

TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

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.

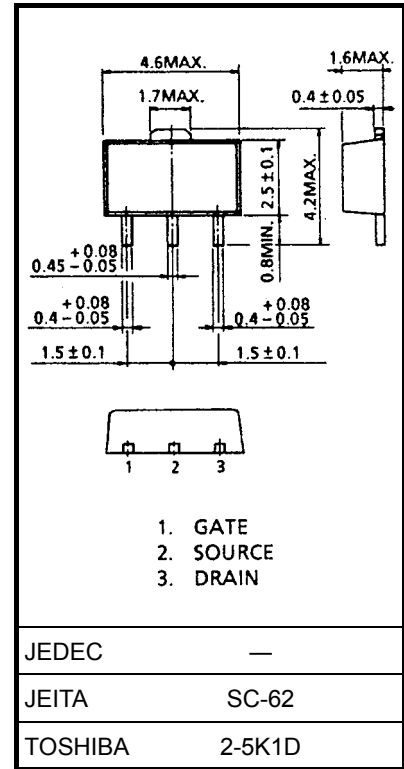
- Output power: $P_O = 630 \text{ mW (min)}$
- Gain: $G_P = 14.9 \text{ dB (min)}$
- Drain efficiency: $\eta_D = 45\% \text{ (min)}$

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

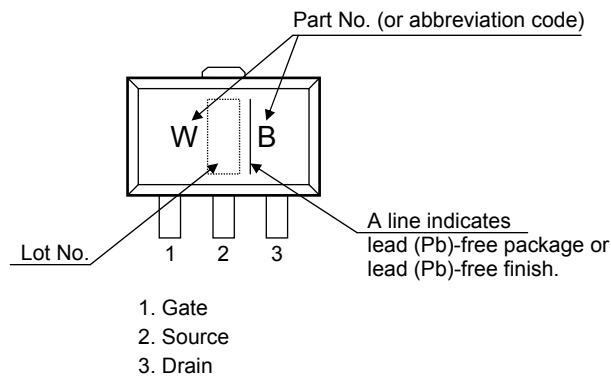
Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	20	V
Gain-source voltage	V_{GSS}	10	V
Drain current	I_D	1	A
Power dissipation	P_D (Note 1)	3	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-45~150	$^\circ\text{C}$

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.

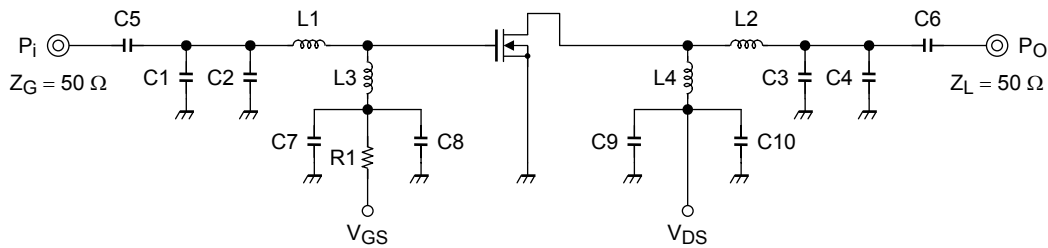
Electrical Characteristics (Ta = 25°C)

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

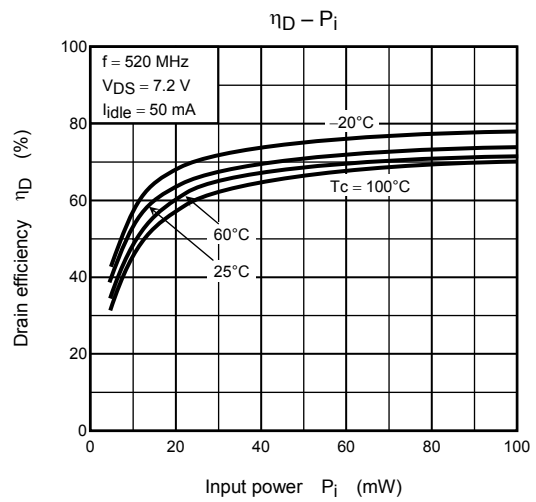
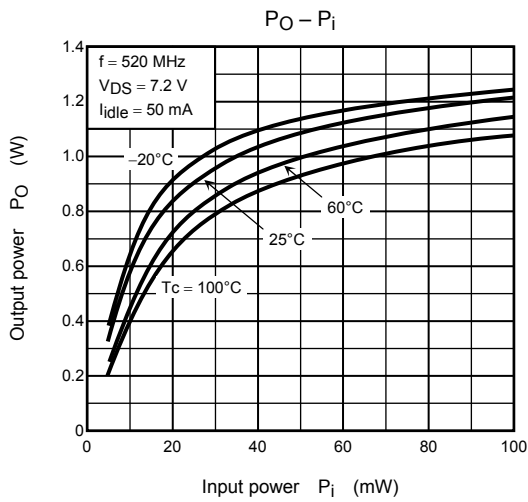
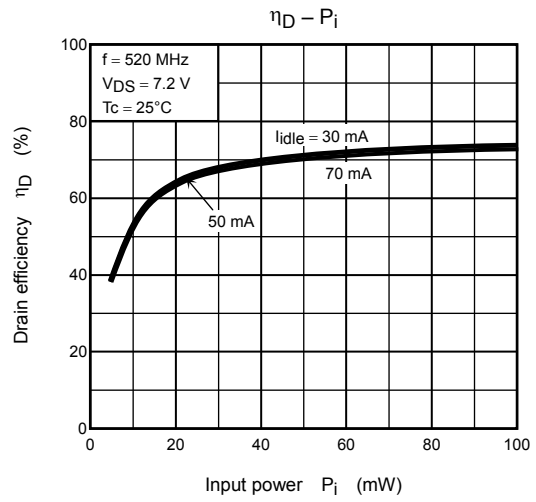
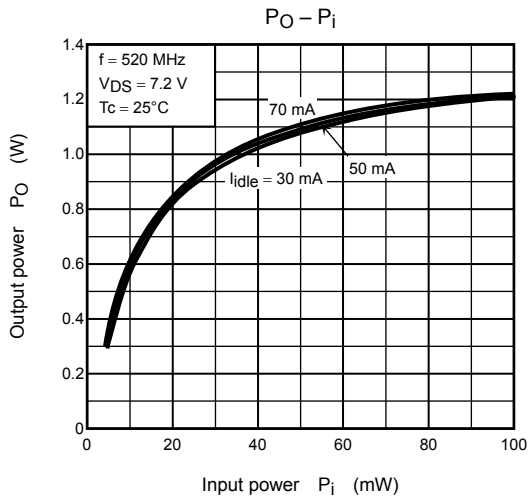
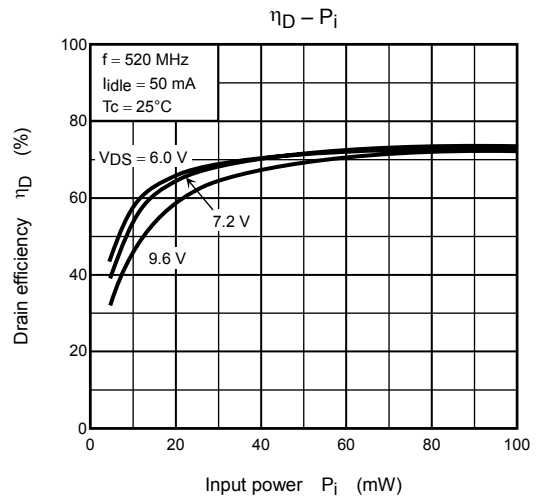
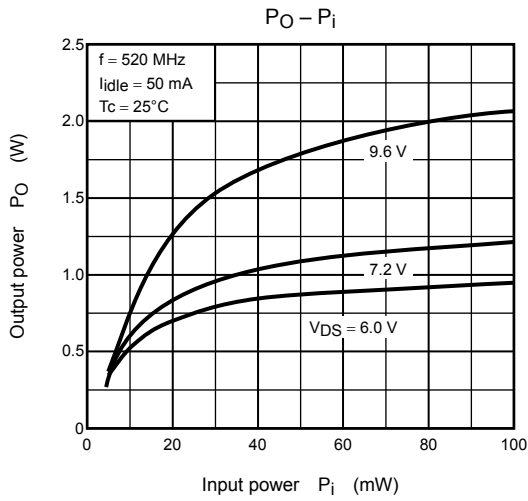
Note 2: These characteristic values are measured using measurement tools specified by Toshiba.

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



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

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