

# 2SK3476

VHF- and UHF-band Amplifier Applications

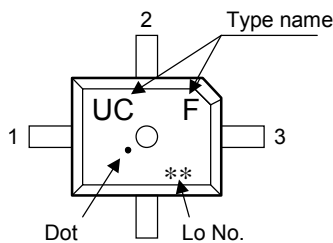
- Output power:  $P_O = 7.0 \text{ W (min)}$
- Gain:  $G_p = 11.4\text{dB (min)}$
- Drain efficiency:  $\eta_D = 60\% \text{ (min)}$

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

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DSS}$	20	V
Gain-source voltage	$V_{GSS}$	$\pm 5$	V
Drain current	$I_D$	3	A
Power dissipation	$P_D$ (Note 1)	20	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)

## Marking

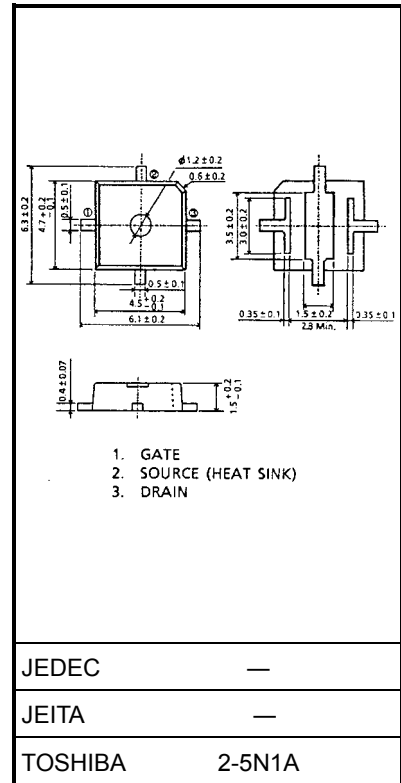


1. Gate
2. Source (heat sink)
3. Drain

## Caution

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

Unit: mm



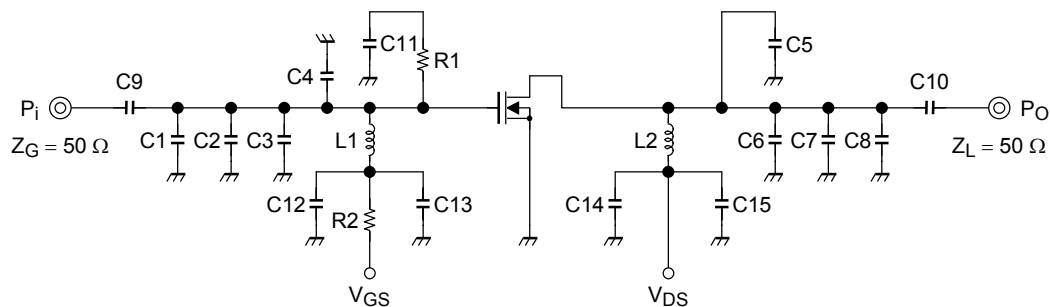
## Electrical Characteristics (Ta = 25°C)

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	$P_O$	$V_{DS} = 7.2 \text{ V},$ $I_{idle} = 500 \text{ mA} (V_{GS} = \text{adjust}),$ $f = 520 \text{ MHz}, P_i = 500 \text{ mW},$	7	—	—	W
Drain efficiency	$\eta_D$		60	—	—	%
Power gain	$G_p$		11.4	—	—	dB
Low voltage output power	$P_{OL}$	$V_{DS} = 6.0 \text{ V},$ $I_{idle} = 500 \text{ mA} (V_{GS} = \text{adjust}),$ $f = 520 \text{ MHz}, P_i = 500 \text{ mW},$	5	—	—	W
Load mismatch	—	$V_{DS} = 10 \text{ V}, P_O = 7 \text{ W},$ $V_{GS} = \text{adjust}, P_i = \text{adjust},$ $f = 520 \text{ MHz},$ $V_{SWR} \text{ LOAD } 20:1 \text{ all phase}$	No degradation			

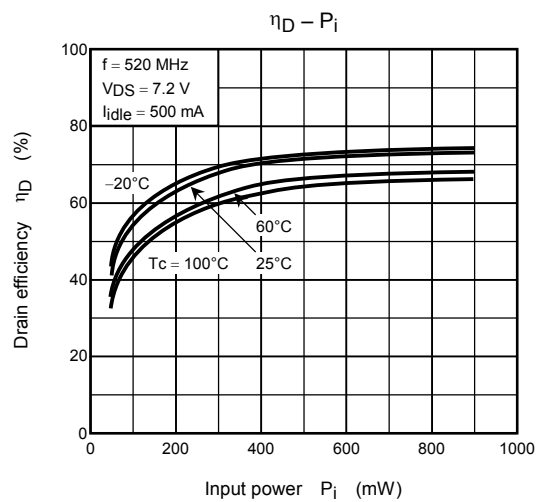
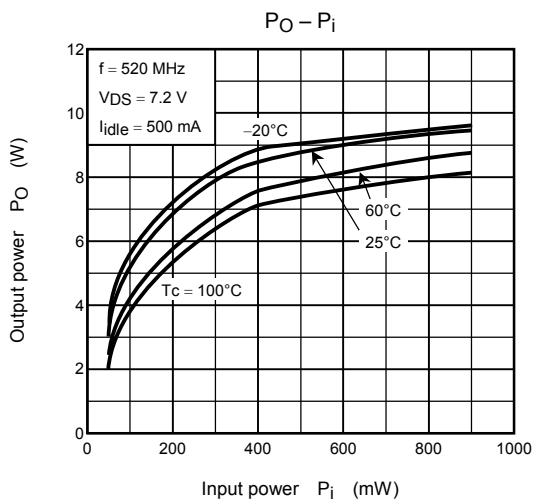
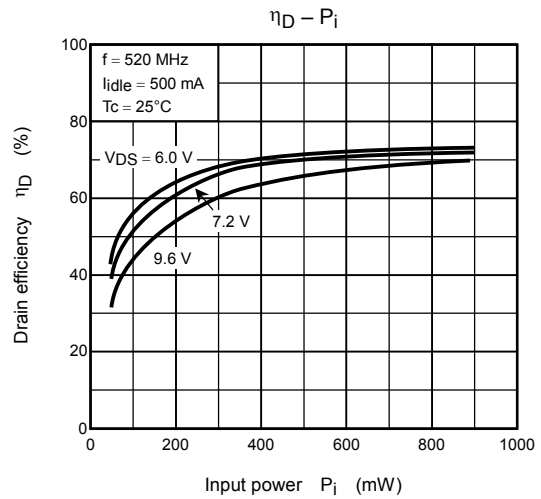
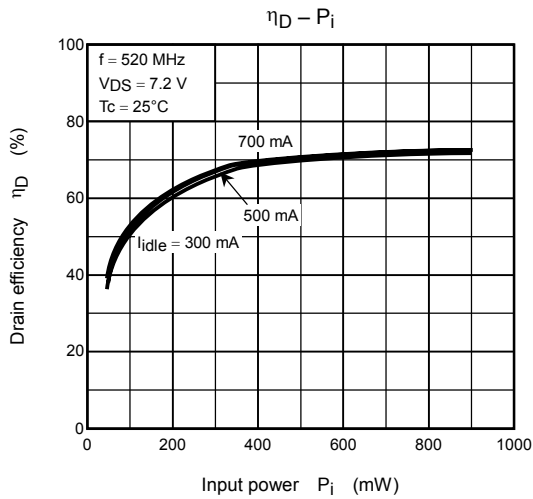
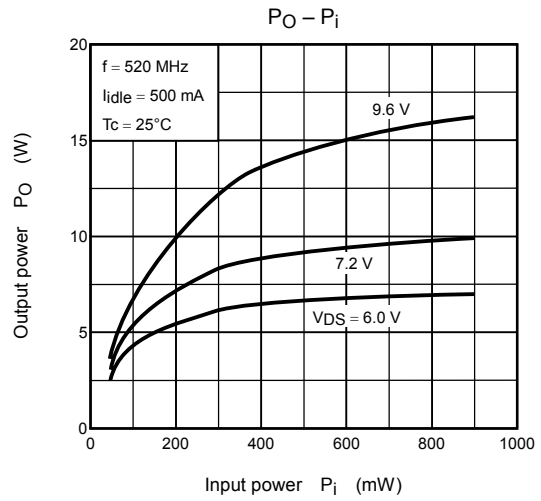
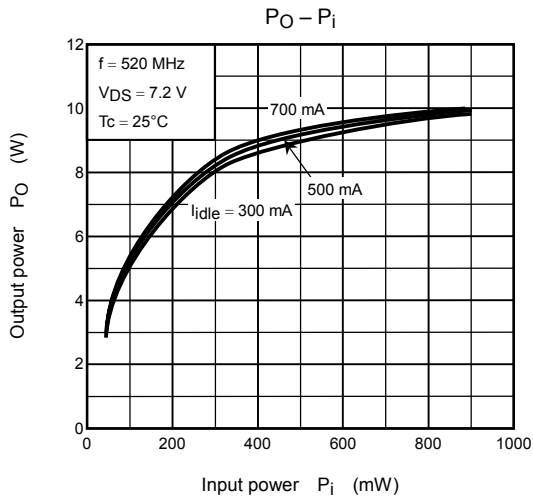
Note 1: These characteristic values are measured using measurement tools specified by Toshiba.

### 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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