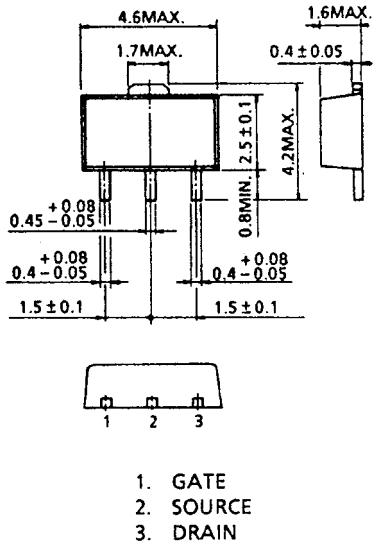
TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

2SK3078A

VHF/UHF Band Amplifier Applications

- Output power: $P_o \geq 28.0$dBmW
- Gain: $G_p \geq 8.0$dB
- Drain Efficiency: $\eta D \geq 50\%$

Unit: mm



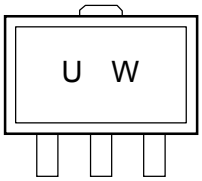
JEDEC	—
JEITA	SC-62
TOSHIBA	2-5K1D

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	10	V
Gate-source voltage	V_{GSS}	5	V
Drain current	I_D	0.5	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

Marking



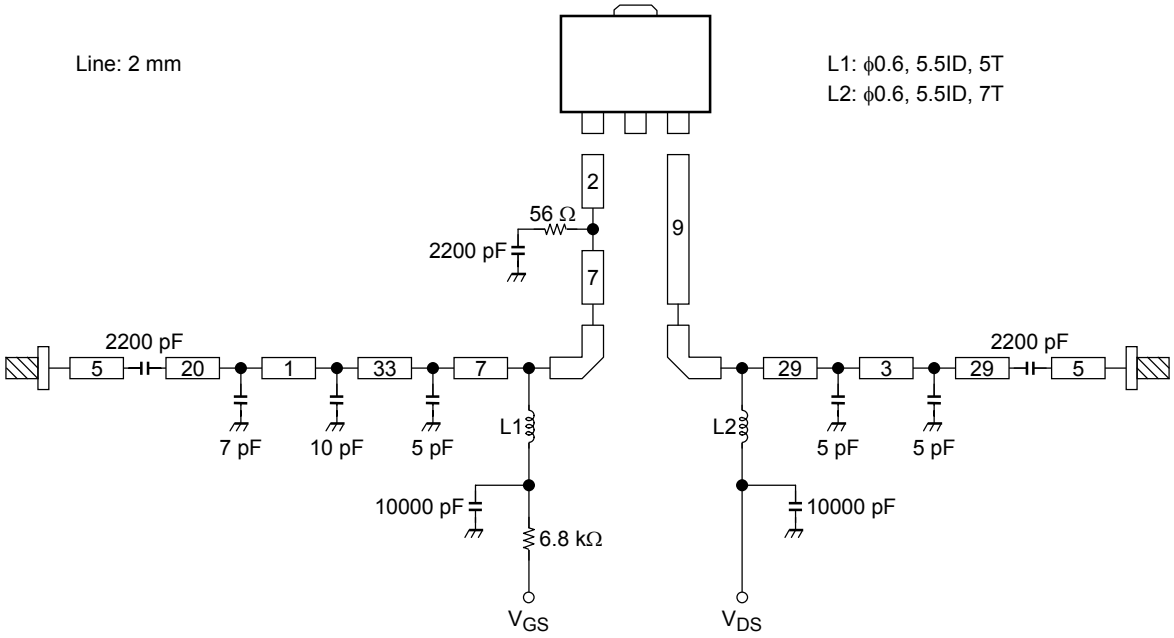
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Output power	P_O	V_{DS} = 4.5 V, Iidle = 50 mA (V_{GS} = adjust) f = 470 MHz, P_i = 20dBmW $Z_G = Z_L$ == 50 Ω	28.0	—	—	dBmW
Drain efficiency	ηD		50	—	—	%
Power gain	G_p		8.0	—	—	dB
Threshold voltage	V_{th}	V_{DS} = 4.8 V, I_D = 0.5 mA	0.20	—	1.20	V
Drain cut-off current	I_{DSS}	V_{DS} = 10 V, V_{GS} = 0 V	—	—	10	μA
Gate-source leakage current	I_{GSS}	V_{GS} = 5 V, V_{DS} = 0 V	—	—	5	μA
Load mismatch (Note 2)	—	V_{DS} = 6.5 V, f = 470 MHz, P_i = 20dBmW, P_o = 28.0dBmW (V_{GS} = adjust) VSWR LOAD 10:1 all phase	No degradation			—

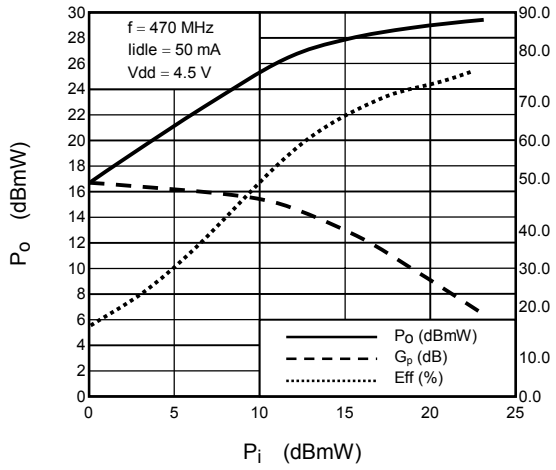
Caution: This transistor is the electrostatic sensitive device. Please handle with caution.

Note 2: When the RF output power test fixture is used

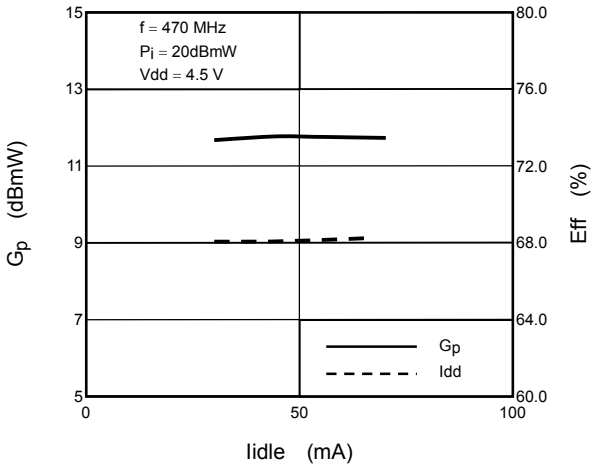
PF Output Power Test Fixture



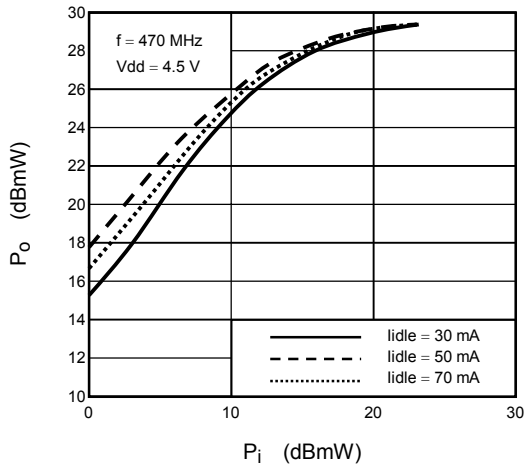
$P_i - P_o$, G_p, Eff



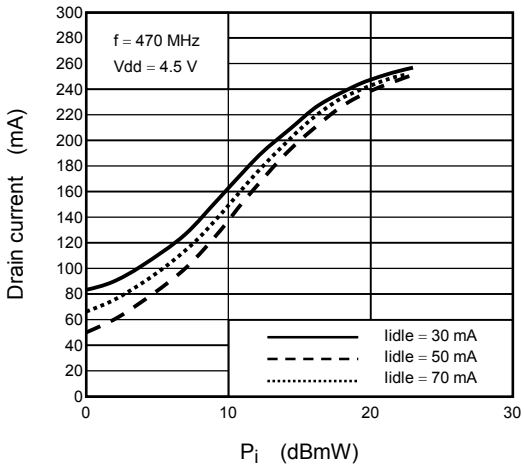
Iidle – G_p, Eff



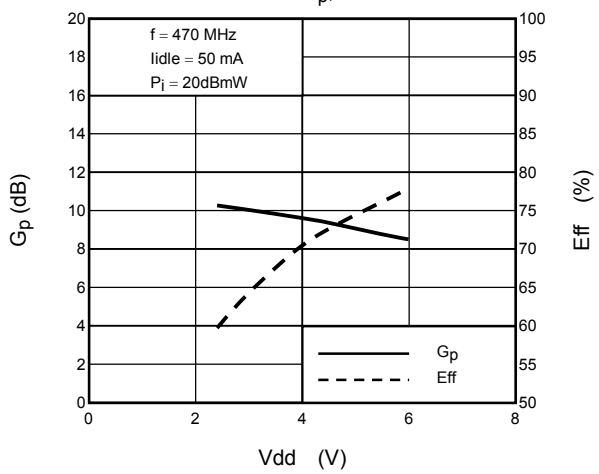
$P_i - P_o$



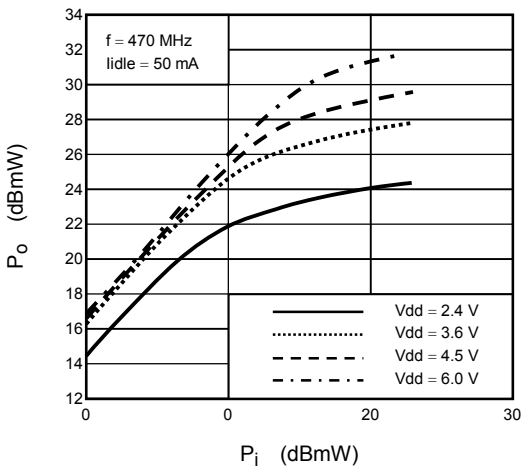
P_i – Idd

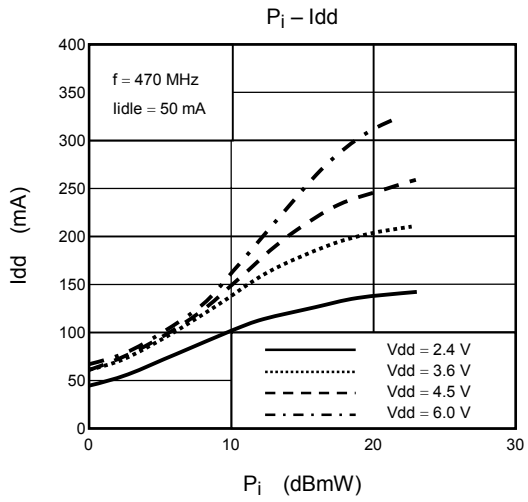


Vdd – G_p, Eff



$P_i - P_o$





Caution: These are typical curves and devices are not necessarily guaranteed at these curves.

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