

**KSR2004**

**PNP EPITAXIAL SILICON TRANSISTOR**

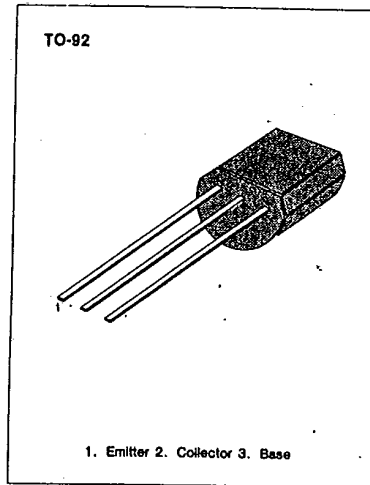
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**SWITCHING APPLICATION (Bias Resistor Built In)**

- Switching circuit, Inverter, Interface circuit Driver circuit
- Built In bias Resistor ( $R_1=47K\Omega$ ,  $R_2=47K\Omega$ )
- Complement to KSR1004

**ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ C$ )**

| Characteristic            | Symbol    | Rating  | Unit       |
|---------------------------|-----------|---------|------------|
| Collector-Base Voltage    | $V_{CBO}$ | -50     | V          |
| Collector-Emitter Voltage | $V_{CEO}$ | -50     | V          |
| Emitter-Base Voltage      | $V_{EBO}$ | -10     | V          |
| Collector Current         | $I_C$     | -100    | mA         |
| Collector Dissipation     | $P_C$     | 300     | mW         |
| Junction Temperature      | $T_j$     | 150     | $^\circ C$ |
| Storage Temperature       | $T_{stg}$ | -55~150 | $^\circ C$ |

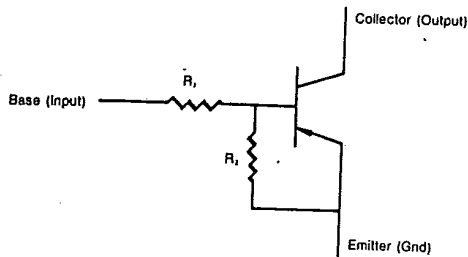


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**ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )**

| Characteristic                       | Symbol        | Test Condition                     | Min  | Typ | Max  | Unit       |
|--------------------------------------|---------------|------------------------------------|------|-----|------|------------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C=-10\mu A, I_E=0$              | -50  |     |      | V          |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=-100\mu A, I_B=0$             | -50  |     |      | V          |
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB}=-40V, I_E=0$               |      |     | -0.1 | $\mu A$    |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=-5V, I_C=-5mA$             | 68   |     |      |            |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-10mA, I_B=-0.5mA$            |      |     | -0.3 | V          |
| Current Gain-Bandwidth Product       | $f_T$         | $V_{CE}=-5mA, I_C=-10V$            |      | 200 |      | MHz        |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=-10V, I_E=0$<br>$f=1.0MHz$ |      | 5.5 |      | pF         |
| Input Off Voltage                    | $V_{I(off)}$  | $V_{CE}=-5V, I_C=-100\mu A$        | -0.5 |     |      | V          |
| Input On Voltage                     | $V_{I(on)}$   | $V_{CE}=-0.3V, I_C=-10mA$          |      |     | -3   | V          |
| Input Resistor                       | $R_1$         |                                    | 32   | 47  | 62   | K $\Omega$ |
| Resistor Ratio                       | $R_1/R_2$     |                                    | 0.9  | 1   | 1.1  |            |

**Equivalent Circuit**

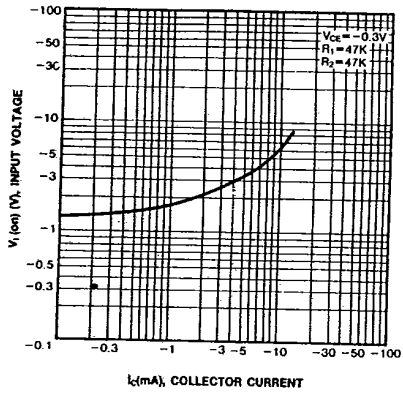


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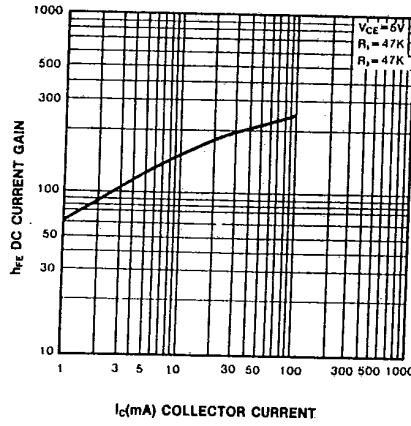
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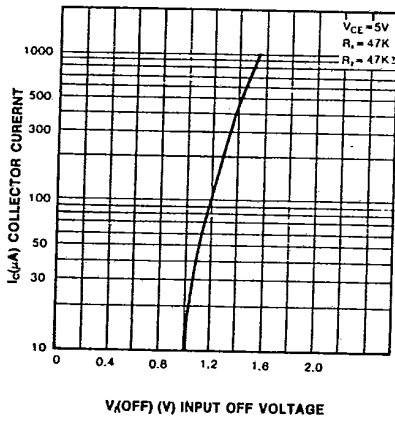
INPUT ON VOLTAGE



DC CURRENT GAIN



INPUT OFF VOLTAGE



POWER DERATING

