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# 2SK439

Silicon N-Channel MOS FET

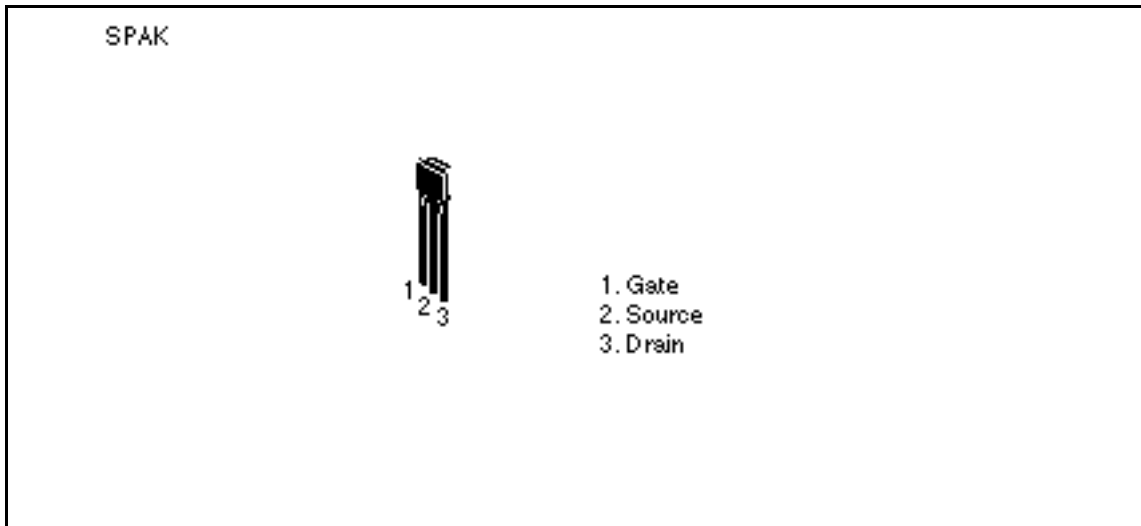
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## Application

VHF amplifier

## Outline



## 2SK439

### Absolute Maximum Ratings (Ta = 25°C)

| Item                      | Symbol    | Ratings     | Unit |
|---------------------------|-----------|-------------|------|
| Drain to source voltage   | $V_{DS}$  | 20          | V    |
| Gate to source voltage    | $V_{GSS}$ | ±5          | V    |
| Drain current             | $I_D$     | 30          | mA   |
| Gate current              | $I_G$     | ±1          | mA   |
| Channel power dissipation | Pch       | 300         | mW   |
| Channel temperature       | Tch       | 150         | °C   |
| Storage temperature       | Tstg      | -55 to +150 | °C   |

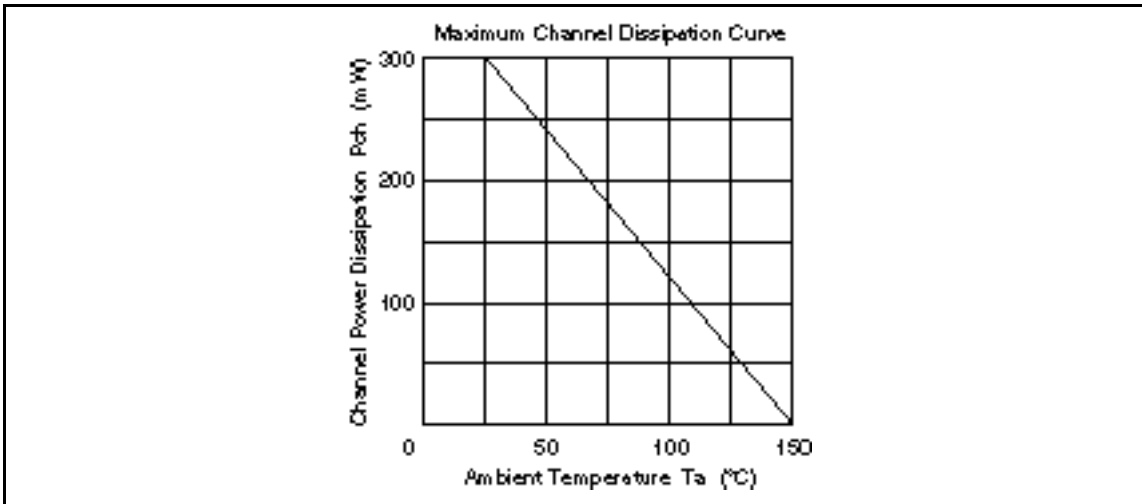
### Electrical Characteristics (Ta = 25°C)

| Item                              | Symbol         | Min | Typ  | Max  | Unit | Test conditions                          |
|-----------------------------------|----------------|-----|------|------|------|--|
| Drain to source breakdown voltage | $V_{(BR)DSX}$  | 20  | —    | —    | V    | $I_D = 100 \mu A, V_{GS} = -4 V$         |
| Gate cutoff current               | $I_{GSS}$      | —   | —    | ±20  | nA   | $V_{GS} = \pm 5 V, V_{DS} = 0$           |
| Drain current                     | $I_{DSS}^{*1}$ | 4   | —    | 12   | mA   | $V_{DS} = 10 V, V_{GS} = 0$              |
| Gate to source cutoff voltage     | $V_{GS(off)}$  | 0   | —    | -2.0 | V    | $V_{DS} = 10 V, I_D = 10 \mu A$          |
| Forward transfer admittance       | $ y_{fs} $     | 8   | 14   | —    | mS   | $V_{DS} = 10 V, V_{GS} = 0, f = 1 kHz$   |
| Input capacitance                 | Ciss           | —   | 2.5  | —    | pF   | $V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz$   |
| Reverse transfer capacitance      | Crss           | —   | 0.03 | —    | pF   |  |
| Output capacitance                | Coss           | —   | 1.8  | —    | pF   | $V_{DS} = 5 V, V_{GS} = 0, f = 1 MHz$    |
| Power gain                        | PG             | —   | 30   | —    | dB   | $V_{DS} = 10 V, V_{GS} = 0, f = 100 MHz$ |
| Noise figure                      | NF             | —   | 2.0  | —    | dB   |  |

Note: 1. The 2SK439 is grouped by  $I_{DSS}$  as follows.

| Grade     | D      | E       | F       |
|-----------|--------|---------|---------|
| $I_{DSS}$ | 4 to 8 | 6 to 10 | 8 to 12 |

See characteristic curves of 2SK359.



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