

3SK142

Silicon N Channel 4-pole MOS Type

For UHF high-gain low-noise amplification

■ Features

- Low noise figure NF
- Large power gain PG
- Cross pack package

■ Absolute Maximum Ratings (Ta=25°C)

| Item | Symbol | Value | Unit |
|-----------------------|-----------|------------|------|
| Drain-Source Voltage | V_{DS} | 15 | V |
| Gate 1-Source Voltage | V_{G1S} | ± 8 | V |
| Gate 2-Source Voltage | V_{G2S} | ± 8 | V |
| Drain Current | I_D | 30 | mA |
| Power Dissipation | P_D | 250 | mW |
| Channel Temperature | T_{ch} | 135 | °C |
| Storage Temperature | T_{stg} | -55 ~ +135 | °C |

■ Electrical Characteristics (Ta=25°C)

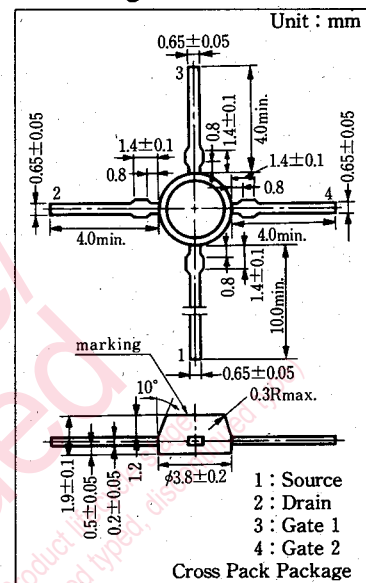
| Item | Symbol | Condition | min. | typ. | max. | Unit |
|---|----------------|---|------|------|----------|------|
| Drain Current | I_{DSS}^{*2} | $V_{DS}=10\text{ V}, V_{G1S}=0, V_{G2S}=4\text{ V}$ | 0.5 | 5 | 13 | mA |
| Gate 1 Cutoff Current | I_{G1SS} | $V_{DS}=V_{G2S}=0, V_{G1S}=\pm 8\text{ V}$ | | | ± 20 | nA |
| Gate 2 Cutoff Current | I_{G2SS} | $V_{DS}=V_{G1S}=0, V_{G2S}=\pm 8\text{ V}$ | | | ± 20 | nA |
| Drain-Source Voltage | V_{DSX}^{*1} | $I_D=100\text{ }\mu\text{A}, V_{G1S}=-5\text{ V}, V_{G2S}=0$ | 15 | | | V |
| Gate 1 Source Cutoff Current | V_{G1SC} | $V_{DS}=10\text{ V}, V_{G2S}=4\text{ V}, I_D=100\text{ }\mu\text{A}$ | 0 | -0.8 | -3.0 | V |
| Gate 2 Source Cutoff Current | V_{G2SC} | $V_{DS}=10\text{ V}, V_{G1S}=0, I_D=100\text{ }\mu\text{A}$ | +0.5 | -0.3 | -1.0 | V |
| Forward Transfer Admittance (Common Source) | $ Y_{fs} $ | $V_{DS}=10\text{ V}, V_{G2S}=4\text{ V}, I_D=10\text{ mA}, f=1\text{ kHz}$ | 12 | 20 | 28 | mS |
| Input Capacitance | C_{iss} | $V_{DS}=10\text{ V}, V_{G1S}=V_{G2S}=-5\text{ V}, f=1\text{ MHz}$ | 1.4 | 1.9 | 2.4 | pF |
| Output Capacitance | C_{oss} | | 0.6 | 0.9 | 1.2 | pF |
| Small-Signal Reverse Transfer Capacitance | C_{rss} | | | 0.02 | | pF |
| Power Gain | PG^{*3} | $V_{DS}=8\text{ V}, I_D=8\text{ mA},$ | 11.5 | 14 | 17 | dB |
| Noise Figure | NF^{*3} | $V_{G2S}=3\text{ V}, f=800\text{ MHz}$ | | 3.5 | 4.5 | dB |
| Gain Reduction | G_R | $P_G\text{ max}, V_{DS}=8\text{ V}, V_{G2S}=4\text{ V}$ $I_D=8\text{ mA}, f=900\text{ MHz}$ Input : < 80 dB μ , $V_{DS}=10\text{ V},$ $V_{G2S}=-0.3\text{ V}, V_{G1S}=+3.3\text{ V}$ | | 33 | | dB |

*1 $R_D=56\text{ }\Omega$, $R_S=270\text{ }\Omega$ inserted

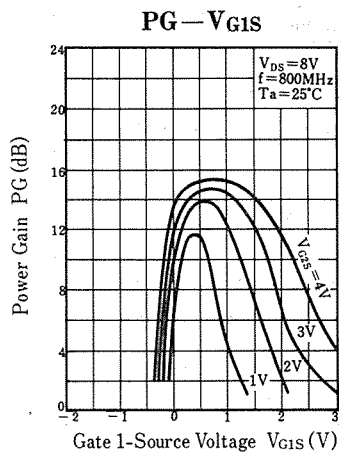
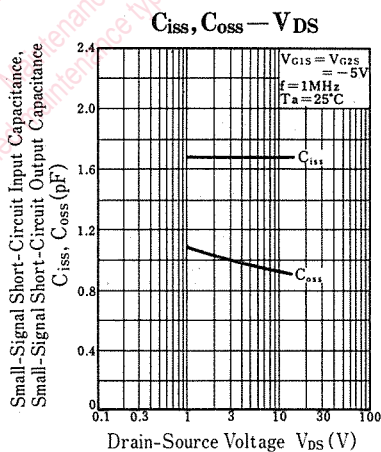
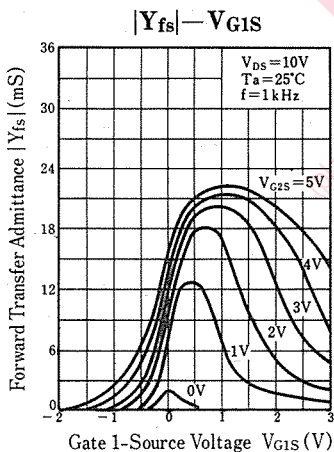
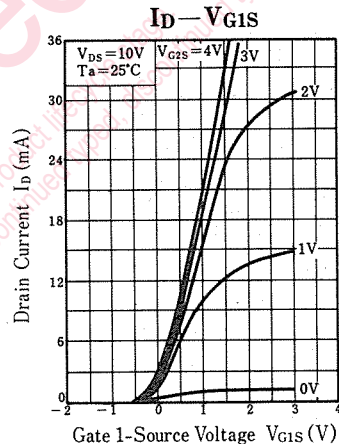
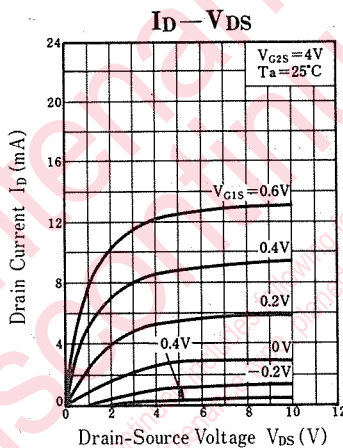
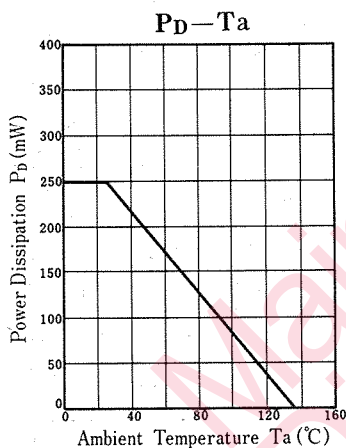
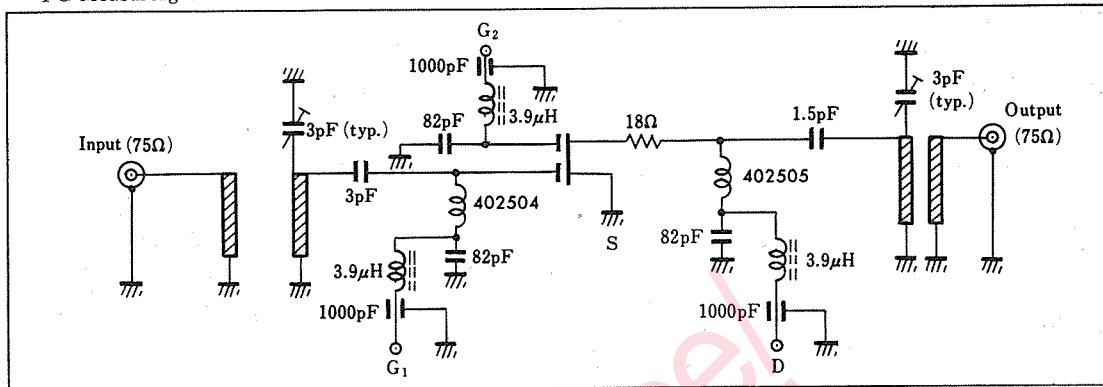
*2 I_{DSS} Ranking

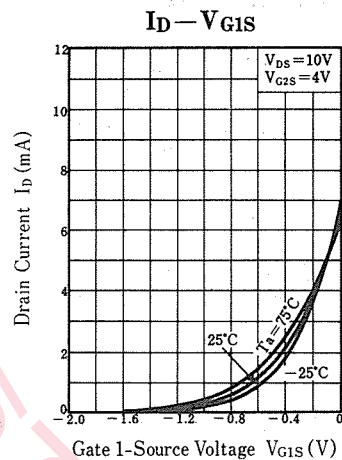
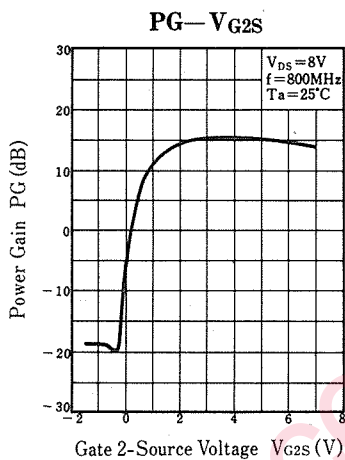
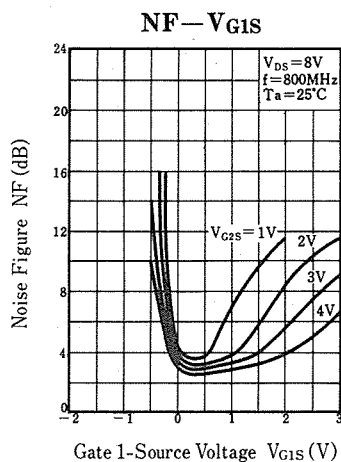
| Rank | P | Q |
|----------------------|-------|------|
| $I_{DSS}(\text{mA})$ | 0.5~4 | 3~13 |

■ Package Dimensions



*3 PG Measuring Circuit





Maintenance/Discontinued

Maintenance/Discontinued includes following four Product lifecycle stage.
(planned maintenance type, maintenance type, planned discontinued type, discontinued type)

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