

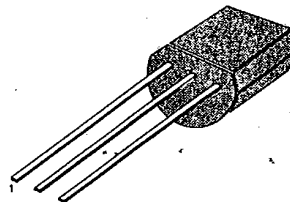
**KSR1008****NPN EPITAXIAL SILICON TRANSISTOR****SWITCHING APPLICATION (Bias Resistor Built In)**

- Switching circuit, Inverter, Interface circuit Driver circuit
- Built in bias Resistor ( $R_1=47K\Omega$ ,  $R_2=22K\Omega$ )
- Complement to KSR2008

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

| 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       | $^\circ\text{C}$ |
| Storage Temperature       | $T_{stg}$ | -55 ~ 150 | $^\circ\text{C}$ |

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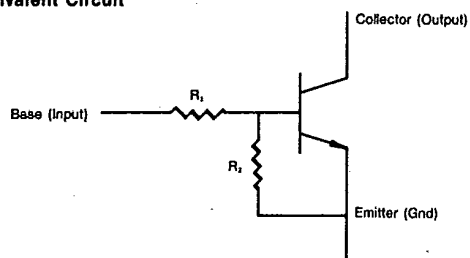


1. Emitter 2. Collector 3. Base

3

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

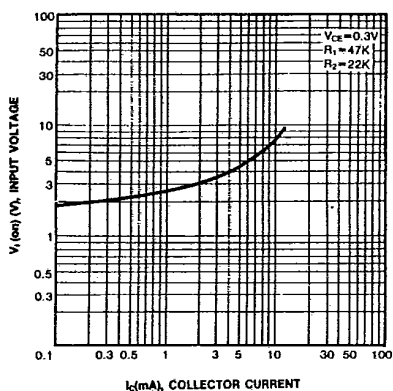
| Characteristic                       | Symbol        | Test Condition                                     | Min | Typ | Max | Unit          |
|--------------------------------------|---------------|----------------------------------------------------|-----|-----|-----|---------------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C=10\mu\text{A}$ , $I_E=0$                      | 50  |     |     | V             |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=100\mu\text{A}$ , $I_B=0$                     | 50  |     |     | V             |
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB}=40\text{V}$ , $I_E=0$                      |     |     | 0.1 | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=5\text{V}$ , $I_C=5\text{mA}$              | 58  |     |     |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=10\text{mA}$ , $I_B=0.5\text{mA}$             |     |     | 0.3 | V             |
| Current Gain-Bandwidth Product       | $f_T$         | $V_{CE}=5\text{mA}$ , $I_C=10\text{V}$             |     | 250 |     | MHz           |
| Output Capacitance                   | $C_{ob}$      | $V_{CB}=10\text{V}$ , $I_E=0$<br>$f=1.0\text{MHz}$ |     | 3.7 |     | pF            |
| Input Off Voltage                    | $V_{I(off)}$  | $V_{CE}=5\text{V}$ , $I_C=100\mu\text{A}$          | 0.8 |     |     | V             |
| Input On Voltage                     | $V_{I(on)}$   | $V_{CE}=0.3\text{V}$ , $I_C=2\text{mA}$            |     |     | 4   | V             |
| Input Resistor                       | $R_1$         |                                                    | 32  | 47  | 62  | $K\Omega$     |
| Resistor Ratio                       | $R_1/R_2$     |                                                    | 1.9 | 2.1 | 2.4 |               |

**Equivalent Circuit**

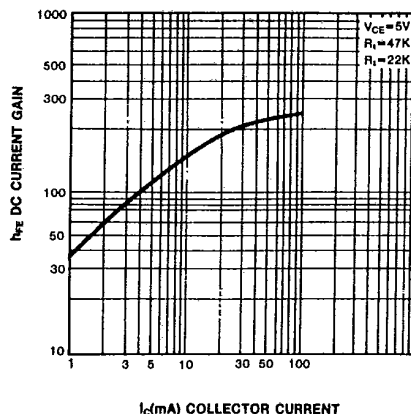
KSR1008

NPN EPITAXIAL SILICON TRANSISTOR

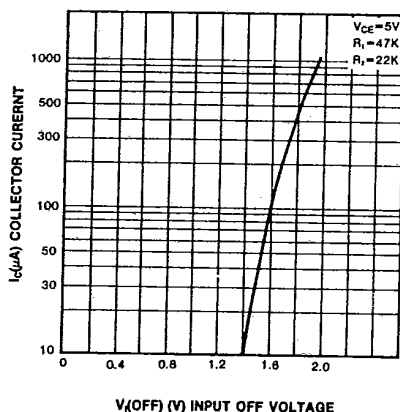
INPUT ON VOLTAGE



DC CURRENT GAIN



INPUT OFF VOLTAGE



POWER DERATING

