



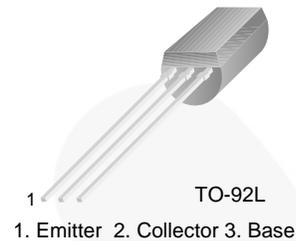
October 2014

KSA928A

PNP Epitaxial Silicon Transistor

Features

- Audio Power Amplifier
- Complement to KSC2328A
- 3 W Output Application



Ordering Information

| Part Number | Top Mark | Package | Packing Method |
|-------------|----------|----------|----------------|
| KSA928AOTA | A928A O- | TO-92 3L | Ammo |
| KSA928AYTA | A928A Y- | TO-92 3L | Ammo |

Absolute Maximum Ratings^{(1), (2)}

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|-----------|---------------------------|-------------|------------------|
| V_{CBO} | Collector-Base Voltage | -30 | V |
| V_{CEO} | Collector-Emitter Voltage | -30 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current | -2 | A |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 to +150 | $^\circ\text{C}$ |

Notes:

1. These ratings are based on a maximum junction temperature of 150°C .
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics⁽³⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|-----------------|---|-------|---------------------------|
| P_D | Power Dissipation | 1000 | mW |
| | Derate Above 25°C | 8.0 | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 125 | $^\circ\text{C}/\text{W}$ |

Note:

3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---------------|--------------------------------------|---|------|------|------|------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = -100 \mu\text{A}$, $I_E = 0$ | -30 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = -10 \text{ mA}$, $I_B = 0$ | -30 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = -1 \text{ mA}$, $I_C = 0$ | -5 | | | V |
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = -30 \text{ V}$, $I_E = 0$ | | | -100 | nA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = -5 \text{ V}$, $I_C = 0$ | | | -100 | nA |
| h_{FE} | DC Current Gain | $V_{CE} = -2 \text{ V}$, $I_C = -500 \text{ mA}$ | 100 | | 320 | |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $V_{CE} = -2 \text{ V}$, $I_C = -500 \text{ mA}$ | | | -1.0 | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = -1.5 \text{ A}$, $I_B = -30 \text{ mA}$ | | | -2.0 | V |
| C_{ob} | Output Capacitance | $V_{CB} = -10 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$ | | 48 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE} = -2 \text{ V}$, $I_C = -500 \text{ mA}$ | | 120 | | MHz |

 h_{FE} Classification

| Classification | O | Y |
|----------------|-----------|-----------|
| h_{FE} | 100 ~ 200 | 160 ~ 320 |

Typical Performance Characteristics

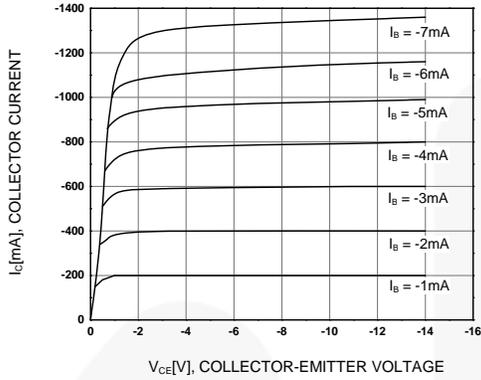


Figure 1. Static Characteristic

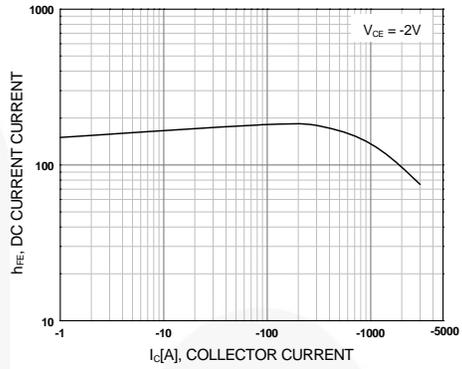


Figure 2. DC Current Gain

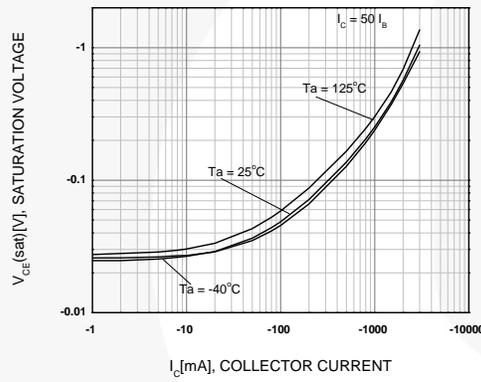


Figure 3. Collector-Emitter Saturation Voltage

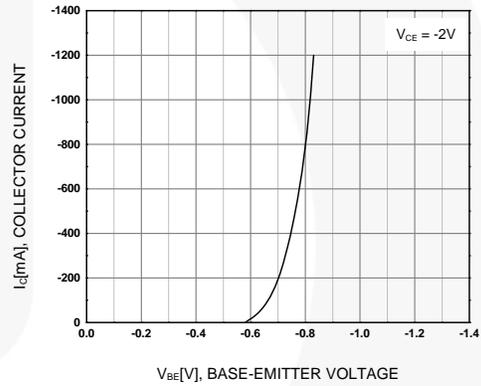


Figure 4. Base-Emitter On Voltage

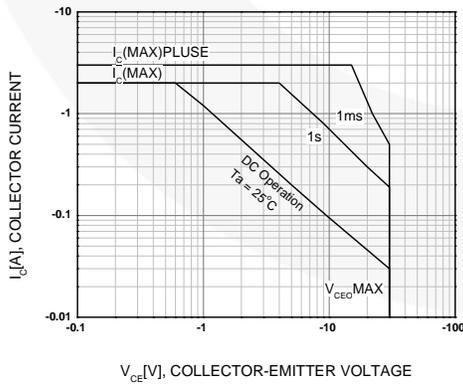


Figure 5. Safe Operating Area

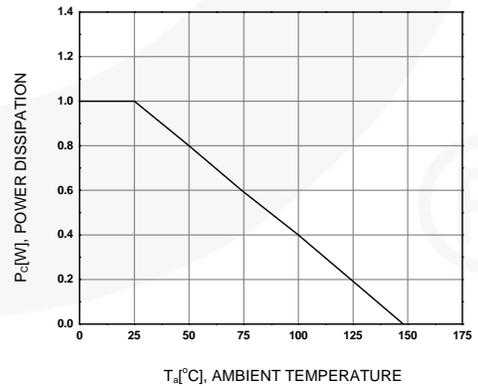
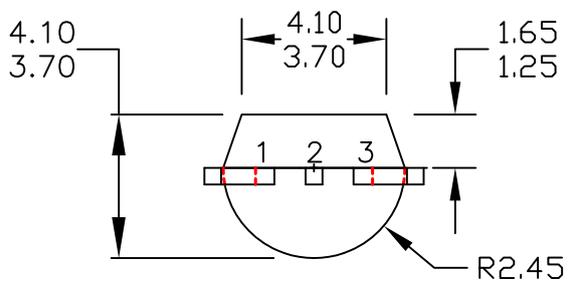
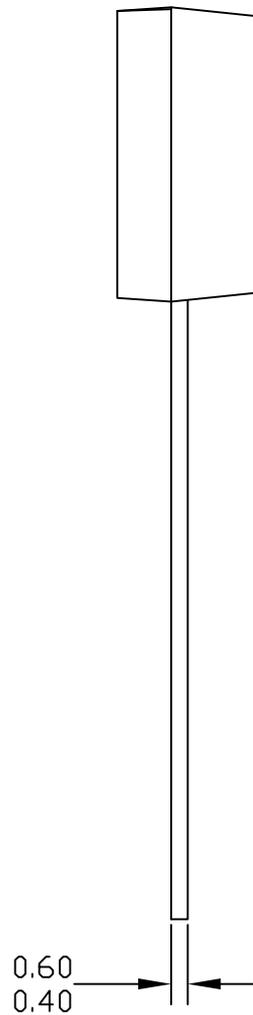
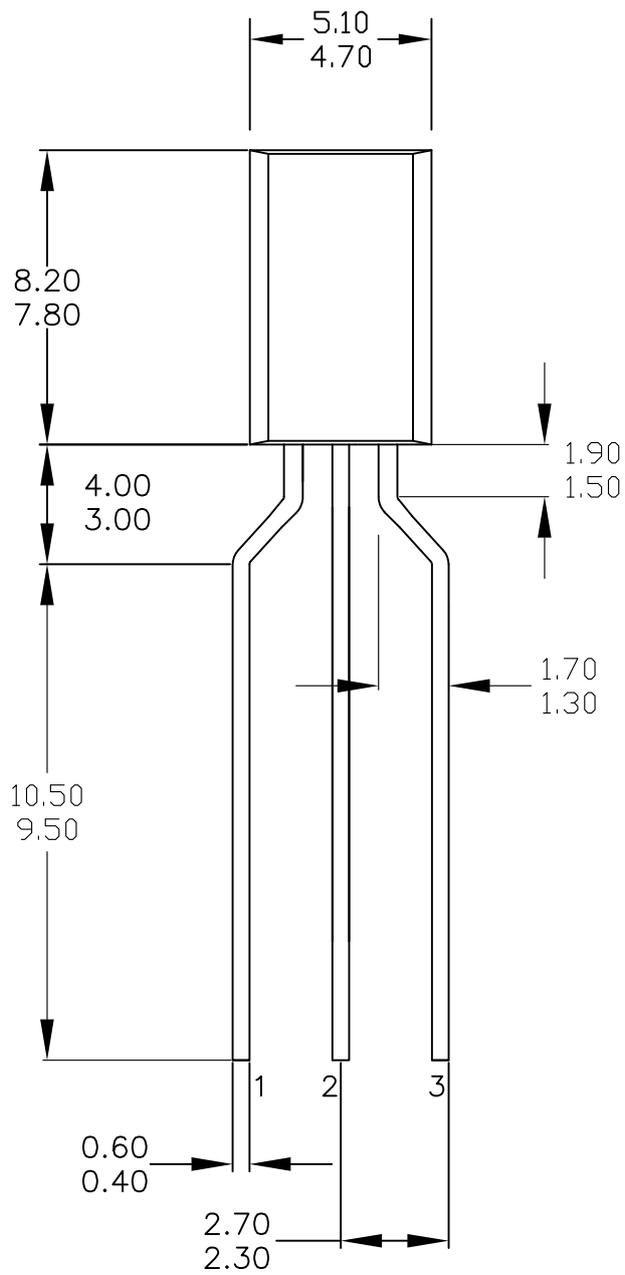


Figure 6. Power Derating



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