



KSA954

Audio Frequency Amplifier



PNP Epitaxial Silicon Transistor

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

| Symbol | Parameter | Ratings | 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 (DC) | -300 | mA |
| I_{CP} | * Collector Current (Pulse) | -500 | mA |
| P_C | Collector Dissipation | 600 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 ~ 150 | $^\circ\text{C}$ |

* $PW \leq 10\text{ms}$, Duty Cycles $\leq 50\%$ Pulsed

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

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------|----------|-----------|------|-------|
| I_{CBO} | Collector Cut-off Current | $V_{CB} = -80\text{V}$, $I_E = 0$ | | | -100 | nA |
| I_{EBO} | Emitter Cut-off Current | $V_{BE} = -5\text{V}$, $I_C = 0$ | | | -100 | nA |
| h_{FE1} h_{FE2} | * DC Current Gain | $V_{CE} = -1\text{V}$, $I_C = -50\text{mA}$ $V_{CE} = -2\text{V}$, $I_C = -300\text{mA}$ | 90 30 | 200 80 | 400 | |
| $V_{BE(on)}$ | * Base Emitter On Voltage | $V_{CE} = -6\text{V}$, $I_C = -10\text{mA}$ | -600 | -660 | -700 | mV |
| $V_{BE(sat)}$ | * Base Emitter Saturation Voltage | $I_C = -300\text{mA}$, $I_B = -30\text{mA}$ | | -0.85 | -1.2 | V |
| $V_{CE(sat)}$ | Collector -Emitter Saturation Voltage | $I_C = -300\text{mA}$, $I_B = -30\text{mA}$ | | -0.15 | -0.6 | V |
| C_{ob} | Output Capacitance | $V_{CB} = -6\text{V}$, $I_E = 0$, $f = 1\text{MHz}$ | | 13 | 25 | pF |
| f_T | Current Gain-Bandwidth Product | $V_{CE} = -6\text{V}$, $I_C = -10\text{mA}$ | 50 | 100 | | MHz |

* Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycles $\leq 2\%$

h_{FE1} Classification

| Classification | O | Y | G |
|----------------|----------|-----------|-----------|
| h_{FE1} | 90 ~ 180 | 135 ~ 270 | 200 ~ 400 |

Typical Characteristics

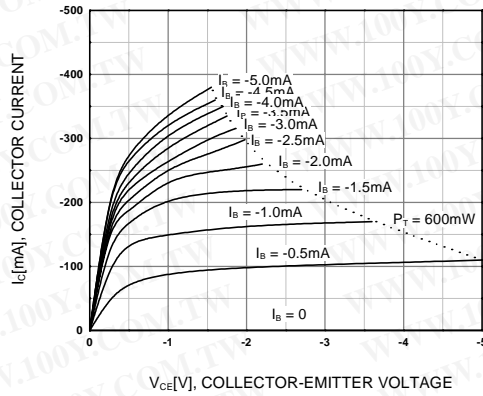


Figure 1. Static Characteristic

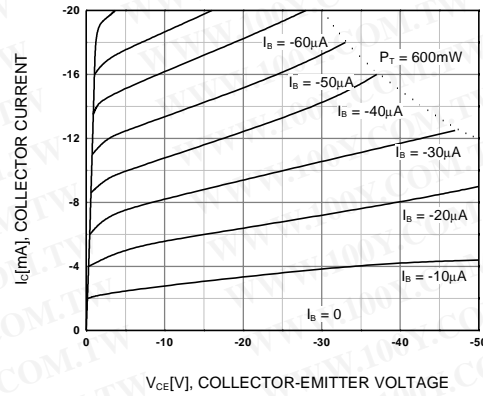


Figure 2. Static Characteristic

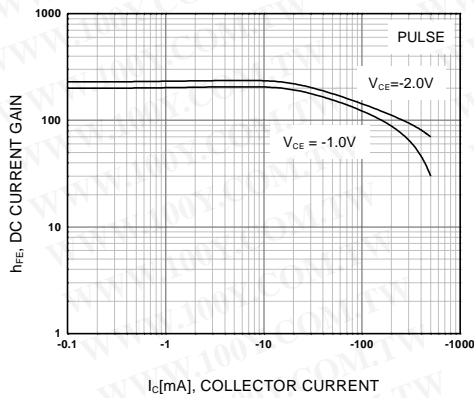


Figure 3. DC current Gain

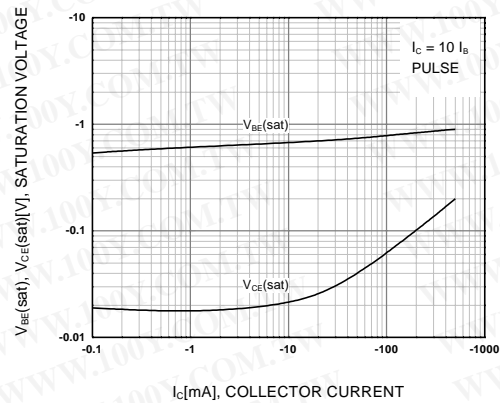


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

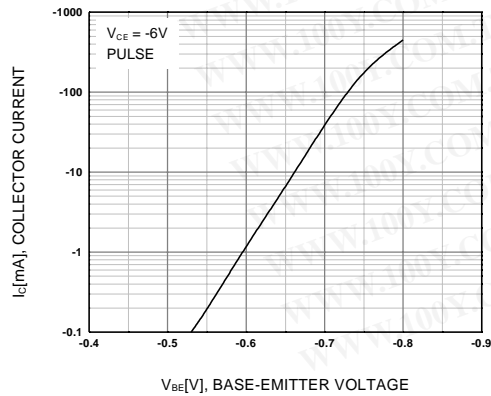


Figure 5. Base-Emitter On Voltage

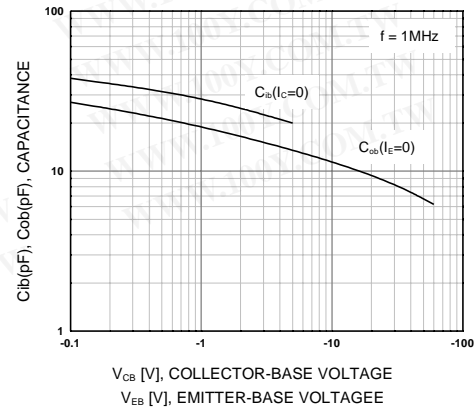


Figure 6. Input Output Capacitance

Typical Characteristics (Continued)

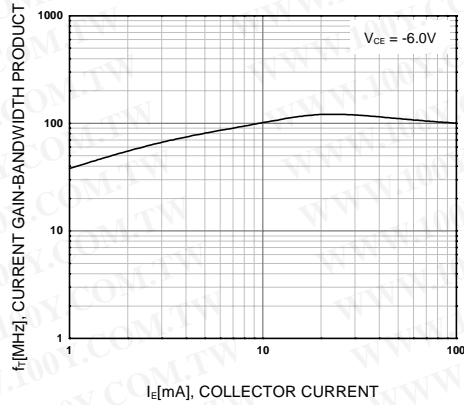


Figure 7. Gain Bandwidth Product

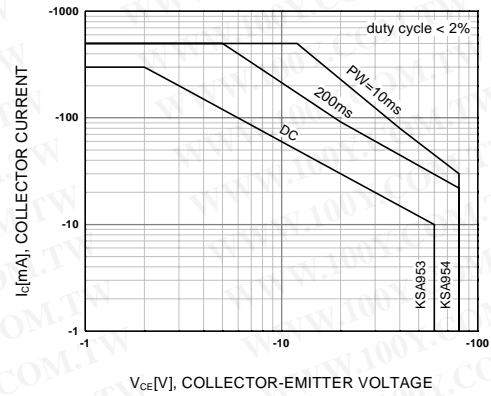


Figure 8. Safe Operating Area

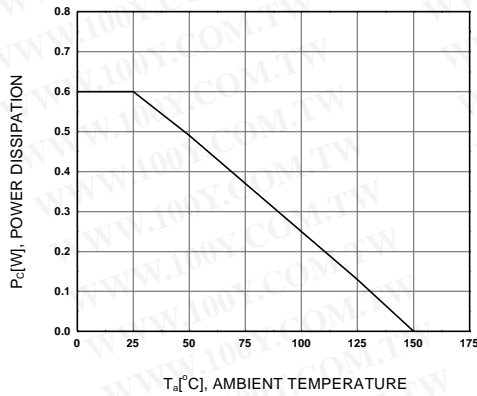


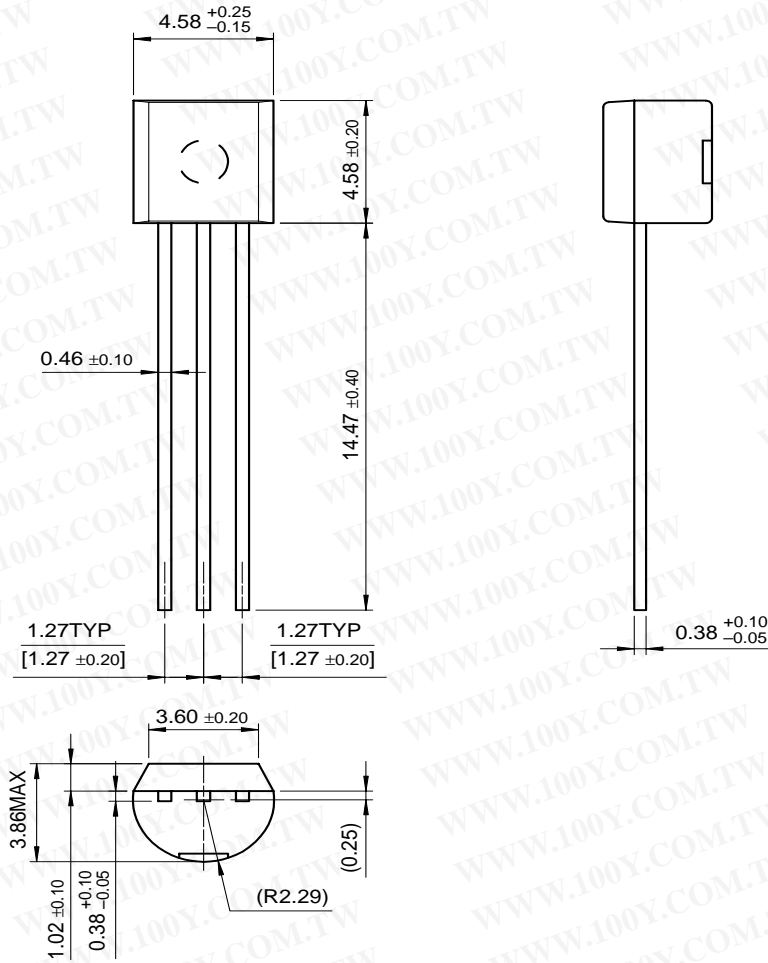
Figure 9. Power Derating

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KS A954

Package Dimensions

TO-92



Dimensions in Millimeters

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| | | |
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| E ² CMOS™ | PowerTrench® | VCX™ |
| FACT™ | QFET™ | |
| FACT Quiet Series™ | QS™ | |
| FAST® | Quiet Series™ | |
| FASTr™ | SuperSOT™-3 | |
| GTO™ | SuperSOT™-6 | |

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