

2SK3475

VHF- and UHF-band Amplifier Applications

(Note)The TOSHIBA products listed in this document are intended for high frequency Power Amplifier of telecommunications equipment. These TOSHIBA products are neither intended nor warranted for any other use. Do not use these TOSHIBA products listed in this document except for high frequency Power Amplifier of telecommunications equipment.

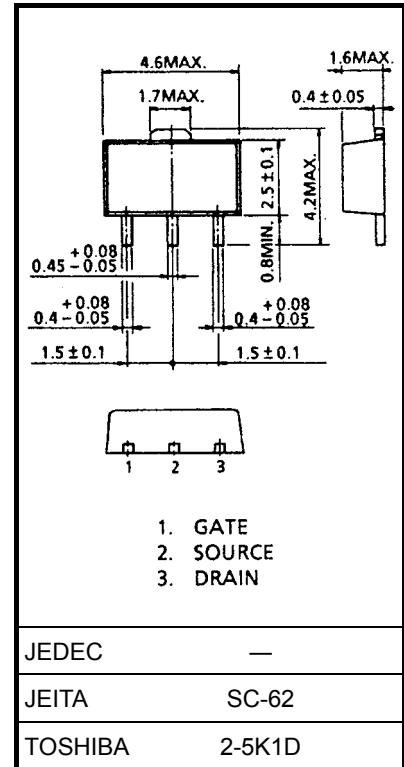
- Output power: $P_O = 630 \text{ mW (min)}$
- Gain: $G_P = 14.9\text{dB (min)}$
- Drain efficiency: $\eta_D = 45\% \text{ (min)}$

Maximum Ratings ($T_a = 25^\circ\text{C}$)

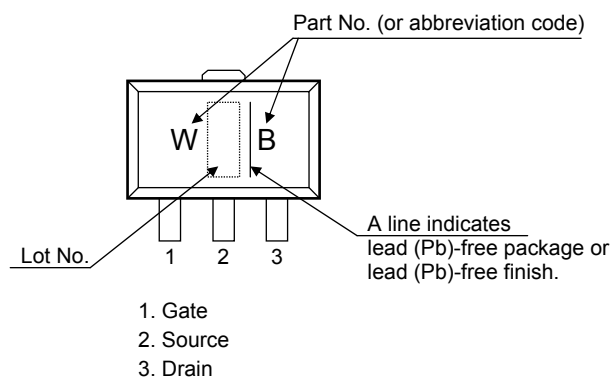
| Characteristics | Symbol | Rating | Unit |
|---------------------------|----------------|---------|------------------|
| Drain-source voltage | V_{DSS} | 20 | V |
| Gain-source voltage | V_{GSS} | 10 | V |
| Drain current | I_D | 1 | A |
| Power dissipation | P_D (Note 1) | 3 | W |
| Channel temperature | T_{ch} | 150 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -45~150 | $^\circ\text{C}$ |

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

Unit: mm



Marking



Caution: This device is sensitive to electrostatic discharge.

Please make enough tool and equipment earthed when you handle.

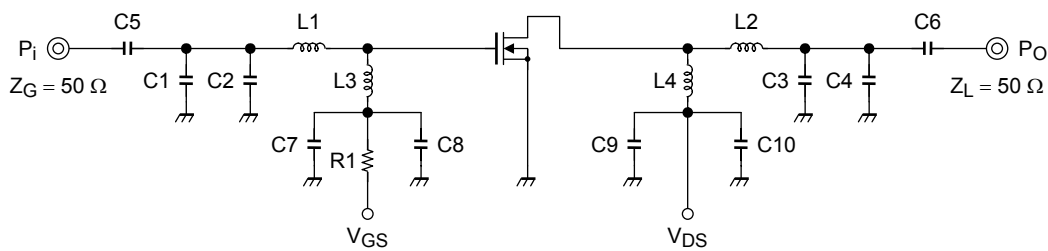
Electrical Characteristics (Ta = 25°C)

| 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 | μA |
| Gate-source leakage current | I_{GSS} | $V_{GS} = 10\text{ V}$ | — | — | 5 | μA |
| Threshold voltage | V_{th} | $V_{DS} = 7.2\text{ V}, I_D = 2\text{ mA}$ | 1.9 | 2.4 | 2.9 | V |
| Drain-source on-voltage | $V_{DS(ON)}$ | $V_{GS} = 10\text{ V}, I_D = 75\text{ mA}$ | — | 87 | — | mV |
| Forward transconductance | Y_{fs} | $V_{DS} = 7.2\text{ V}, I_{DS} = 208\text{ mA}$ | — | 260 | — | mS |
| Input capacitance | C_{iss} | $V_{DS} = 7.2\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$ | — | 11 | — | pF |
| Output capacitance | C_{oss} | $V_{DS} = 7.2\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$ | — | 12.5 | — | pF |
| Output power | P_O | $V_{DS} = 7.2\text{ V},$ $I_{idle} = 50\text{ mA} (V_{GS} = \text{adjust}),$ $f = 520\text{ MHz}, P_i = 20\text{ mW},$ | 630 | — | — | mW |
| Drain efficiency | η_D | | 45 | — | — | % |
| Power gain | G_p | | 14.9 | — | — | dB |
| Low voltage output power | P_{OL} | $V_{DS} = 6.0\text{ V},$ $I_{idle} = 50\text{ mA} (V_{GS} = \text{adjust}),$ $f = 520\text{ MHz}, P_i = 20\text{ mW},$ | 500 | — | — | mW |

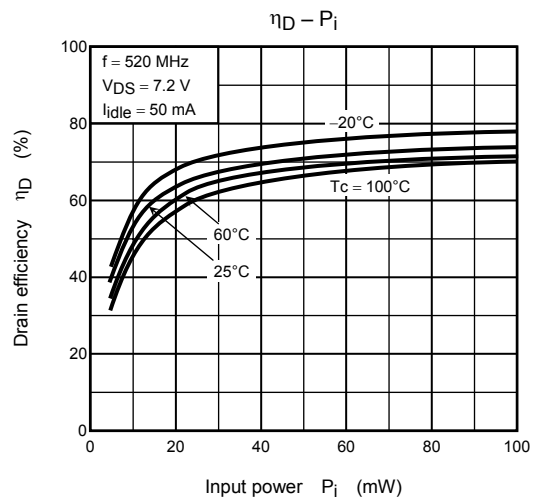
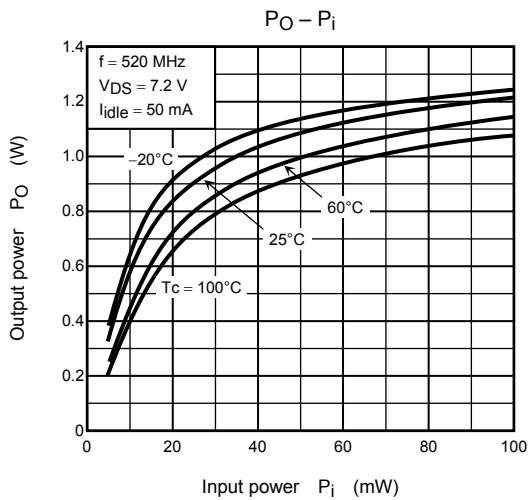
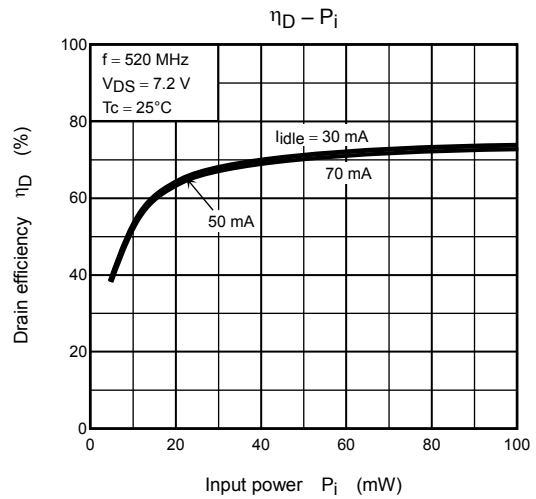
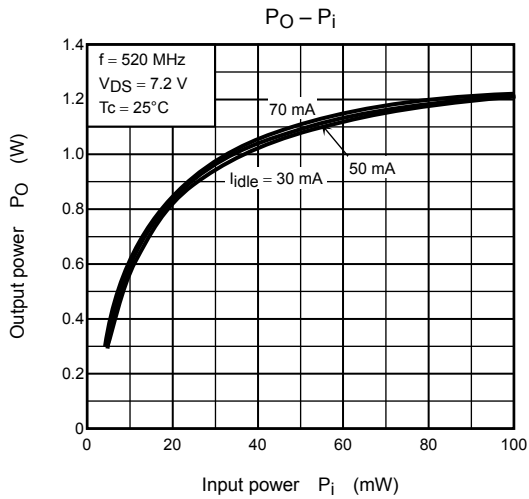
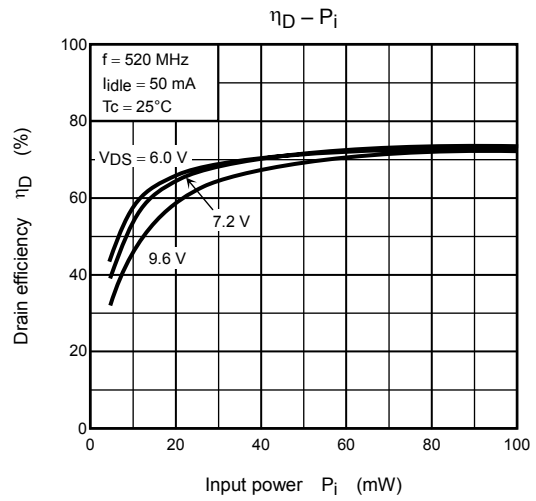
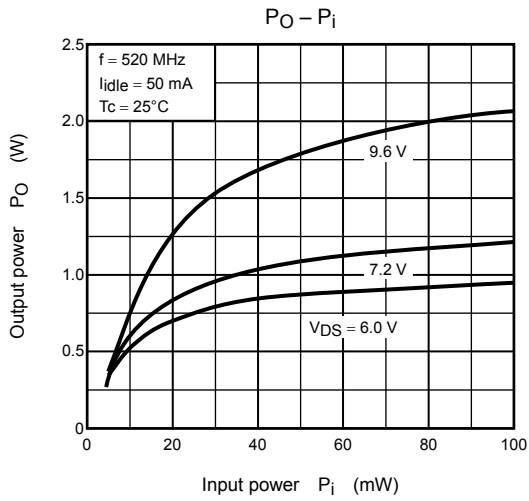
Note 2: These characteristic values are measured using measurement tools specified by Toshiba.

Output Power Test Fixture

(Test Condition: $f = 520\text{ MHz}, V_{DS} = 7.2\text{ V}, I_{idle} = 50\text{ mA}, P_i = 20\text{ mW}$)



- | | | |
|----------------------|---|--------------------|
| C1: 10 pF | L1: $\phi 0.8\text{ mm}$ enamel wire, 2.2ID, 1T | R1: 1.5 k Ω |
| C2: 10 pF | L2: $\phi 0.8\text{ mm}$ enamel wire, 2.2ID, 1T | |
| C3: 9 pF | L3: $\phi 0.8\text{ mm}$ enamel wire, 5.5ID, 4T | |
| C4: 6 pF | L4: $\phi 0.8\text{ mm}$ enamel wire, 5.5ID, 8T | |
| C5: 2200 pF | | |
| C6: 2200 pF | | |
| C7: 10 μF | | |
| C8: 10000 pF | | |
| C9: 10 μF | | |
| C10: 10000 pF | | |



Note 3: These are only typical curves and devices are not necessarily guaranteed at these curves.

RESTRICTIONS ON PRODUCT USE

030619EAA

- The information contained herein is subject to change without notice.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.
- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for high frequency Power Amplifier of telecommunications equipment. These TOSHIBA products are neither intended nor warranted for any other use. Do not use these TOSHIBA products listed in this document except for high frequency Power Amplifier of telecommunications equipment.
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- TOSHIBA products should not be embedded to the downstream products which are prohibited to be produced and sold, under any law and regulations.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.