

KSR2213**PNP EPITAXIAL SILICON TRANSISTOR**

T-37-13

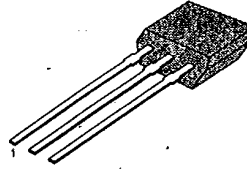
SWITCHING APPLICATION (Bias Resistor Built In)

- Switching circuit, Inverter, Interface circuit Driver circuit
- Built in bias Resistor ($R_1=2.2K\Omega$, $R_2=47K\Omega$)
- Complement to KSR1213

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

TO-92S



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 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=-5\text{V}$, $I_C=-5\text{mA}$ | 68 | | | |
| 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} | $V_{CB}=-10\text{V}$, $I_E=0$ $f=1.0\text{MHz}$ | | 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 | $V_i(\text{on})$ | $V_{CE}=-0.2\text{V}$, $I_C=-10\text{mA}$ | | | -1.1 | V |
| Input Resistor | R_1 | | 1.5 | 2.2 | 2.9 | K Ω |
| Resistor Ratio | R_1/R_2 | | 0.042 | 0.047 | 0.052 | |

Equivalent Circuit