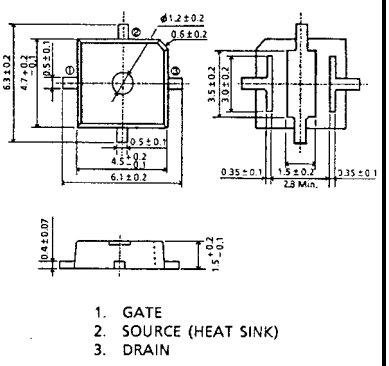
TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

2SK3476

VHF- and UHF-band Amplifier Applications

Unit: mm

- Output power: P_O = 7.0 W (min)
- Gain: G_P = 11.4dB (min)
- Drain efficiency: η_D = 60% (min)



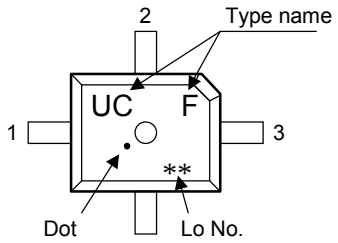
JEDEC	—
JEITA	—
TOSHIBA	2-5N1A

Maximum Ratings (Ta = 25°C)

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



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

Caution

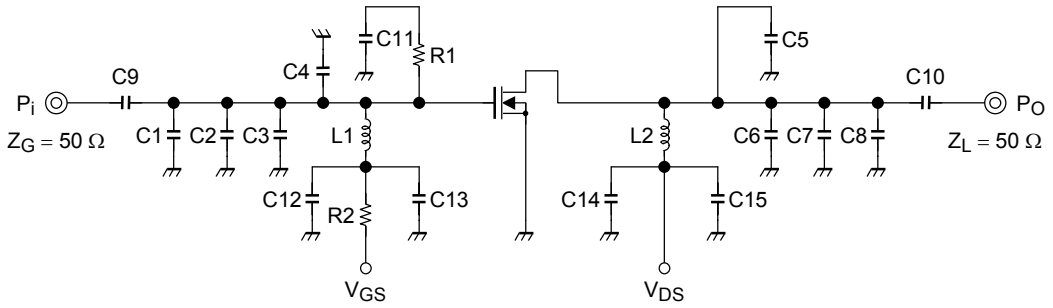
Please take care to avoid generating static electricity when handling this transistor.

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	0.55	1.05	1.55	V
Drain-source on-voltage	$V_{DS\ (ON)}$	V_{GS} = 10 V, I_D = 75 mA	—	18	—	mV
Forward transconductance	Y_{fs}	V_{DS} = 7.2 V, I_{DS} = 1 A	—	1	—	S
Input capacitance	C_{iss}	V_{DS} = 7.2 V, V_{GS} = 0 V, f = 1 MHz	—	53	—	pF
Output capacitance	C_{oss}	V_{DS} = 7.2 V, V_{GS} = 0 V, f = 1 MHz	—	49	—	pF
Output power	P_O	V_{DS} = 7.2 V, I_{idle} = 500 mA (V_{GS} = adjust), f = 520 MHz, P_i = 500 mW,	7	—	—	W
Drain efficiency	η_D		60	—	—	%
Power gain	G_P		11.4	—	—	dB
Low voltage output power	P_{OL}	V_{DS} = 6.0 V, I_{idle} = 500 mA (V_{GS} = adjust), f = 520 MHz, P_i = 500 mW,	5	—	—	W
Load mismatch	—	V_{DS} = 10 V, P_O = 7 W, V_{GS} = adjust, P_i = adjust, f = 520 MHz, VSWR LOAD 20:1 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 MHz, V_{DS} = 7.2 V, I_{idle} = 500 mA, P_i = 500 mW)

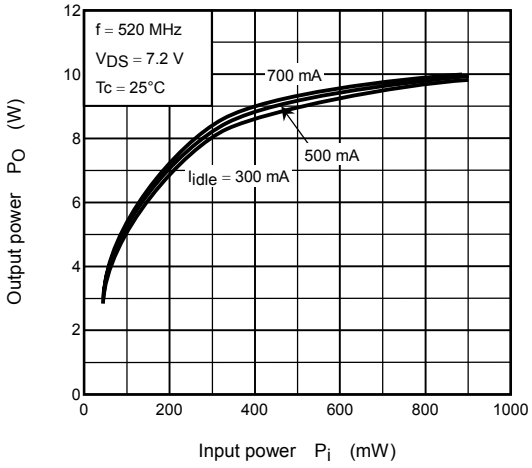


C1: 15 pF
C2: 11 pF
C3: 9 pF
C4: 30 pF
C5: 30 pF
C6: 11 pF
C7: 8 pF
C8: 9 pF
C9: 2200 pF
C10: 2200 pF
C11: 2200 pF
C12: 10000 pF
C13: 10 μF
C14: 10000 pF
C15: 10 μF

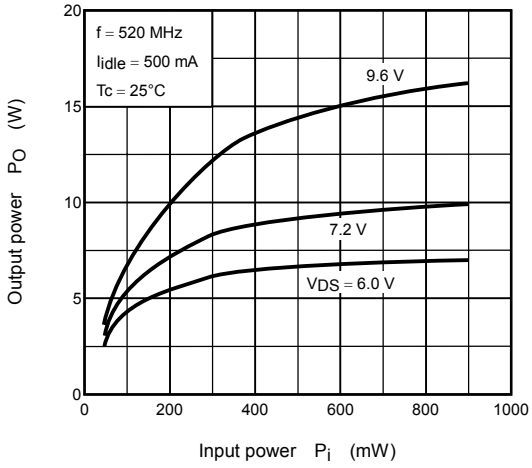
L1: ϕ0.6 mm enamel wire, 5.8ID, 4T
L2: ϕ0.6 mm enamel wire, 5.8ID, 8T

R1: 2.2 Ω
R2: 1.5 kΩ

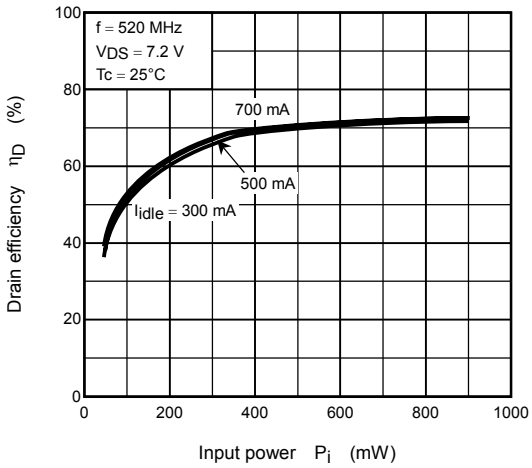
$P_O - P_i$



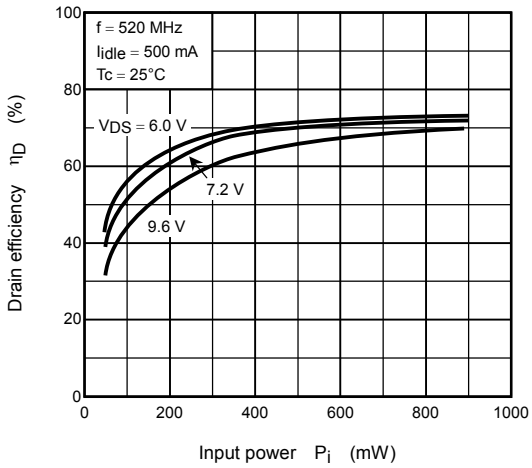
$P_O - P_i$



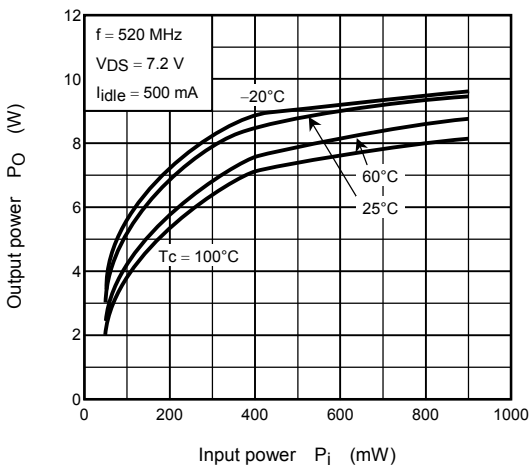
$\eta_D - P_i$



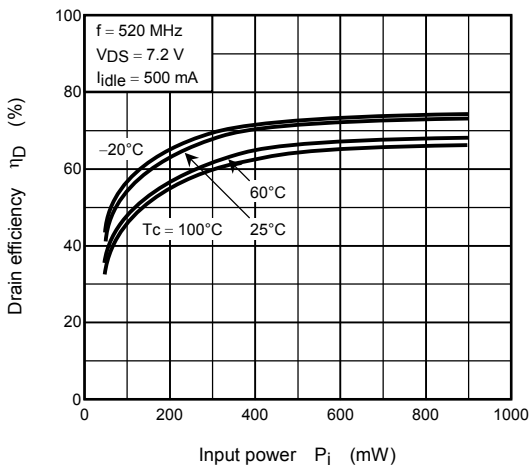
$\eta_D - P_i$



$P_O - P_i$



$\eta_D - P_i$



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

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