XN08081 (XN8081)

Silicon N-channel junction (FET) Silicon NPN epitaxial planer transistor (Tr)

For analog switching

■ Features

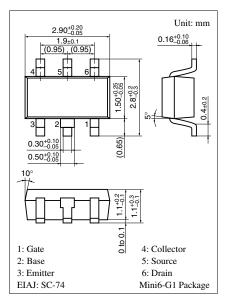
- Two elements incorporated into one package (J-FET + Tr)
- Reduction of the mounting area and assembly cost by one half
- Low-frequency and low-noise J-FET

■ Basic Part Number of Element

• 2SK1103 + UNR1213 (UN1213)

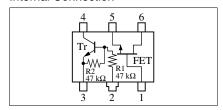
■ Absolute Maximum Ratings $T_a = 25$ °C

| Parameter | | Symbol Rating | | Unit | |
|-----------|------------------------------|----------------|-------------|------|--|
| FET | Gate to drain voltage | V_{GDS} | -50 | V | |
| | Drain current | I_D | 20 | mA | |
| | Gate current | I_G | 10 | mA | |
| Tr | Collector to base voltage | V_{CBO} | 50 | V | |
| | Collector to emitter voltage | V_{CEO} | 50 | V | |
| | Collector current | I_C | 100 | mA | |
| Overall | Total power dissipation | P_{T} | 300 | mW | |
| | Junction temperature | T _j | 150 | °C | |
| | Storage temperature | T_{stg} | -55 to +150 | °C | |



Marking Symbol: 9Z

Internal Connection



\blacksquare Electrical characteristics $T_a = 25^{\circ}C \pm 3^{\circ}C$

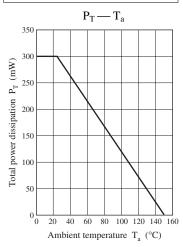
$\bullet \ \mathrm{FET}$

| Parameter | Symbol | Conditions | Min | Тур | Max | Unit |
|------------------------------------|---------------------|----------------------------------------------------------------|-----|-----|------|------|
| Gate to drain voltage | V_{GDS} | $I_G = -10 \ \mu A, \ V_{DS} = 0$ | -50 | | | V |
| Drain current | I_{DSS} | $V_{DS} = 10 \text{ V}, V_{GS} = 0$ | 0.2 | | 2.2 | mA |
| Gate cutoff current | I_{GSS} | $V_{GS} = -30 \text{ V}, V_{DS} = 0$ | | | -10 | nA |
| Gate to source cutoff voltage | V _{GSC} | $V_{DS} = 10 \text{ V}, I_D = 10 \mu\text{A}$ | | | -1.0 | V |
| Mutual conductance | gm | $V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}, f = 1 \text{ kHz}$ | 1.8 | 2.5 | | mS |
| Drain on resistance | R _{DS(on)} | $V_{DS} = 10 \text{ mV}, V_{GS} = 0$ | | 400 | | Ω |
| Common source short-circuit input | C_{iss} | $V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$ | | 7 | | pF |
| capacitance | | | | | | |
| Common source reverse transfer | C _{rss} | $V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$ | | 1.5 | | pF |
| capacitance | | | | | | |
| Common source short-circuit output | C _{oss} | $V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$ | | 1.5 | | pF |
| capacitance | | | | | | |

• Tr

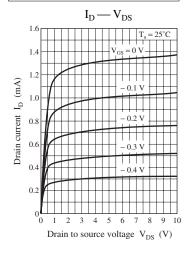
| Parameter | Symbol | Conditions | Min | Тур | Max | Unit |
|-----------------------------------------|--------------------------------|--------------------------------------------------------------------------|------|-----|------|------|
| Collector to base voltage | V _{CBO} | $I_C = 10 \ \mu A, I_E = 0$ | 50 | | | V |
| Collector to emitter voltage | V _{CEO} | $I_{\rm C} = 2 \text{ mA}, I_{\rm B} = 0$ | 50 | | | V |
| Collector cutoff current | I_{CBO} | $V_{CB} = 50 \text{ V}, I_{E} = 0$ | | | 0.1 | μΑ |
| | I_{CEO} | $V_{CE} = 50 \text{ V}, I_{B} = 0$ | | | 0.5 | μΑ |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 6 \text{ V}, I_{C} = 0$ | | | 0.1 | mA |
| Forward current transfer ratio | h _{FE} | $V_{CE} = 10 \text{ V}, I_{C} = 5 \text{ mA}$ | 80 | | | _ |
| Collector to emitter saturation voltage | V _{CE(sat)} | $I_C = 10 \text{ mA}, I_B = 0.3 \text{ mA}$ | | | 0.25 | V |
| High-level output voltage | V _{OH} | $V_{CC} = 5 \text{ V}, V_{B} = 0.5 \text{ V}, R_{L} = 1 \text{ k}\Omega$ | 4.9 | | | V |
| Low-level output voltage | V _{OL} | $V_{CC} = 5 \text{ V}, V_B = 3.5 \text{ V}, R_L = 1 \text{ k}\Omega$ | | | 0.2 | V |
| Input resistance | R ₁ | | -30% | 47 | +30% | kΩ |
| Resistance ratio | R ₁ /R ₂ | | 0.8 | 1.0 | 1.2 | _ |
| Transition frequency | f_T | $V_{CB} = 10 \text{ V}, I_E = -1 \text{ mA}, f = 200 \text{ MHz}$ | | 150 | | MHz |

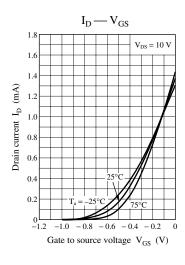
Common characteristics chart

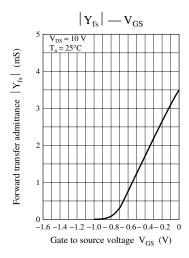


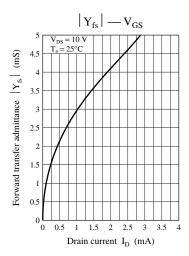
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Characteristics charts of FET

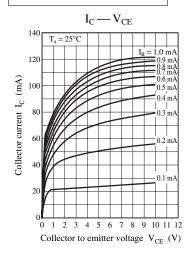


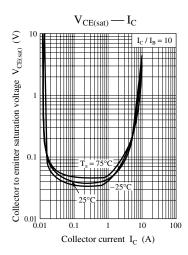


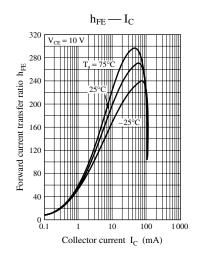




Characteristics charts of Tr

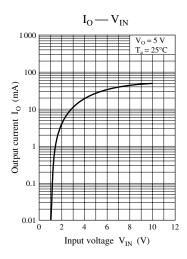


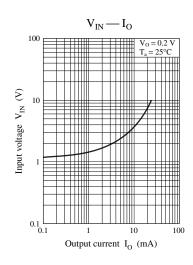


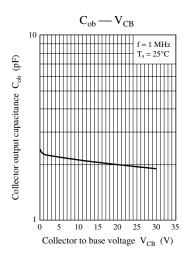


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XN08081 Panasonic







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