

# 2SK3475

VHF- and UHF-band Amplifier Applications

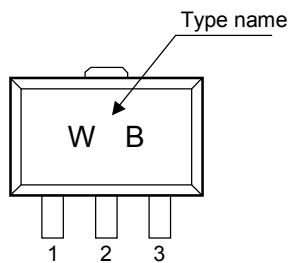
- Output power:  $P_O = 630 \text{ mW (min)}$
- Gain:  $G_p = 14.9\text{dB (min)}$
- Drain efficiency:  $\eta_D = 45\% \text{ (min)}$

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

Characteristics	Symbol	Rating	Unit
Drain-source voltage	$V_{DSS}$	20	V
Gain-source voltage	$V_{GSS}$	$\pm 5$	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)

### Marking

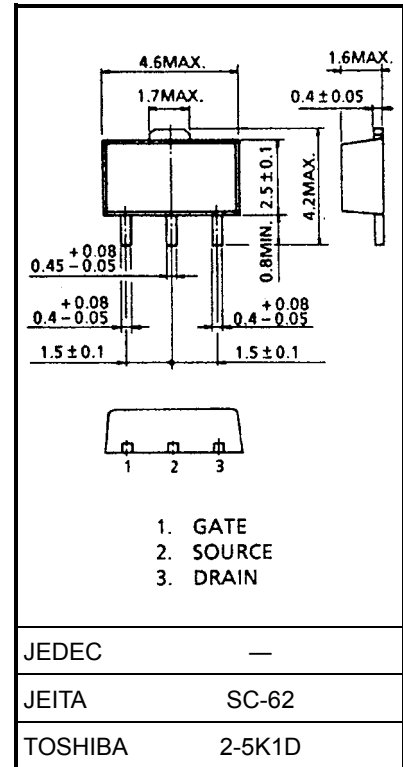


1. Gate
2. Source
3. Drain

### Caution

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

Unit: mm



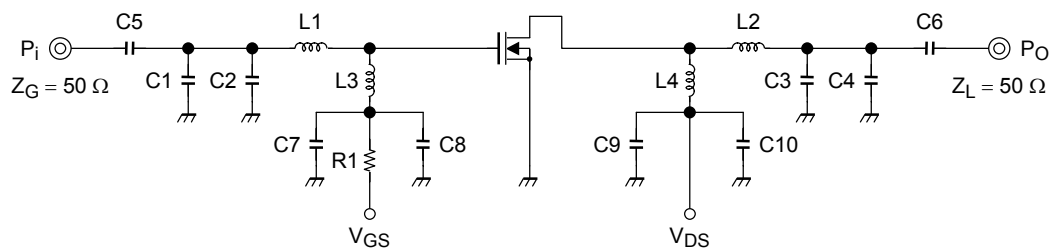
## Electrical Characteristics (Ta = 25°C)

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	$V_{th}$	$V_{DS} = 7.2\text{ V}, I_D = 2\text{ mA}$	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	$\eta_D$		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

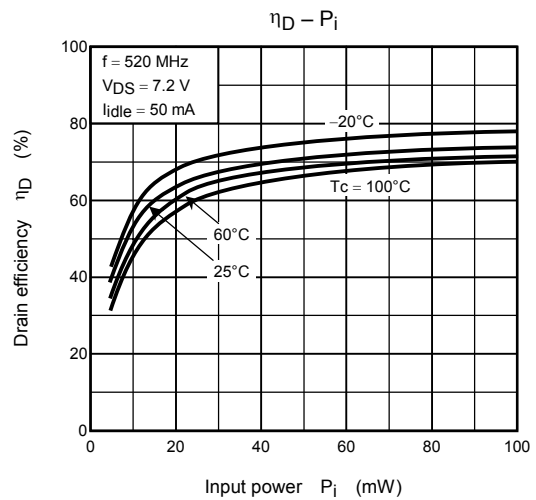
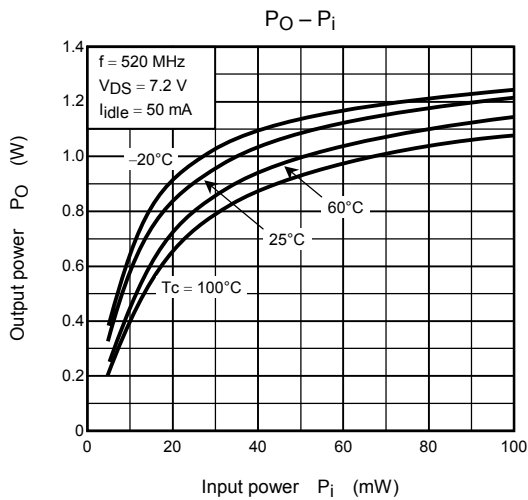
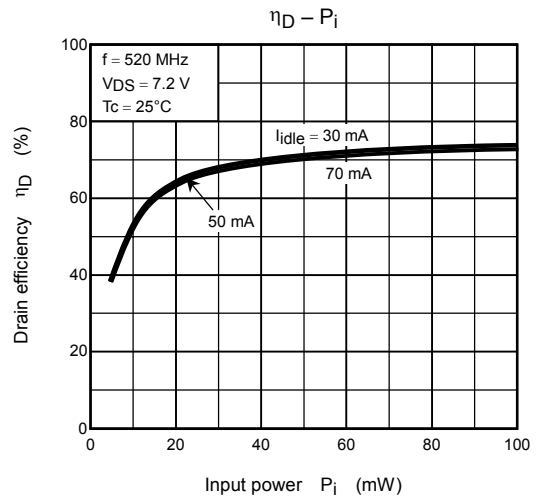
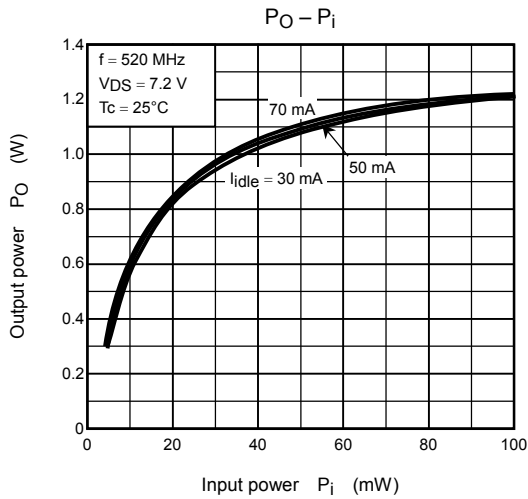
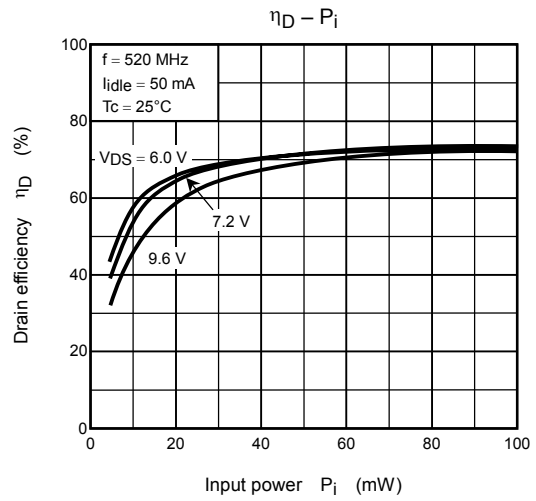
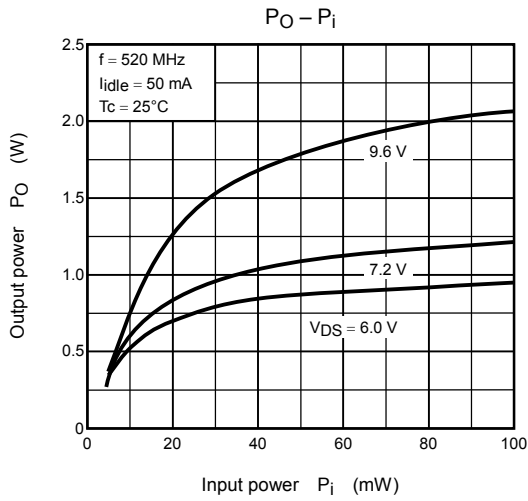
Note 1: These characteristic values are measured using measurement tools specified by Toshiba.

### Output Power Test Fixture

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



- |                      |   |                    |
|----------------------|---|--------------------|
| C1: 10 pF            | L1: $\phi 0.8\text{ mm}$ enamel wire, 2.2ID, 1T | R1: 1.5 k $\Omega$ |
| 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 $\mu\text{F}$ |   |                    |
| C8: 10000 pF         |   |                    |
| C9: 10 $\mu\text{F}$ |   |                    |
| C10: 10000 pF        |   |                    |



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

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