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Rating | Unit |
|-------------------------------------|-----------|---------|------------------|
| Collector-Base Voltage : KSD1616 | V_{CB0} | 60 | V |
| : KSD1616A | | 120 | V |
| Collector-Emitter Voltage : KSD1616 | V_{CE0} | 50 | V |
| : KSD1616A | | 60 | V |
| Emitter-Base Voltage | V_{EB0} | 6 | V |
| Collector Current (DC) | I_C | 1 | A |
| * Collector Current (Pulse) | I_C | 2 | A |
| Collector Dissipation | P_C | 0.75 | W |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55~150 | $^\circ\text{C}$ |

• $PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$ **ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)**

| Characteristic | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|----------------------|---|-----|------|-----|---------------|
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 60\text{V}$, $I_E = 0$ | | | 100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 6\text{V}$, $I_C = 0$ | | | 100 | nA |
| * DC Current Gain : KSD1616 | h_{FE1} | $V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$ | 135 | | 600 | |
| : KSD1616A | | | 135 | | 400 | |
| | h_{FE2} | $V_{CE} = 2\text{V}$, $I_C = 1\text{A}$ | 81 | | | |
| * Base Emitter On Voltage | $V_{BE}(\text{on})$ | $V_{CE} = 2\text{V}$, $I_C = 50\text{mA}$ | 600 | 640 | 700 | mV |
| * Collector Emitter Saturation Voltage | $V_{CE}(\text{sat})$ | $I_C = 1\text{A}$, $I_B = 50\text{mA}$ | | 0.15 | 0.3 | V |
| * Base Emitter Saturation Voltage | $V_{BE}(\text{sat})$ | $I_C = 1\text{A}$, $I_B = 50\text{mA}$ | | 0.9 | 1.2 | V |
| Output Capacitance | C_{ob} | $V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$ | | 19 | | pF |
| Current Gain Bandwidth Product | f_T | $V_{CE} = 2\text{V}$, $I_C = 100\text{mA}$ | 100 | 160 | | MHz |
| Turn On Time | t_{on} | $V_{CC} = 10\text{V}$, $I_C = 100\text{mA}$ | | 0.07 | | μs |
| Storage Time | t_s | $I_B1 = -I_B2 = 10\text{mA}$ | | 0.95 | | μs |
| Fall Time | t_f | $V_{BE}(\text{off}) = -2 \sim -3\text{V}$ | | 0.07 | | μs |

• Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ Pulsed **$h_{FE}(1)$ CLASSIFICATION**

| Classification | Y | G | L |
|----------------|---------|---------|---------|
| $h_{FE}(1)$ | 135-270 | 200-400 | 300-600 |

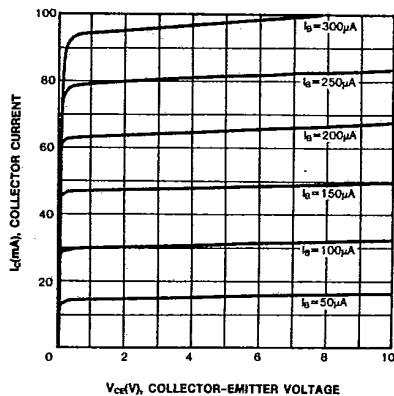


KSD1616/1616A

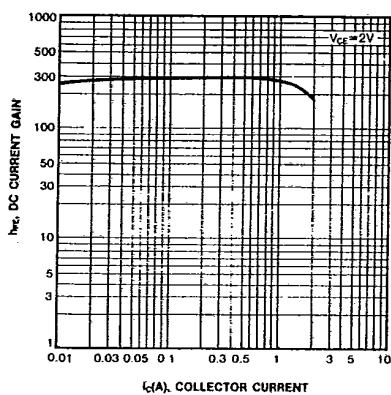
NPN EPITAXIAL SILICON TRANSISTOR

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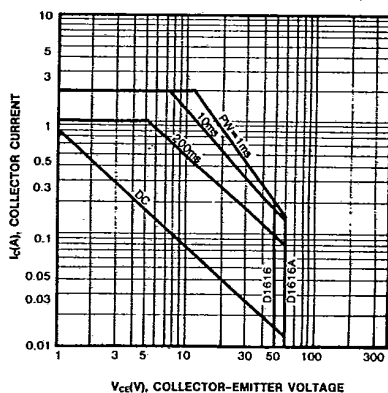
STATIC CHARACTERISTIC



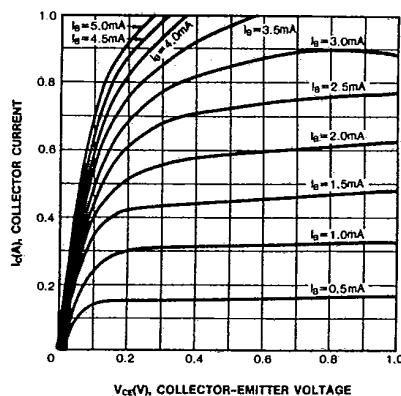
DC CURRENT GAIN



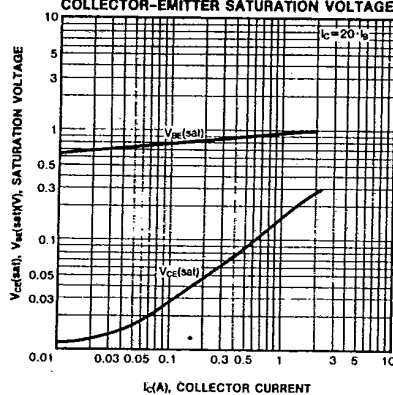
SAFE OPERATING AREA



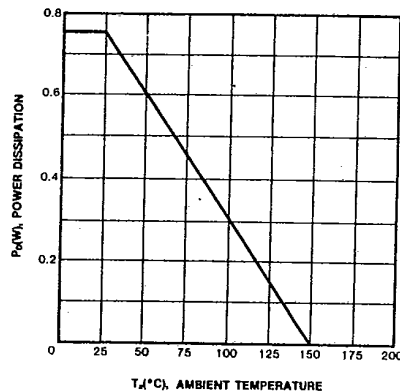
STATIC CHARACTERISTIC



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



POWER DERATING



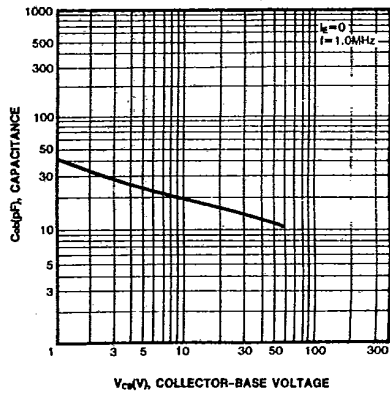
SAMSUNG SEMICONDUCTOR

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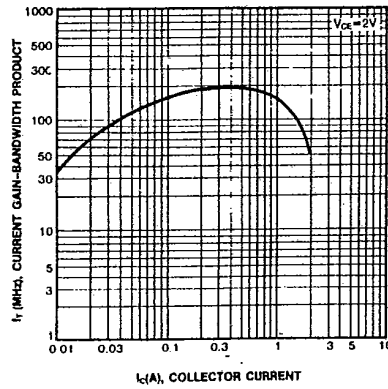
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COLLECTOR OUTPUT CAPACITANCE



CURRENT GAIN-BANDWIDTH PRODUCT



SWITCHING TIME

