

KSR2002

PNP EPITAXIAL SILICON TRANSISTOR

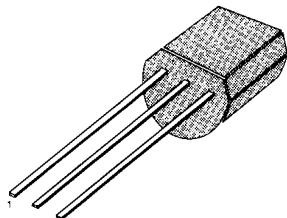
SWITCHING APPLICATION (Bias Resistor Built In)

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ( $R_1=10k\Omega$ ,  $R_2=10k\Omega$ )
- Complement to KSR1002

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

| 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 | $^{\circ}\text{C}$ |

TO-92



1. Emitter 2. Collector 3. Base

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

| Characteristic                       | Symbol            | Test Conditions                                           | 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 Cut-off Current            | $I_{CBO}$         | $V_{CB} = -40\text{V}$ , $I_E = 0$                        |      |     | -0.1 | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE}$          | $V_{CE} = -5\text{V}$ , $I_C = -5\text{mA}$               | 30   |     |      |               |
| 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       | $f_T$             | $V_{CE} = -5\text{mA}$ , $I_C = -10\text{V}$              |      | 200 |      | MHz           |
| Output Capacitance                   | $C_{OB}$          | $V_{CB} = -10\text{V}$ , $I_E = 0$<br>$f = 1.0\text{MHz}$ |      | 5.5 |      | pF            |
| Input Off Voltage                    | $V_i(\text{off})$ | $V_{CE} = -5\text{V}$ , $I_C = -100\mu\text{A}$           | -0.5 |     |      | V             |
| Input On Voltage                     | $V_i(\text{on})$  | $V_{CE} = -0.3\text{V}$ , $I_C = -10\text{mA}$            |      |     | -3   | V             |
| Input Resistor                       | $R_1$             |                                                           | 7    | 10  | 13   | $k\Omega$     |
| Resistor Ratio                       | $R_1/R_2$         |                                                           | 0.9  | 1   | 1.1  |               |

Equivalent Circuit

