TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

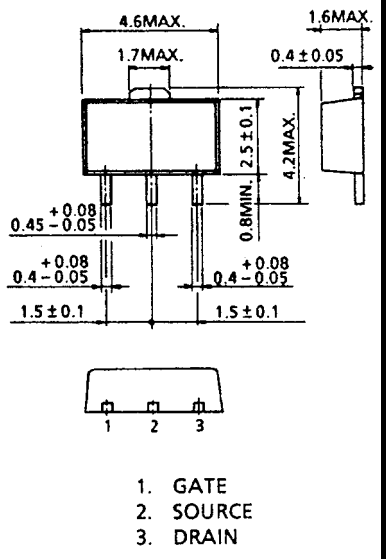
2SK3475

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 mW (min)
- Gain: G_P = 14.9dB (min)
- Drain efficiency: η_D = 45% (min)

Unit: mm



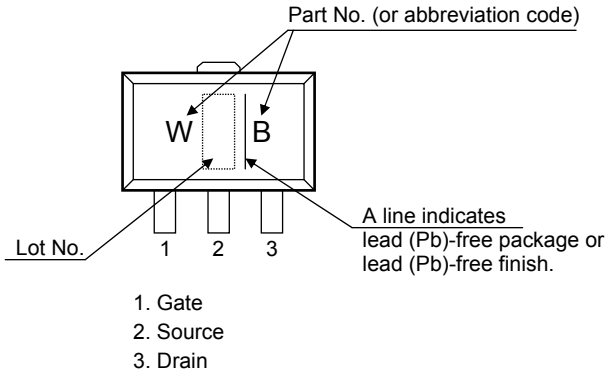
JEDEC	—
JEITA	SC-62
TOSHIBA	2-5K1D

Maximum Ratings (Ta = 25°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	°C
Storage temperature range	T_{stg}	−45~150	°C

Note 1: Tc = 25°C (When mounted on a 1.6 mm glass epoxy PCB)

Marking



Caution: This device is sensitive to electrostatic discharge.

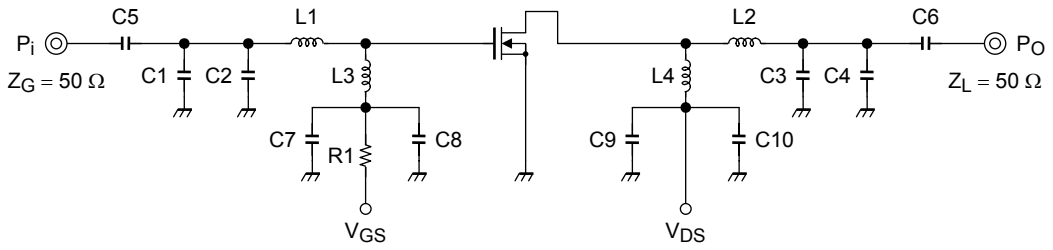
Please make enough tool and equipment earthed when you handle.

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Drain cut-off current	I_{DSS}	V_{DS} = 20 V, V_{GS} = 0 V	—	—	5	μA
Gate-source leakage current	I_{GSS}	V_{GS} = 10 V	—	—	5	μA
Threshold voltage	V_{th}	V_{DS} = 7.2 V, I_D = 2 mA	1.9	2.4	2.9	V
Drain-source on-voltage	$V_{DS\ (ON)}$	V_{GS} = 10 V, I_D = 75 mA	—	87	—	mV
Forward transconductance	Y_{fs}	V_{DS} = 7.2 V, I_{DS} = 208 mA	—	260	—	mS
Input capacitance	C_{iss}	V_{DS} = 7.2 V, V_{GS} = 0 V, f = 1 MHz	—	11	—	pF
Output capacitance	C_{oss}	V_{DS} = 7.2 V, V_{GS} = 0 V, f = 1 MHz	—	12.5	—	pF
Output power	P_O	V_{DS} = 7.2 V, I_{idle} = 50 mA (V_{GS} = adjust), f = 520 MHz, P_i = 20 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 V, I_{idle} = 50 mA (V_{GS} = adjust), f = 520 MHz, P_i = 20 mW,	500	—	—	mW

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

Output Power Test Fixture
(Test Condition: f = 520 MHz, V_{DS} = 7.2 V, I_{idle} = 50 mA, P_i = 20 mW)

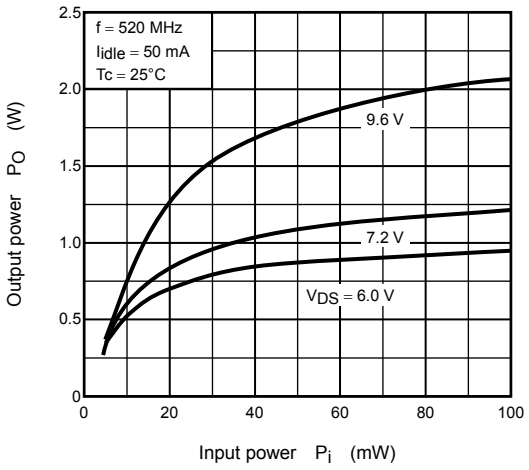


C1: 10 pF
C2: 10 pF
C3: 9 pF
C4: 6 pF
C5: 2200 pF
C6: 2200 pF
C7: 10 μF
C8: 10000 pF
C9: 10 μF
C10: 10000 pF

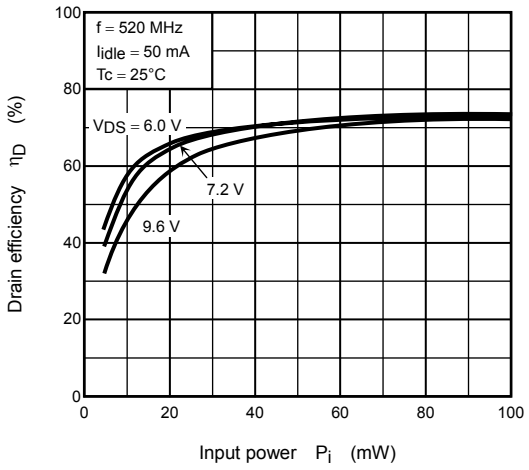
L1: ϕ0.8 mm enamel wire, 2.2ID, 1T
L2: ϕ0.8 mm enamel wire, 2.2ID, 1T
L3: ϕ0.8 mm enamel wire, 5.5ID, 4T
L4: ϕ0.8 mm enamel wire, 5.5ID, 8T

R1: 1.5 kΩ

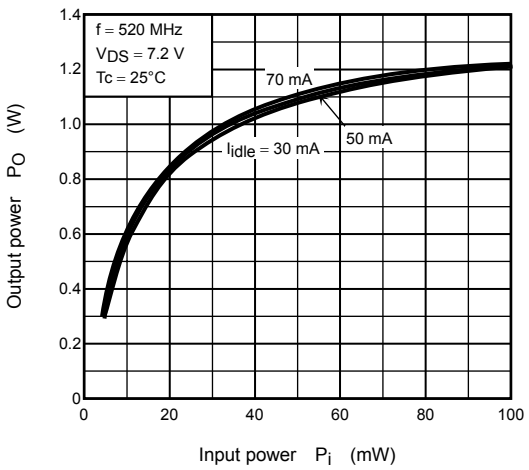
$P_O - P_i$



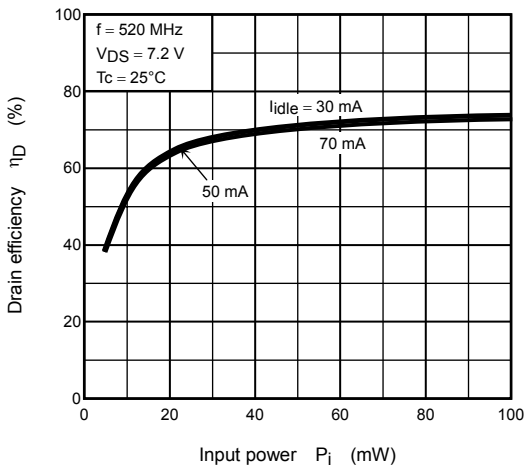
$\eta_D - P_i$



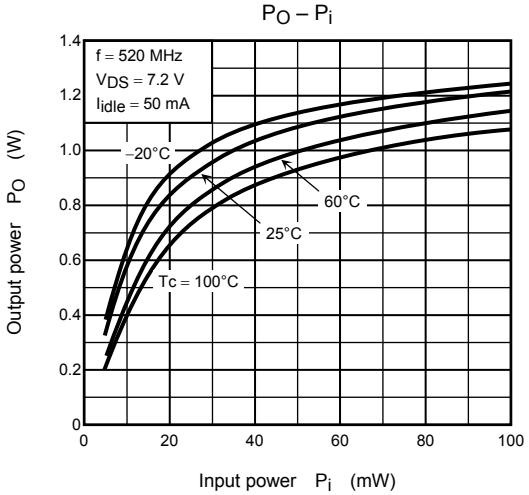
$P_O - P_i$



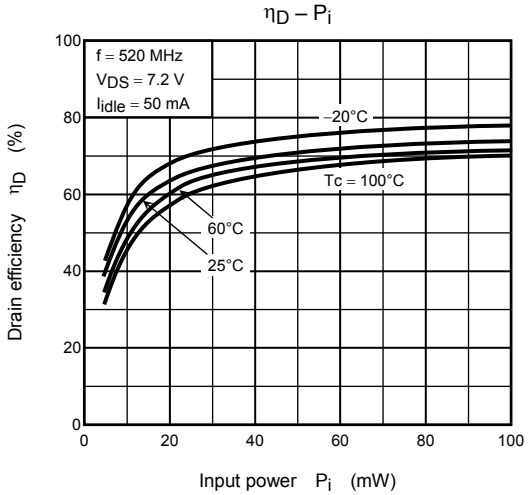
$\eta_D - P_i$



$P_O - P_i$



$\eta_D - P_i$



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

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