TOSHIBA Field Effect Transistor Silicon N Channel MOS Type

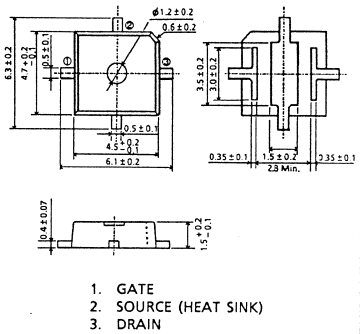
2SK3079A

470 MHz 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 = 33.50dBmW (2.2 W) (min)
- Gain: G_p = 13.50dB (min)
- Drain Efficiency: ηD = 50.0% (min)

Unit: mm



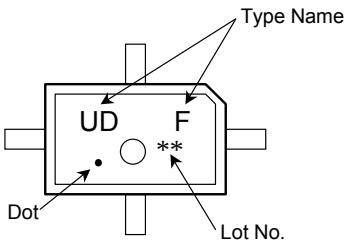
JEDEC	—
JEITA	—
TOSHIBA	2-5N1A

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Drain-source voltage	V_{DSS}	10	V
Gate-source voltage	V_{GSS}	3	V
Drain current	I_D	3	A
Power dissipation	P_D (Note 1)	20.0	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.

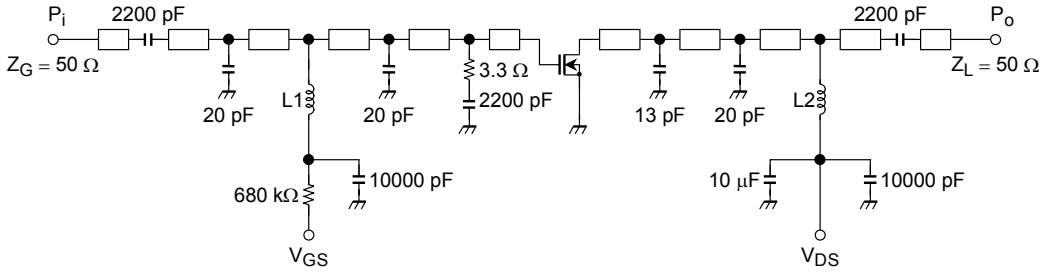
Please make enough tool and equipment earthed when you handle.

Electrical Characteristics (Ta = 25°C)

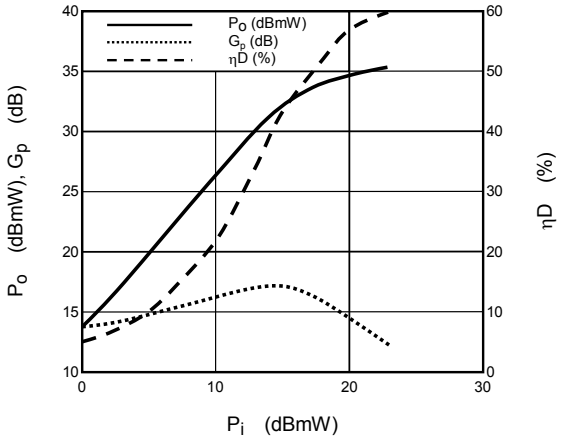
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Output power	P_O	V_{DS} = 4.5 V, Iidle = 50 mA (V_{GS} = adjust) f = 470 MHz, P_i = 20dBmW $Z_G = Z_L = 50\ \Omega$	33.5	—	—	dBmW
Drain efficiency	η_D		50.0	—	—	%
Power gain	G_p		13.5	—	—	dB
Threshold voltage	V_{th}	V_{DS} = 4.5 V, I_D = 0.5 mA	—	0.8	—	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} = 5 V, f = 470 MHz, P_i = 20dBmW, P_o = 33.5dBmW (V_{GS} = adjust) VSWR LOAD 10:1 all phase	No degradation			—

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

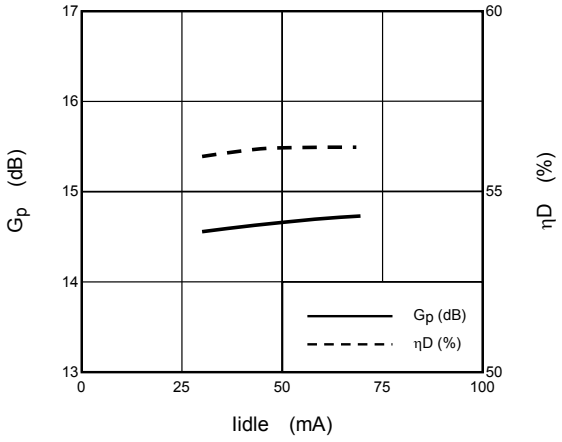
Test Circuit



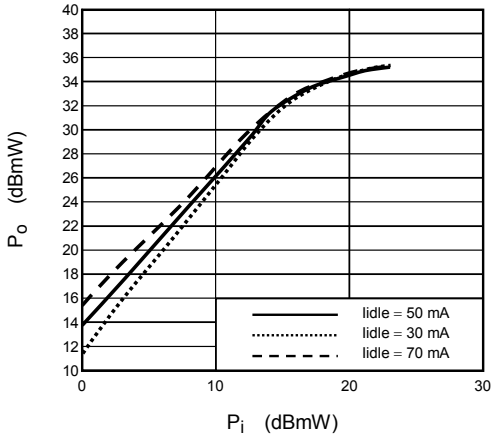
P_i – P_o, G_p, ηD
(f = 470 MHz, Iidle = 50 mA, V_{ds} = 4.5 V, Tc = 25°C)



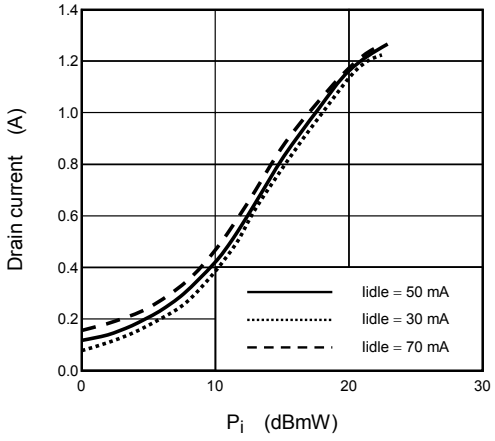
Iidle – G_p, ηD
(f = 470 MHz, P_i = 20dBmW, V_{ds} = 4.5 V, Tc = 25°C)



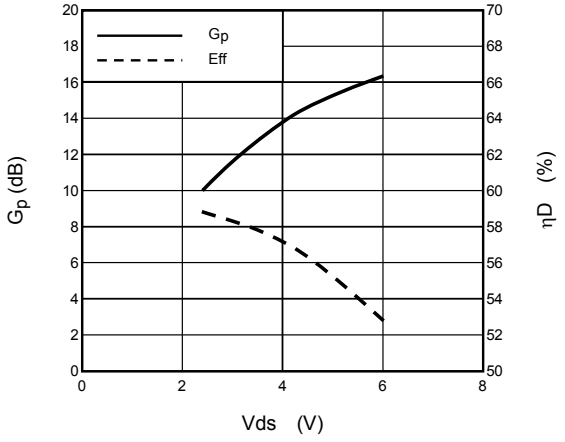
P_i – P_o
(f = 470 MHz, V_{ds} = 4.5 V, Tc = 25°C)



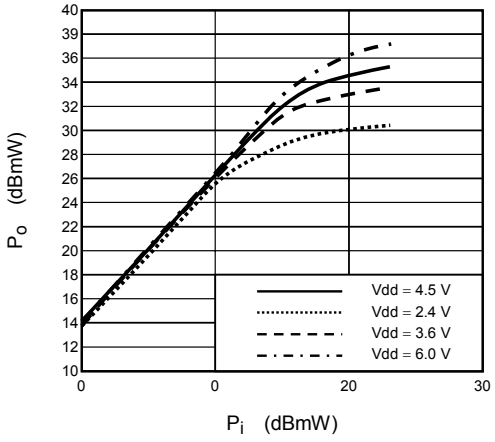
P_i – Ids
(f = 470 MHz, V_{ds} = 4.5 V, Tc = 25°C)

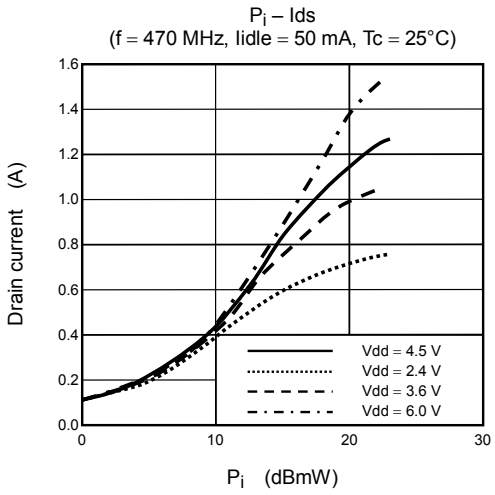


Vds – G_p, ηD
(f = 470 MHz, P_i = 20dBmW, Iidle = 50 mA, Tc = 25°C)



P_i – P_o
(f = 470 MHz, Iidle = 50 mA, Tc = 25°C)





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

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