

# 2SK3476

VHF- and UHF-band Amplifier Applications

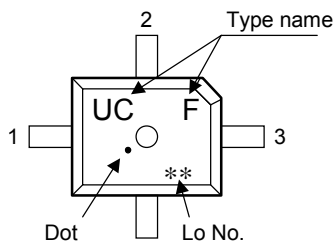
- Output power:  $P_O = 7.0 \text{ W (min)}$
- Gain:  $G_p = 11.4\text{dB (min)}$
- Drain efficiency:  $\eta_D = 60\% \text{ (min)}$

### Maximum Ratings (Ta = 25°C)

| Characteristics           | Symbol         | Rating  | Unit |
|---------------------------|----------------|---------|------|
| Drain-source voltage      | $V_{DSS}$      | 20      | V    |
| Gain-source voltage       | $V_{GSS}$      | ±5      | V    |
| Drain current             | $I_D$          | 3       | A    |
| Power dissipation         | $P_D$ (Note 1) | 20      | W    |
| Channel temperature       | $T_{ch}$       | 150     | °C   |
| Storage temperature range | $T_{stg}$      | -45~150 | °C   |

Note 1:  $T_c = 25^\circ\text{C}$  (When mounted on a 1.6 mm glass epoxy PCB)

### Marking

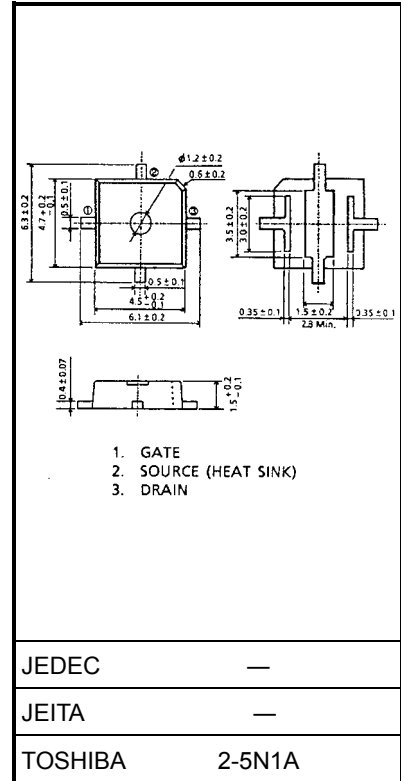


1. Gate
2. Source (heat sink)
3. Drain

### Caution

Please take care to avoid generating static electricity when handling this transistor.

Unit: mm



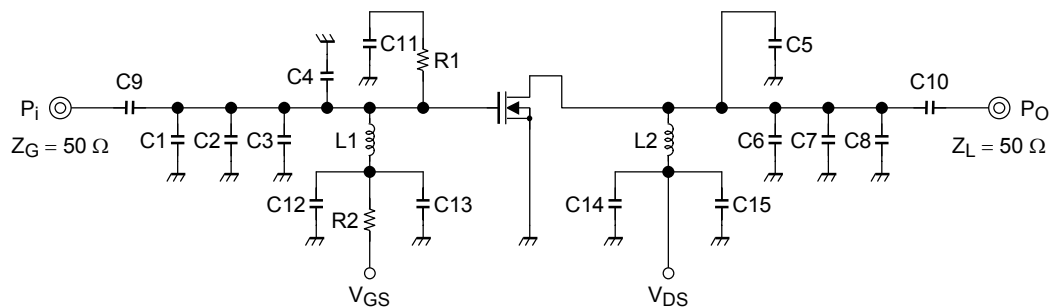
## Electrical Characteristics (Ta = 25°C)

| Characteristics             | Symbol       | Test Condition   | Min            | Typ. | Max  | Unit          |
|-----------------------------|--------------|--|----------------|------|------|---------------|
| Drain cut-off current       | $I_{DSS}$    | $V_{DS} = 20\text{ V}, V_{GS} = 0\text{ V}$  | —              | —    | 5    | $\mu\text{A}$ |
| Gate-source leakage current | $I_{GSS}$    | $V_{GS} = 10\text{ V}$   | —              | —    | 5    | $\mu\text{A}$ |
| Threshold voltage           | $V_{th}$     | $V_{DS} = 7.2\text{ V}, I_D = 2\text{ mA}$   | 0.55           | 1.05 | 1.55 | V             |
| Drain-source on-voltage     | $V_{DS(ON)}$ | $V_{GS} = 10\text{ V}, I_D = 75\text{ mA}$   | —              | 18   | —    | mV            |
| Forward transconductance    | $Y_{fs}$     | $V_{DS} = 7.2\text{ V}, I_{DS} = 1\text{ A}$   | —              | 1    | —    | S             |
| Input capacitance           | $C_{iss}$    | $V_{DS} = 7.2\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$   | —              | 53   | —    | pF            |
| Output capacitance          | $C_{oss}$    | $V_{DS} = 7.2\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$   | —              | 49   | —    | pF            |
| Output power                | $P_O$        | $V_{DS} = 7.2\text{ V},$<br>$I_{idle} = 500\text{ mA} (V_{GS} = \text{adjust}),$<br>$f = 520\text{ MHz}, P_i = 500\text{ mW},$                   | 7              | —    | —    | W             |
| Drain efficiency            | $\eta_D$     |  | 60             | —    | —    | %             |
| Power gain                  | $G_p$        |  | 11.4           | —    | —    | dB            |
| Low voltage output power    | $P_{OL}$     | $V_{DS} = 6.0\text{ V},$<br>$I_{idle} = 500\text{ mA} (V_{GS} = \text{adjust}),$<br>$f = 520\text{ MHz}, P_i = 500\text{ mW},$                   | 5              | —    | —    | W             |
| Load mismatch               | —            | $V_{DS} = 10\text{ V}, P_O = 7\text{ W},$<br>$V_{GS} = \text{adjust}, P_i = \text{adjust},$<br>$f = 520\text{ MHz},$<br>VSWR LOAD 20:1 all phase | No degradation |      |      |               |

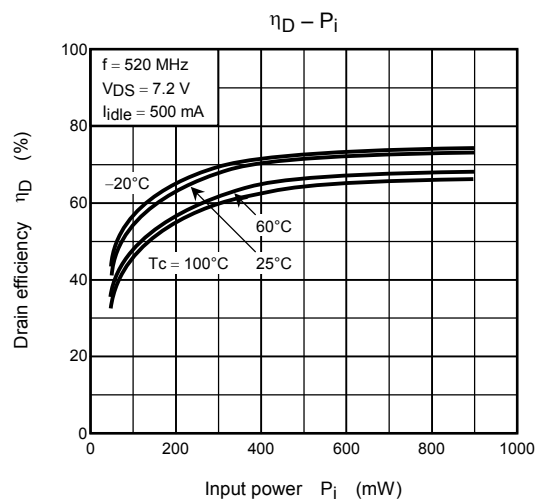
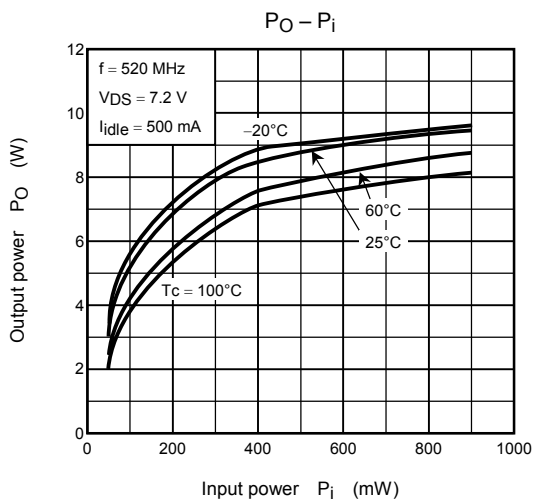
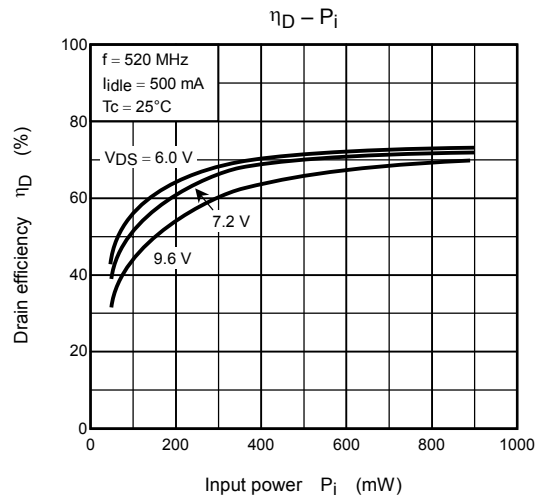
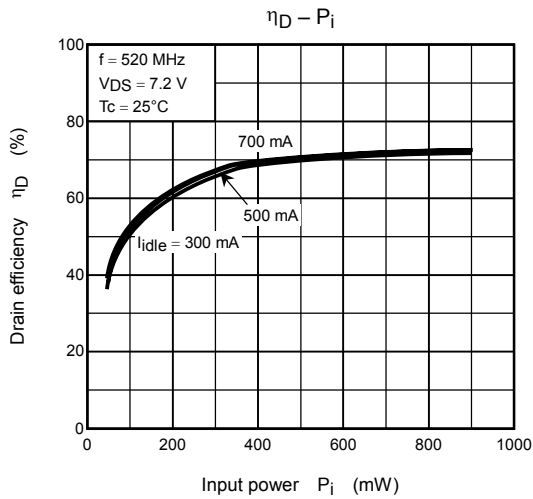
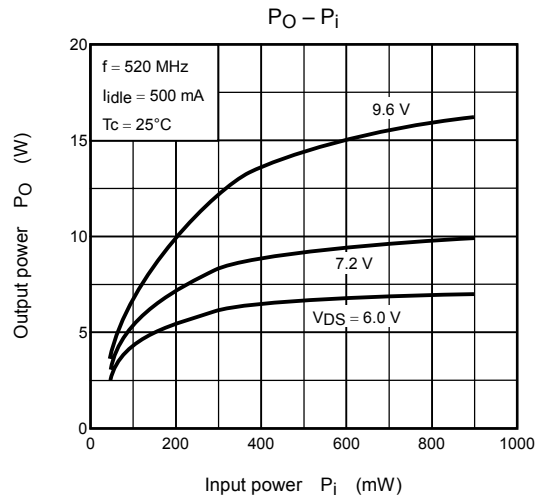
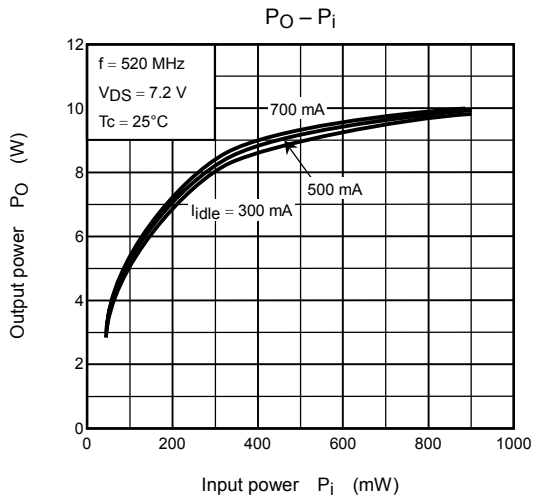
Note 1: These characteristic values are measured using measurement tools specified by Toshiba.

### Output Power Test Fixture

(Test Condition:  $f = 520\text{ MHz}, V_{DS} = 7.2\text{ V}, I_{idle} = 500\text{ mA}, P_i = 500\text{ mW}$ )



|                       |   |                    |
|-----------------------|---|--------------------|
| C1: 15 pF             | L1: $\phi 0.6\text{ mm}$ enamel wire, 5.8ID, 4T | R1: 2.2 $\Omega$   |
| C2: 11 pF             | L2: $\phi 0.6\text{ mm}$ enamel wire, 5.8ID, 8T | R2: 1.5 k $\Omega$ |
| C3: 9 pF              |   |                    |
| C4: 30 pF             |   |                    |
| C5: 30 pF             |   |                    |
| C6: 11 pF             |   |                    |
| C7: 8 pF              |   |                    |
| C8: 9 pF              |   |                    |
| C9: 2200 pF           |   |                    |
| C10: 2200 pF          |   |                    |
| C11: 2200 pF          |   |                    |
| C12: 10000 pF         |   |                    |
| C13: 10 $\mu\text{F}$ |   |                    |
| C14: 10000 pF         |   |                    |
| C15: 10 $\mu\text{F}$ |   |                    |



Note 2: These are only typical curves and devices are not necessarily guaranteed at these curves.

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